

F.No. AERA/20010/MYTP/DIAL/CP-III/2018-19/VOL-I

CONSULTATION PAPER NO: 15/2020-21



सत्यमेव जयते

AIRPORTS ECONOMIC REGULATORY AUTHORITY OF INDIA

**IN THE MATTER OF
DETERMINATION OF AERONAUTICAL TARIFF FOR
INDIRA GANDHI INTERNATIONAL AIRPORT, DELHI (DEL)
FOR THE THIRD CONTROL PERIOD
(01.04.2019 – 31.03.2024)**

DATE OF ISSUE: 09th June, 2020

**AERA BUILDING
ADMINISTRATIVE COMPLEX
SAFDARJUNG AIRPORT
NEW DELHI 110003**

STAKEHOLDER COMMENTS

The Authority is aware of the fact that the Aviation Sector is undergoing unprecedented turbulence and uncertainty on account of the COVID-19 global pandemic and the associated lockdown situation in the major cities around the world which has resulted in restrictions in air travel both domestic and international. Authority has released this Consultation Paper currently in which the proposals have been put forward based on Authority's analysis and observations on the Multi Year Tariff Proposal (MYTP) submitted by the Airport Operator. The Authority on account of the expected substantial changes in the prevailing business scenario, including the changes in traffic projections and capacity enhancement (CAPEX) going forward, shall consider revised submissions by the Airport Operator at the time of Stakeholders' Consultation process to form a final view on the various aspects forming part of the tariff determination process.

Thus, in accordance with the provisions of Section 13(4) of the AERA Act, the written comments on Consultation Paper No. 15/2020-21 dated 09/06/2020 are invited from the Stakeholders, preferably in electronic form, at the following address;

Director (P&S, Tariff)
Airports Economic Regulatory Authority of India (AERA),
AERA Administrative Complex,
Safdarjung Airports, New Delhi – 110002, India
Email: gita.sahu@era.gov.in and copy to director-ps@era.gov.in

Last Date for submission of comments: 08/07/2020

Last Date for submission of counter comments: 22/07/2020

Comments and counter comments will be posted on AERA website www.era.gov.in

For any clarification/information, Director (P&S, Tariff) may be contacted at Telephone Number:

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LIST OF ABBREVIATIONS

Abbreviation	Expansion
AAI	Airports Authority of India
ACLCLC	Air Cargo Logistic Facility
ADRM	Airport Development Reference Manual
AERA	Airports Economic Regulatory Authority of India
AF	Annual Fee
AGL	Aeronautical Ground Lighting
AHU	Air Handling Unit
AOCC	Airport Operation Control Centre
AoT	Airports of Thailand
AR	Actual Aero Revenue realised
ARFF	Aircraft Rescue and Fire Fighting
ARR	Aggregate Revenue Requirement
AS	Accounting Standard
ASQ	Airport Service Quality
ATC	Air Traffic Control
ATM	Air Traffic Movement
ATRS	Automatic Tray Retrieval System
AVSEC	Aviation Security
BAC	Base Airport Charges
BCAS	Bureau of Civil Aviation Security
BDE	Book Debt Equity ratio
BHS	Baggage Handling System
BIAL	Bangalore International Airport Limited
BME	Bridge Mounted Equipment
CAGR	Compounded Annual Growth Rate
CAM	Common Area Management
CAPM	Capital Asset Pricing Model
CISF	Central Industrial Security Force
CMS	Control and Monitoring System
CP1	Control Period 1
CP2	Control Period 2
CPD	Commercial Property Development
CPI	Consumer Price Index
CPWD	Central Public Works Department
Cr.	Crore
CSIA	Chhatrapati Shivaji International Airport
CSR	Corporate Social Responsibility
CUPPS	Common Use Passenger Processing Systems

Abbreviation	Expansion
CUSS	Common User Self Service
CUTE	Common User Terminal Equipment
CWIP	Capital Work in Progress
DAFFPL	Delhi Aviation Fuel Facility Private Limited
DER	Debt Equity Ratio
DF	Development Fee
DGCA	Directorate General of Civil Aviation
DIAL	Delhi International Airport Private Limited
DSR	Delhi Schedule Rate
EBS	Early Baggage Storage
ECB	External Commercial Borrowing
EIL	Engineers India Limited
EPC	Engineering, Procurement and Construction
EPOS	Electronic Point of Sale
ERP	Equity Risk Premium
FBO	Fixed Base Operator
FCP	First Control Period
FIDS	Flight Information Display System
FRoR	Fair Rate of Return
FSC	Full Service Carrier
FY	Financial Year
GoI	Government of India
GoNCT	Government of National Capital Territory of Delhi
GST	Goods and Services Tax
GTR	Gross Target Revenue
HOTO	Hand Over - Take Over
HRAB	Hypothetical Regulatory Asset Base
HVAC	Heating, Ventilation and Air Conditioning
IATA	International Air Transport Association
IBMS	Integrated Building Management System
ICAO	International Civil Aviation Organization
ICWAI	The Institute of Cost & Works Accountants of India
IDC	Interest During Construction
IGIA	Indira Gandhi International Airport
IMG	Inter-Ministerial Group
IRR	Internal Rate of Return
IRS	Internal Revenue Service
IT	Information Technology
ITP	Fuel Into Plane

Abbreviation	Expansion
JV	Joint Venture
KM	Kilometre
L&B	Landrum & Brown
L&T	Larsen & Toubro
LCC	Low Cost Carrier
LED	Light Emitting Diode
LOS	Level of Service
MAHB	Malaysia Airport Holdings Berhad
MAT	Minimum Alternate Tax
MATV	Master Antenna TV
MCLR	Marginal Cost of Lending Rate
MDE	Market Debt Equity ratio
MEP	Mechanical, Electrical and Plumbing
MIAL	Mumbai International Airport Limited
MLCP	Multi-Level Car Park
Mn	Million
MoCA	Ministry of Civil Aviation
MPAS	Mobile Phone Antenna Systems
MPPA	Million Passengers Per Annum
MRO	Maintenance, Repair and Overhaul
MYTP	Multi Year Tariff Proposal
NACO	Netherlands Airport Consultants
NCR	National Capital Region
NGT	National Green Tribunal
NPV	Net Present Value
NTP	North Terminal Precinct
NTR	Net Target Revenue
NUB	New Udaan Bhavan
O&M	Operations & Maintenance
OMDA	Operation, Management and Development Agreement
OPEX	Operational Expenditure
pax	Passengers
PBT	Profit Before Tax
PCN	Pavement Classification Number
PMC	Project Management Consultancy
PSU	Public Sector Undertaking
PSW	Proximity Score Weighted
PV	Present Value
R&M	Repairs and Maintenance

Abbreviation	Expansion
RAB	Regulatory Asset Base
RBI	Reserve Bank of India
RET	Rapid Exit Taxiways
R_f	Risk Free Rate
RFP	Request For Proposal
Rs.	Rupees
RSD	Refundable Security Deposit
RTL	Rupee Term Loan
RWY	Runway
SCADA	Supervisory Control and Data Acquisition
SCP	Second Control Period
SLM	Straight Line Method
SOP	Standard Operating Procedure
SSA	State Support Agreement
TCP	Third Control Period
TDSAT	Telecom Disputes Settlement and Appellate Tribunal
TMRS	Tetra Mobile Radio Systems
TR	Target Revenue
UDF	User Development Fee
UFIS	Universal Flight Information System
UPS	Uninterrupted Power Supply
USD	United States Dollars
VAT	Value Added Tax
VHT	Vertical Horizontal Traveller
VOR	VHF Omnidirectional Range
VRS	Voluntary Retirement Scheme
WACC	Weighted Average Cost of Capital
WAISL	Wipro Airport IT Services Limited
WDV	Written Down Value
YoY	Year-on-Year

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1 BACKGROUND

1.1 Introduction

- 1.1.1 Delhi International Airport Private Limited (DIAL), was incorporated on 1st March 2006 with AAI retaining 26% equity stake and balance 74% of equity capital acquired by members of the GMR consortium. The GMR consortium comprised GMR Group entities, Fraport AG, Malaysia Airports Holdings Bhd. and India Development Fund (which exited the consortium subsequently). On 4th April 2006, DIAL signed the Operation, Management and Development Agreement (OMDA) with AAI and took over the operations of the Indira Gandhi International Airport (IGIA) on 3rd May 2006.
- 1.1.2 The OMDA has a term of 30 years, with DIAL having a right to extend the agreement for a further period of 30 years, subject to its satisfactory performance under the various provisions governing the arrangement between DIAL and AAI. In addition to OMDA, DIAL has also entered into the State Support Agreement (SSA) with GoI on 26th April 2006 which outlined the support from GoI and has also mentioned the principles of tariff determination to be adhered by the economic regulatory body for airports. Besides OMDA and SSA, the airport operator has also entered into other agreements with the state government and other agencies in order to complete the project and provide various services at the airport.
- 1.1.3 As per OMDA, AAI granted DIAL the exclusive right and authority, during the term of agreement, to undertake some of the functions of AAI, namely the functions of operations, maintenance, development, design, construction, up-gradation, modernizing, finance and management of the IGI Airport and to perform services and activities constituting aeronautical and non-aeronautical services at the airport.

1.2 Tariff Setting Principles

- 1.2.1 The tariff determination mechanism towards aeronautical charges shall be as per the principles of the State Support Agreement as stated below;
- 1) **Incentives Based:** *The JVC will be provided with appropriate incentives to operate in an efficient manner, optimizing operating cost, maximizing revenue and undertaking investment in an efficient, effective and timely manner and to this end will utilize a price cap methodology as per this Agreement.*
 - 2) **Commercial:** *In setting the price cap, AERA will have regard to the need for the JVC to generate sufficient revenue to cover efficient operating costs, obtain the return of capital over its economic life and achieve a reasonable return on investment commensurate with the risk involved.*
 - 3) **Transparency:** *The approach to economic regulation will be fully documented and available to all stakeholders, with the Airports and key stakeholders able to make submissions to AERA and with all decisions fully documented and explained.*
 - 4) **Consistency:** *Pricing decisions in each regulatory review period will be undertaken according to a consistent approach in terms of underlying principles.*
 - 5) **Economic Efficiency:** *Price regulation should only occur in areas where monopoly power is exercised and not where a competitive or contestable market operates and so should apply only to Aeronautical Services. Further in respect to regulation of Aeronautical Services the approach to pricing regulation should encourage economic efficiency and only allow efficient costs to be recovered through pricing, subject to acceptance of imposed constraints such as the arrangements in the first three years for operations support from AAI.*

- 6) **Independence:** The AERA will operate in an independent and autonomous manner subject to policy directives of the GOI on areas identified by GOI.
- 7) **Service Quality:** In undertaking its role AERA will monitor, pre-set performance in respect to service quality performance as defined in the Operations Management Development Agreement (OMDA) and revised from time to time.
- 8) **Master Plan and Major Development Plans:** AERA will accept the Master Plan and Major Development Plans as reviewed and commented by the GOI and will not seek to question or change the approach to development if it is consistent with these plans. However, the AERA would have the right to assess the efficiency with which capital expenditure is undertaken.
- 9) **Consultation:** The Joint Venture Company will be required to consult and have reasonable regard to the views of relevant major airport users with respect to planned major airport development.
- 10) **Pricing responsibility:** Within the overall price cap the JVC will be able to impose charges subject to those charges being consistent with these pricing principles and IATA pricing principles as revised from time to time including the following:
 - (i) **Cost reflectivity:** Any charges made by the JVC must be allocated across users in a manner that is fully cost reflective and relates to facilities and services that are used by Airport users;
 - (ii) **Non-discriminatory:** Charges imposed by the JVC are to be non-discriminatory as within the same class of users;
 - (iii) **Safety:** Charges should not be imposed in a way as to discourage the use of facilities and services necessary for safety;
 - (iv) **Usage:** In general, aircraft operators, passengers and other users should not be charged for facilities and services they do not use.

1.2.2 The specific formula for calculating the target revenue which the airport operator is eligible for is as below;

$$TR_i = RB_i \times WACC_i + OM_i + D_i + T_i - S_i$$

Where

TR = Target Revenue

RB = regulatory base pertaining to Aeronautical Assets and any investments made for the performance of Reserved Activities, etc. which are owned by the JVC, after incorporating efficient capital expenditure but does not include capital work in progress to the extent not capitalized in fixed assets. It is further clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed for capitalization in the regulatory base. It is further clarified that the Upfront Fee and any pre-operative expenses incurred by the Successful Bidder towards bid preparation will not be allowed to be capitalized in the regulatory base.

WACC = nominal post-tax weighted average cost of capital, calculated using the marginal rate of corporate tax.

OM= efficient operation and maintenance cost pertaining to Aeronautical Services. It is clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed as part of the operation and maintenance cost.

D = depreciation calculated in the manner as prescribed in Schedule XIV of the Indian Companies Act, 1956. In the event, the depreciation rates for certain assets are not available in the aforesaid Act, then the depreciation rates as provided in the Income Tax Act for such asset as converted to straight line method from the written down value method will be considered. In the event, such rates are not available in either of the Acts then depreciation rates as per generally accepted Indian accounting standards may be considered.

T = corporate taxes on earnings pertaining to Aeronautical Services.

S = 30% of the gross revenue generated by the JVC from Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges.

As per the definitions provided in the OMDA and the SSA;

“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (e.g.: Public Admission Fee)

- 1.2.3 For the purpose of the tariff determination exercise, the depreciation rates as per the Authority's Order no. 35/2017-18 dated January 12, 2018 along with its Amendment to Order no. 35/2017-18 dated April 9, 2018 have been considered. The useful life of these assets as determined by AERA also forms the basis for the depreciation of assets of DIAL as mentioned in the notes to accounts of the annual report of DIAL for FY 2019/auditor certificates submitted by DIAL.
- 1.2.4 AERA had considered the project cost in Tariff Order for First Control Period based on the allowable project cost determined in the earlier issued Order No. 28/2011-12 dated November 14, 2011. As per the Order no. 28/2011-12, DIAL had submitted a project cost of Rs. 12,857.00 Cr for the First Control Period. The Authority had analyzed DIAL's submission and decided to exclude Rs. 354.14 Cr from the project cost to determine the allowable project cost as part of its decisions in the said order. The excluded costs include the upfront fee of Rs 150 Cr, Rs. 107.15 Cr pertaining to disallowed area of 8652 sq. m, and additional costs related to other items like apron, rehabilitation of runway 10-28, and escalation for reinforcement.
- 1.2.5 Based on the tariff determination principles and taking into consideration the tariff filings of DIAL, AERA issued the tariff order for the First Control Period on April 24, 2012. The Authority determined a one-time increase of 345.92% on the aeronautical tariff with effect from May 15, 2012 which was implemented by DIAL.
- 1.2.6 With regards to revision in tariff for the Second Control Period, DIAL had submitted its tariff proposal for the Second Control Period on November 11, 2013. Taking into consideration the submission and based on its analysis on the DIAL submissions with regards to each of the building blocks, AERA issued a consultation paper for the Second Control Period on January 28, 2015. Post completion of stakeholder discussions, the final tariff order for the Second Control Period was issued on December 10, 2015, wherein a one-time decrease in tariff of 89.40% was determined. AERA had also granted, as part of the tariff order, an additional ARR of Rs. 691.50 Cr to help DIAL meet its cash deficit on account of reduction in tariff. The Tariff Structure and the rate card arrived at by AERA regarding tariff determination for the Second Control Period were to be applicable from January 01, 2016.
- 1.2.7 The Hon`ble High Court of Delhi vide its judgement dated 22.01.2015 had allowed DIAL to continue the tariff determined by AERA for the First Control Period vide Tariff Order No. 03/2012-13 dated

20.04.2012 till the disposal of the appeals pending against the said Tariff Order, by the AERAAT. Hence, the Tariff Order for Second Control Period could not be implemented from its intended date.

1.2.8 The Hon'ble Supreme Court had lifted the stay on implementation of the tariff order for the Second Control Period post which the tariff implementation for the Second Control Period started on July 8, 2017. The Hon'ble Supreme Court had also directed TDSAT to complete its adjudication on the issues raised.

1.3 **TDSAT directions with regards to decisions taken by AERA for the First Control Period**

1.3.1 TDSAT had heard the concerns raised by DIAL with regards to decisions taken by AERA for the First Control Period and issued the TDSAT order for DIAL on April 23, 2018. Further, TDSAT had issued the order for MIAL on Nov 15, 2018 pertaining to concerns raised by them. The TDSAT judgment along with the directions given to AERA by TDSAT based on the plea filed by DIAL and MIAL for the decisions taken by AERA in the First Control Period are as listed below;

- (i) In exercise of powers under Section 13 of the AERA Act 2008, AERA is required to respect rights/concessions etc. flowing from lawful agreements / directions viz. OMDA, SSA, etc.
- (ii) Contractual rights can be voided only on the basis of explicit statutory provisions or implications from statutory provisions permitting no other option.
- (iii) Even when the Airport Operator engages in providing an Aeronautical Service through its servants or agents, the service must be deemed to be the one provided by the Airport Operator. The color of revenue from Aeronautical Service cannot get changed to that of revenue from Non-Aeronautical Service, by an act of delegation or leasing out by the Concessionaire.
- (iv) Revenue from Cargo and Ground Handling charges are required to be treated as Non-Aero revenue.
- (v) For future, the exercise for Assets allocation has to be redone, if not redone already.
- (vi) Levy and determination of User Development Fee (UDF) is lawful but its use and appropriation must also be transparent, lawful and accounted for in the future exercise for tariff determination.
- (vii) Refundable Security Deposit (RSD) raised by the airport operator to fund the Project cannot be a zero cost debt. Its cost needs to be ascertained and made available to the airport operator through appropriate fiscal exercise at the time of next tariff redetermination.
- (viii) Although rate of 16% as return on Equity not interfered with, AERA may redo the exercise through a scientific and objective approach, independently of any observations in the Third Control Period.
- (ix) The question of 'S' i.e. 30% of the Revenue from Revenue Share Assets as an element of revenue pertaining to aero services for the purpose of calculating 'T' i.e. Aeronautical Taxes is remanded back. Only to this limited extent, we direct AERA to consider the issue afresh through a consultative process in the next control period that may be falling for consideration.
- (x) AERA is directed not to exclude the amount of Upfront Fee from the equity share capital of the airport operator while determining WACC.
- (xi) If in future the ratio (between domestic and international airlines) in respect of tariff structure/rate card is proposed to be changed to the disadvantage of the appellants, AERA

may do so only through a process of detailed consultation and in accordance with the AERA Act 2008.

1.3.2 TDSAT vide their order dated March 20, 2020 had heard the concerns raised by DIAL regarding decision taken by AERA to exclude certain items under the Project Cost to the extent of Rs. 354.14 Cr as part of AERA Order no. 28/2011-12 and had upheld the decisions taken by AERA regarding exclusion of Rs 354.14 Cr from the allowable project cost. The TDSAT Order had based their decision on the following aspects;

- (i) Regarding exclusion of costs of Rs. 23.82 Cr pertaining to additional apron area, Engineer's India Limited (EIL)'s capacity as an expert cannot be doubted as it was earlier associated with the project works related to airport in the capacity of independent engineer and is fully aware of the factors specific to the project. DIAL has not provided any reasons which can be deemed justifiable for rejecting the calculations provided by EIL in their recommendation.
- (ii) Regarding exclusion of Rs. 35.67 Cr from escalation of reinforcements, EIL has based its calculation by determining a fair price increase for steel on the basis of average cost of reinforced steel at the relevant time. DIAL has not provided any suitable justifications to discredit the stand of EIL.
- (iii) The deduction of Rs. 37.50 Cr made for rehabilitation of runway 10-28 comprises of exclusion of Rs. 20 Cr recommended by EIL and a deduction of Rs. 17.50 Cr towards O&M expenditure recommended by KPMG. DIAL has not provided any points which could discredit the views of EIL and KPMG.
- (iv) The exclusion of Rs. 107.15 Cr, on account of 8652 sq. m of Gross Floor Area is upheld as the concerned area was not part of DIAL's master plan and EIL, after examining its validity, concluded that sufficient area for Food Court and Retail was already available on departure and arrival levels. DIAL's reasoning that EIL has erred in concluding that such area should not have been built and, therefore, should not be included in project cost is not justifiable.

Further TDSAT has also reiterated that the decision to exclude upfront fee of Rs 150 Cr from the RAB need not be relooked while the same should be considered as part of equity for the limited purpose of determination of WACC as already mentioned in the previous TDSAT judgment under 1.3.1 (x).

1.3.3 AERA has looked at TDSAT directions and have applied the directions as applicable under the various regulatory building blocks towards tariff determination for the Third Control Period.

The Authority has also carried out various independent studies which are listed as below:

- Determination of Return on Equity to be used for computation of Weighted Average Cost of Capital for the Third Control Period.
- Determination of Return to be provided on RSD raised by the Airport Operator and utilized towards development of the Project.
- Determination of Asset Allocation amongst Aeronautical and Non-Aeronautical assets for the Second Control Period.
- Determination of Allocation of Costs for the IT JV amongst aeronautical and non-aeronautical costs for the Second Control Period.
- Determination of Efficient Costs for Phase 3A expansion as proposed in the Third Control Period.
- Determination of Efficient O&M costs for the Second Control Period.

1.4 **Base Airport Charges**

- 1.4.1 As part of the tariff determination principles which is provided under the SSA, it specifically mentions that the airport operator is eligible to levy at the minimum Base Airport Charges plus 10% from the third year since the Effective Date as aeronautical tariff. The same is as per the schedule 6 of the SSA. The relevant extract is as shown below;

“1.The existing AAI airport charges (“Base Airport Charges”) will continue for a period of two (2) years from the Effective Date and in the event the JVC duly completes and commissions the Mandatory Capital Projects required to be completed during the first two (2) years from the Effective Date, a nominal increase of ten (10) percent over the Base Airport Charges shall be allowed for the purposes of calculating Aeronautical Charges for the duration of the third (3rd) Year after the Effective Date (“Incentive”). It is hereby expressly clarified that in the event JVC does not complete and commission, by the end of the second (2nd) year from the Effective Date, the Mandatory Capital Projects required to be completed and commissioned, the Incentive shall not be available to the JVC for purposes of calculating Aeronautical Charges for the third (3rd) year after the Effective Date.

2. From the commencement of the fourth (4th) year after the Effective Date and for every year thereafter for the remainder of the Term, Economic Regulatory Authority / GOI (as the case may be) will set the Aeronautical Charges in accordance with Clause 3.1.1 read with Schedule 1 appended to this Agreement, subject always to the condition that, at the least, a permitted nominal increase of ten (10) percent of the Base Airport Charges will be available to the JVC for the purposes of calculating Aeronautical Charges in any year after the commencement of the fourth year and for the remainder of the Term.”

- 1.4.2 The Base Airport Charges hence shall be effected if the aeronautical revenues that the airport operator is eligible to recover, based on the tariff determination process as per Schedule 1 of the SSA, is lesser than the revenues the airport operator would have earned by levying Base Airport Charges plus 10%. In such a case the Base Airport Charges plus 10% shall be considered for the tariff card determination.
- 1.4.3 The Authority at the time of tariff determination for the Second Control Period had decided to allow the X Factor of 89.40% to DIAL and based on the same, tariff card was prepared for the Second Control Period and was supposed to be applicable from 1st January 2016. This tariff was however actually levied by DIAL only from July 8, 2017 as there was a stay in the interim period which was then lifted by the Hon’ble Supreme Court as mentioned in the earlier paras. DIAL had approached the Authority with the contention that the aeronautical tariffs determined by the Authority have fallen below the Base Airport Charges stipulated in the SSA. DIAL requested the Authority to allow them to levy Base Airport Charges from 8th July 2017, the date when tariff order for Second Control Period was given effect as per the orders of the Hon’ble Supreme Court.
- 1.4.4 AERA vide order dated November 19, 2018 has allowed DIAL to charge Base Airport Charges (BAC) + 10% of BAC from 1st December 2018. The order acknowledged the eligibility of DIAL to maintain aeronautical tariff at a minimum of BAC + 10% during the term of the concession. The tariff was applicable with effect from December 1, 2018. The tariff card has been extended till June 30, 2020 or the date of issue of the tariff order for the Third Control Period, whichever is earlier. The order also mentioned that Authority shall consider suitable true up of all aeronautical revenues realized by DIAL in the Second Control Period at the time of determination of tariff for the Third Control Period.

1.4.5 DIAL has now filed the Multi Year Tariff Proposal (MYTP) for the Third Control Period seeking revision in aeronautical tariffs. This Consultation paper has been prepared based on the tariff proposal submitted by DIAL and is being circulated for the purpose of getting the views from various stakeholders towards determining tariff for the Third Control Period.

1.5 **Construct of the Consultation Paper**

1.5.1 The Consultation Paper is structured under various chapters with the second chapter listing out DIAL's submissions as part of the current tariff proposal regarding various specific issues regarding true up for the First Control Period. Against each of the issues raised by DIAL, Authority's earlier analysis and decisions regarding true up for the First Control Period as per the Second Control Period tariff order is provided. The same is followed by Authority's current examination and proposals regarding the true up for the First Control Period as part of the tariff determination for the Third Control Period.

The third chapter lists out DIAL's submissions regarding true up for the Second Control Period pertaining to various specific issues followed by a recap of the Authority's analysis and decisions regarding the various building blocks for the Second Control Period as per the Second Control Period tariff order pertaining to those specific issues. This is followed by Authority's current examination and proposals on the specific issues regarding the true up for the Second Control Period as part of the tariff determination for the Third Control Period. The third chapter also discusses the assessment and the outcome of the various independent study reports commissioned by the Authority regarding asset allocation ratios among aeronautical and non-aeronautical assets, analysis of the cost effectiveness of the IT JV set up by DIAL, efficient cost segregation amongst aeronautical and non-aeronautical O&M costs. The summary of these reports are given under specific annexures to this consultation paper and the reports have been appended separately to the Consultation Paper.

The balance chapters bring out DIAL's submissions regarding various building blocks pertaining to the Third Control Period including additions to Aeronautical RAB along with Aeronautical Depreciation for the Third Control Period, Weighted Average Cost of Capital for the Third Control Period, Aeronautical Operating Expense projected for the Third Control Period, Revenue from Revenue Share Assets projected for the Third Control Period, Aeronautical Taxes projected for the Third Control Period, Traffic Projections for the Third Control Period, Inflation, Quality of Service along with Authority's analysis and proposals regarding the same.

Authority had also commissioned an independent study to assess the need for the expansion project of DIAL and the efficient costs that could be considered for return on investment towards implementation of the Project. Authority had also commissioned an independent study to calculate Return on Equity for the Third Control Period. Authority had also commissioned an independent study to determine the return to be provided on the Refundable Security Deposits. The summary of these reports are given under specific annexures. The detailed reports have also been appended separately to the consultation paper.

Post the analysis and discussion on various building blocks including true up for earlier control periods, the revised target revenue as determined by the Authority based on the proposals as considered by the Authority is presented along with the proposed adjustment in tariff for the Third Control Period in the penultimate chapter. The final chapter summarizes Authority's proposals regarding each of the building blocks.

1.5.2 **The Authority seeks the views of stakeholders regarding the proposals put forward for tariff determination for the Third Control Period in the Consultation Paper.**

2 TRUE UP FOR THE FIRST CONTROL PERIOD

2.1 Issues raised by DIAL pertaining towards True up for the First Control Period

2.1.1 DIAL has raised the following issues concerning the First Control Period for true up as part of their MYTP.

- Regulatory Asset Base,
- Weighted Average Cost of Capital,
- Aeronautical Operating Costs,
- Aeronautical Taxes,
- Treatment of various items under Revenue from Revenue Share Assets.

2.1.2 For each of the issues raised, Authority has looked at the past decisions taken with regards to the true up of the particular building block for First Control Period as per the tariff order for the Second Control Period and has then proceeded to examine the same as part of the tariff determination for the Third Control Period. The following paras explain these issues in detail.

2.2 True up of Regulatory Asset Base

DIAL's submissions regarding true up of Regulatory Asset Base for the First Control Period

2.2.1 DIAL has submitted that the Authority vide its order no 28/2011-12 dtd. 14.11.2011 has allowed DIAL to recover the Development Fee (DF) of Rs. 3,415 Cr towards part funding of the project cost. The DF determined under the said order includes Rs. 350 Cr of cost estimated towards construction of Air Traffic Control (ATC) Tower. DIAL has submitted that the assets corresponding to the ATC Tower have been capitalized only in FY 2019. AERA at the time of tariff determination for the Second Control Period had adjusted the amount of development fee (DF) from regulatory asset base. Till FY'14 DIAL had drawn down the DF to the extent of Rs. 3,241.37 Cr and accordingly AERA adjusted total DF of Rs. 3,241.37 Cr. DIAL has submitted that this adjustment wrongly considers Rs. 176.37 Cr of DF drawn on account of ATC and has indicated that since the asset is not capitalized there is no reason for deduction of RAB on this account. DIAL has considered the ATC tower capitalization and adjustment of DF on this account in FY 2019 only and hence requests the Authority to consider DF adjustment for the First Control Period as Rs. 3,065 Cr. (Rs. 3,415 Cr which is the total DF collected less Rs. 350 Cr pertaining to ATC Tower)

2.2.2 DIAL has submitted that pursuant to the implementation of Second Control Period order the aeronautical tariff has fallen below the Base Airport Charges (BAC) + 10% of BAC. Hence, DIAL had approached AERA for the implementation of tariff equivalent to BAC+10%. Authority has issued the order no 30/2018-19 dated 19th November 2018 to implement the BAC+10% tariff. DIAL has mentioned that the order had the following decision related to charging of X-Ray Baggage charges:

“DIAL is not entitled to charge X-Ray charges, since the investment on screening equipment was made from PSF and not by DIAL. The X-ray baggage charge (as stipulated in Schedule 8 of SSA +10%) shall be applicable from the date of DIAL's remittance of required amount to PSF fund. A separate order to this effect will be issued on receipt of confirmation of remittance of the required amount into PSF from Ministry of Civil Aviation”

2.2.3 DIAL in its tariff proposal has submitted that it has now added assets to the extent of Rs. 119.66 Cr to the aeronautical RAB in the relevant years of capitalization i.e. FY 2011-12 as they have remitted the amount to PSF account.

2.2.4 Accordingly, DIAL has revised the RAB for the First Control Period to reflect above mentioned changes.

Table 1: Adjustment towards RAB submitted by DIAL for First Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
RAB as per AERA	2,479.85	5,208.26	8,254.13	7,458.08	7,118.46
Add: Reversal of ATC related DF adjustment				139.75	176.37
Less: Reversal of ATC related DF adjustment – Depreciation				(2.33)	(5.27)
Add: Baggage Screening Equipment	10.50	69.71	100.98	97.89	96.71
Total	2,490.35	5,277.97	8,355.10	7,693.36	7,386.21

Decisions taken by the Authority regarding True up of Regulatory Asset Base for First Control Period as per Tariff Order for the Second Control Period

2.2.5 The Regulatory Asset Base considered for the purpose of estimating return was based on actual date of capitalization for a year and was arrived at by incorporating addition/deletions/adjustments to the aeronautical asset base of DIAL on the opening balance of RAB in that year on a pro rata basis. The Authority had also decided not to consider any adjustment to the RAB on account of foreign exchange fluctuation.

2.2.6 The Authority had decided to apportion the DF funding collected by the airport operator towards aeronautical assets capitalized and aeronautical Capital Work in Progress (CWIP), post which the DF funding apportioned towards aeronautical assets capitalized shall be adjusted to arrive at aeronautical RAB. While the fund apportioned to the expenditure incurred on the aeronautical assets capitalized in a year would be adjusted from RAB in the given year, that amount which is apportioned to expenditure incurred on aeronautical CWIP is proposed to be carried over to the subsequent years for adjustment from RAB in those years. The Authority, by the above methodology, had decided to adjust DF of Rs. 3241.37 Cr (out of the allowed DF of Rs. 3415.35 Cr) from the capitalization made by DIAL till FY 2012-13. Proportionate adjustment in depreciation was also carried out in line with the adjustment to aeronautical RAB towards DF.

2.2.7 The Authority for its purposes of segregation of assets into aeronautical and non-aeronautical had decided to consider the segregation ratio at 89.25% : 10.75% in line with the independent study commissioned by DIAL through Jacobs' report and based on independent view provided by ICWAI on the appropriate allocation ratio till March 31, 2011.

2.2.8 The Authority at the time of true up for the First Control Period had arrived at the RAB for each of the years in the First Control Period including the Hypothetical Regulatory Asset Base. The Authority had considered pro rata addition to RAB and average Hypothetical Regulatory Asset Base as the base on which the returns were provided as shown in the table below;

Table 2: Aeronautical RAB considered by the Authority towards True Up for the First Control Period as per Tariff Order for the Second Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Opening Pro Rata Aeronautical RAB (A)	1016.47	2023.30	4772.25	7838.84	7064.18
Additions during the year (B)	1398.44	4373.48	4338.89	43.95	58.49
Sale of Assets (C)	-6.73	0.00	-0.01	-0.56	0.00
Depreciation Charged (D)	-89.71	-200.79	-348.39	-307.38	-337.85
DF Apportioned (E)	-295.17	-1423.74	-923.90	-510.67	-36.62
Total Sale, Write Back, Depreciation Charged and DF apportioned (F=B+C +D +E)	1006.83	2748.95	3066.59	-774.66	-315.98
Pro Rata RAB for Return (ARAB=A+F)	2023.3	4772.25	7838.84	7064.18	6748.22
Opening Hypothetical Regulatory Asset Base	467.00	446.11	425.91	404.66	383.10
Closing Hypothetical Regulatory Asset Base	446.11	425.91	404.66	383.10	357.38
Average Hypothetical Regulatory Asset Base (HRAB)	456.55	436.01	415.28	393.88	370.24
RAB for Return (ARAB+HRAB)	2479.85	5208.26	8254.13	7458.08	7118.46

Authority's Examination and Proposals regarding issues pertaining to Regulatory Asset Base for the First Control Period as part of the tariff determination exercise for the current Control Period

Adjustment towards DF funding for ATC Tower

2.2.9 Authority has noted the submission made by DIAL with regards to the adjustment for assets created through Development Fee with respect to the ATC Tower. The Authority has noted that even though DIAL has collected the DF pertaining to the ATC tower/securitized and raised loans against the DF in the First Control Period, the ATC tower has been commissioned only in FY 2019. Authority has sought justification from DIAL enumerating the reasons for the delay in the capitalization of the ATC tower. As per the response received from DIAL, Authority is given to understand that the asset was handed over to AAI by DIAL in FY 15 and the capitalization was not done as the final settlement with L&T, the EPC contractor was pending along with the installation of equipment.

Authority proposes to follow the principle as mentioned under the tariff order for the Second Control Period wherein the DF funds collected shall be apportioned towards aeronautical capitalization and aeronautical CWIP, post which the DF apportioned towards aeronautical capitalization shall be adjusted to arrive at aeronautical RAB. While the fund apportioned towards the expenditure incurred on the aeronautical assets capitalized in a year would be adjusted from RAB in the given year, that amount which is apportioned to expenditure incurred on aeronautical CWIP is proposed to be carried over to the subsequent years for adjustment from RAB in those years in which the asset gets capitalized.

The Authority as per the tariff order for the Second Control Period had apportioned Rs. 3241.37 Cr towards aeronautical assets capitalized and balance Rs. 173.98 Cr (Rs. 3415.35 Cr less Rs. 3241.37

Cr) was proposed to be capitalized as and when the Capital Work in Progress (CWIP) pertaining to ATC tower gets capitalized.

Authority has, based on DIAL's submission that ATC tower (for which Rs. 350 Cr of DF funding has been utilized) has been capitalized only in FY 2019, proceeded to apportion DF portion of Rs. 3065.15 Cr (Rs. 3415.15 Cr less Rs. 350 Cr) towards aeronautical assets that had been capitalized in the First Control Period.

The balance Rs. 350 Cr shall be considered for adjustment as part of DF funding only in FY 2019, i.e. the year in which the ATC tower gets capitalized. The Authority has also proceeded to adjust aeronautical depreciation in the relevant years accordingly.

Treatment of Baggage Screening Related Assets

2.2.10 Authority has noted the submission of DIAL with regards to the treatment of Baggage Screening Related assets and has noticed that even though the same has been commissioned in the First Control Period, the assets were created out of deposits from PSF and the amount was remitted to MoCA only in FY 2019. The Authority is of the view that the asset base can be considered only post FY 2019 as the amount collected has been remitted only in FY 2019 and hence no adjustment has been proposed to be made to RAB in this regard during the First Control Period.

The associated depreciation for this asset shall also be applicable only from FY 2019 on the balance useful life of the asset.

The reworked aeronautical RAB and depreciation for the First Control Period is as shown in the table below;

Table 3: Reworked Aeronautical RAB and Depreciation proposed to be considered by the Authority for True up of First Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Opening Pro Rata Aeronautical RAB (A)	1016.47	2023.30	4772.25	7838.84	7064.20
Opening Pro Rata Aeronautical RAB Adjusted (A')	1016.47	2023.30	4772.25	7838.84	7201.60
Additions during the year (B)	1398.44	4373.48	4338.89	43.95	58.49
Sale of Assets (C)	6.73	-	0.01	0.56	0.03
Depreciation Charged (D)	89.71	200.79	348.39	307.38	337.85
<i>Adjustment towards Depreciation</i>	-	-	-	2.33	2.94
<i>Adjusted Depreciation Charged (D')</i>	89.71	200.79	348.39	309.71	340.79
DF Apportioned (E)	295.17	1423.74	923.9	510.67	36.62
<i>Adjustment towards DF apportionment on account of delay in ATC capitalization</i>	-	-	-	-139.75	-36.62
<i>Revised DF apportioned (E')</i>	295.17	1423.74	923.9	370.92	0
Total Sale, Write Back, Depreciation Charged and DF apportioned (F=C +D' +E')	391.61	1624.53	1272.3	681.19	340.82
Pro Rata RAB for Return (ARAB=A'+B-F)	2023.30	4772.25	7838.84	7201.60	6919.27
Opening Hypothetical Regulatory Asset Base	467.00	446.11	425.91	404.66	383.1
Depreciation pertaining to Hypothetical Regulatory Asset Base (DHRAB)	20.89	20.20	21.25	21.56	25.72
Closing Hypothetical Regulatory	446.11	425.91	404.66	383.1	357.38

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Asset Base					
Average Hypothetical Regulatory Asset Base (HRAB)	456.55	436.01	415.28	393.88	370.24
RAB for Return (ARAB+HRAB)	2,479.85	5,208.26	8,254.12	7,595.47	7,289.51
Aeronautical Depreciation (D+DHRAB)	110.60	220.99	369.64	331.27	366.51

2.3 True up of Weighted Average Cost of Capital

DIAL's submission regarding true up of Weighted Average Cost of Capital for the First Control Period

2.3.1 DIAL as part of tariff proposal for the Third Control Period has submitted that the post-tax return on equity should be considered at 22.86% for the purpose of calculation of WACC. DIAL has based the same on their interpretation that the return on equity has to be post-tax cost of equity and has hence applied a marginal tax rate of 30% on the cost of equity of 16%, resulting in the requested return of 22.86%. The relevant extract from DIAL's MYTP is as below;

“One of the regulatory block so used in the calculation of Target Revenue is WACC which has been defined as ‘nominal post-tax weighted average cost of capital, calculated using the marginal rate of corporate tax’.

While in general parlance, WACC is defined as weighted average cost of capital, in the SSA the same has been defined as ‘nominal post-tax weighted average cost of capital’. Further it has also been stated in the SSA that the WACC is to be calculated using the marginal rate of corporate tax. As such, the definition of WACC in the SSA is evidently different from the definition of WACC in general parlance.

The weighted average cost of capital is the calculation of a company's cost of capital in which each category of capital is proportionately weighted and therefore, to calculate the weighted average cost of capital, the cost of each component of capital is multiplied with its proportional weight and the results are summed up. Therefore, if equity and debt are the two means of finance then cost of capital is as under:

Cost of Capital = cost of debt capital + cost of equity capital

Where the cost of debt is a pre-tax cost of debt and the cost of equity is a post-tax cost of equity.

However, since the definition of WACC as provided in the SSA states that it has to be calculated post-tax using the marginal rate of corporate tax, the same has to be given meaning over and above the general parlance meaning of ‘weighted average cost of capital’ as there seems to be a clear intention of the parties to the SSA to define WACC as something which is different from the ‘weighted average cost of capital’.

In view of the above it is submitted, that while calculating weighted average cost of capital, cost of equity is to be computed which is simply the rate of return on equity. This is so because it is the return on equity given to investors which is the cost attached to such equity. However, for calculating WACC in terms of the SSA, the post-tax cost of equity should be considered and the same should be calculated using the marginal rate of corporate tax.

Therefore, to give effect to the said definition of WACC, the rate of return on equity has to first be calculated by using the marginal rate of corporate tax and then the same has to be employed in the

calculation of WACC. As such, whatever rate of return is arrived at after employing the CAPM formula is to be grossed up using the marginal rate of corporate tax and the number then arrived at is to be used for the calculation of WACC as defined in the SSA.

For example, if we were to consider the rate of return to the investors at 16% as calculated by AERA for the first control period, as the post-tax cost of equity, then the rate of return would have to be grossed up with the marginal rate of corporate tax, i.e., 30% to arrive at the post-tax cost of equity which is subsequently to be employed for the calculation of WACC in terms of the SSA. The calculation for the same is as under:

$$\begin{aligned} \text{Post-tax cost of equity} &= 16 * [1/(1- 30\%)] \\ &= 16 * [1/(100-30/100)] \\ &= 16 * [1/0.7] \\ &= 16 * 1.43 \\ &= 22.8\% \end{aligned}$$

Therefore, in the given example the post-tax cost of equity would come to 22.8% which would subsequently be used for calculation of WACC as defined in the SSA as opposed to 16% which would be used for calculation of weighted average cost of capital in its general parlance.”

- 2.3.2 DIAL has also indicated that the above mentioned return on equity finds its place in the pre-bid clarification at the time of bidding and their points of submission as per the tariff proposal is presented below;

“The said calculation of 22.8% is also reflected from the RFP issued for the IGI Airport, New Delhi and CSI Airport, Mumbai. In the pre-bid clarifications issued by the Airports Authority of India (AAI), the significance of the same was stated as under:

“The post-tax cost of equity and debt assumed under the indicative post tax nominal WACC of 11.6% are 22.8% and 6.0 respectively. The purpose of the indicative post tax nominal WACC of 11.6% given in the RFP is to ensure consistency between Business Plans submitted by Bidders as part of their Offer.”

As such, even in the RFP a ‘post-tax’ cost of equity was used for calculation of WACC as defined in the SSA. The said number of 22.8% was clearly a number derived through calculation and was not a number assumed at random. Thus, to arrive at the indicative rate of return of 16% to the investors, the post-tax cost of equity has been determined as 22.8% by AAI.

In view of the above, it is humbly submitted that the calculation of WACC for arriving at the Target Revenue which precedes the calculation of Aeronautical Charges to be levied and collected by DIAL, should be done in terms of the SSA. This is consistent with the regulatory mandate vide section 13(1)(a)(vi) of the AERA Act.

It is therefore, requested that WACC be calculated as per its definition in the SSA and not as per the general parlance of ‘weighted average of cost of capital’ as has been done in the earlier tariff orders.”

- 2.3.3 DIAL has also requested that the Upfront Fee of Rs. 150 Cr should not be deducted from the equity share capital for the purpose of calculation of WACC in line with the TDSAT order dated Nov 15,

2018. As per the order, the tribunal has directed that the upfront fee should not be excluded as part of equity while computing Weighted Average Cost of Capital.

2.3.4 DIAL in their tariff proposal have submitted that AERA in their previous orders have considered the Refundable Security Deposit utilised to fund the Project as a zero cost instrument at the time of calculation of WACC. DIAL had filed an appeal before TDSAT which has ruled that the same cannot be treated as a zero cost debt and has to be re-determined through appropriate fiscal exercises by AERA. DIAL has hence requested for a return of 16% on the Refundable Security Deposit component utilised as a means of finance for the development of the Project.

- DIAL has quoted extract from KPMG report on treatment of specific elements of capital and operating expenditure for treating regulatory asset base which has the following points in its concluding remark;
 - There is an evident opportunity cost associated with the RSD in terms of foregone lease rentals.
 - As lenders have treated the RSD funding as part of promoter’s contribution, the risk inherent in this instrument can be considered similar to equity.
- DIAL has also quoted an extract from the independent study prepared by Kalypto Risk Technologies Limited, a subsidiary of CARE which has stated that the amount mobilized through RSD exhibits equity like features and as such qualifies for being treated as quasi equity.
- DIAL has also mentioned that Lenders of the Delhi Airport project also considered RSD as Quasi Equity while calculating Debt Equity Ratio (DER).

DIAL has hence considered a return on RSD equivalent to the return on equity i.e. 16%.

2.3.5 Based on the above exercise, DIAL has submitted the revised calculation of WACC relevant for the First Control Period which is as below;

Table 4: WACC submitted by DIAL for First Control Period as per MYTP

Particular	Cost of Funds	Gearing	Effective rate
Equity	22.86%	27.50%	6.29%
Refundable security deposits (RSD)	16.00%	14.82%	2.37%
Debt	10.00%	57.69%	5.77%
WACC			14.42%

Decisions taken by the Authority regarding True up of Weighted Average Cost of Capital for First Control Period as per Tariff Order for the Second Control Period

2.3.6 In the case of WACC, the Authority as per the tariff order for the Second Control Period had decided to continue with the WACC rate of 10.33% determined during the issuance of tariff order for the First Control Period. This decision during the issuance of tariff order for the Second Control Period is in consonance with the decision taken as per the tariff order for the First Control Period not to true up WACC.

Authority's Examination and Proposals regarding issues pertaining to Weighted Average Cost of Capital for the First Control Period as part of the tariff determination process for the current Control Period

Cost of Equity

- 2.3.7 The Authority is of the view that the decision taken to consider Return on Equity as 16.00% for the First Control Period need not be relooked now and an independent study has been commissioned to determine cost of equity prospectively from the Third Control Period. The Authority has looked at DIAL's submission in its proposal that the cost of equity has to be post-tax cost of equity for which DIAL has requested that the cost of equity considered at 16% needs to be grossed up leading to 22.86%.

The Authority is of the understanding that for calculating return on equity post-tax, the relevant base has to be adjusted i.e. multiplied by the factor $(1-t)$ and not grossed up by the factor $(1-t)$ as suggested by DIAL.

The Authority's assessment of cost of equity in the previous tariff orders have always been post-tax which has been taken as 16%. The Authority is of the view that there is no need to consider any grossing up or adjustment on the cost of equity considered as 16%.

The SSA is also very clear in its interpretation that the WACC has to be post-tax WACC and hence the Authority has considered post tax cost of equity in the past control periods. Further, the aeronautical taxes are allowed as a separate pass through in the tariff mechanism and hence the concept of grossing up of cost of equity is not applicable here.

The methodology suggested by DIAL wherein cost of equity has to be grossed up by tax rate to arrive at post tax cost of equity may not be correct as this methodology is used to calculate pre-tax cost of equity and not post-tax cost of equity as required as per Schedule 1 of the SSA.

Further the pre bid clarifications from AAI regarding cost of equity very clearly says that the WACC calculation put forward is only to ensure consistency between Business Plans submitted by Bidders as part of their Offer and hence should not form the basis for tariff determination for DIAL.

The Authority hence proposes to consider post tax cost of equity as 16% for the First Control Period in consonance with its earlier decisions as per the tariff orders for the First and Second Control Periods.

Treatment of Upfront Fee

- 2.3.8 Authority is of the view that the direction from TDSAT (Point no 1.3.1.(x)) clearly mentions that the Upfront Fee of Rs. 150 Cr should not be deducted from the Equity component for arriving at WACC. The Authority proposes not to deduct the upfront fee towards the equity component in the First Control Period. Authority has also taken note of the TDSAT directions dated March 20, 2020 wherein under Para 32 it is also clearly mentioned that this decision to consider the Upfront Fee as part of equity share capital is only towards the determination of WACC while the said amount i.e. the Upfront Fee of Rs 150 Cr shall not be considered as part of RAB.

The Authority accordingly proposes to consider Rs. 2,450 Cr as the Book Value of Equity for all the five years in the First Control Period.

The Equity component and the cost of equity as proposed to be considered by the Authority for the First Control Period is as shown in the table below;

Table 5: Equity Base and Cost of Equity proposed to be considered by the Authority towards True Up for the First Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Book Value of Equity	2450.00	2450.00	2450.00	2450.00	2450.00
Reserves and Surplus (if positive)	82.38	-	-	-	-
Total Equity	2532.38	2450.00	2450.00	2450.00	2450.00
Cost of Equity	16%	16%	16%	16%	16%

2.3.9 The Authority has noted that as part of the decisions in the tariff order for the Second Control Period towards true up for the First Control Period, it had decided not to true up WACC of 10.33% p.a. determined at the time of First Control Period. However based on TDSAT directions which had suggested changes in the deductions to the Equity Base with regards to the Upfront Fee, Authority now proposes to true up WACC in its entirety as true up can't be done selectively considering adjustment only in equity base.

Cost of Debt

2.3.10 Authority had considered the actual cost of debt for the First Control Period which as per the submission of DIAL was 10.00% p.a. The calculation for the cost of debt is as shown in the table below;

Table 6: Cost of Debt proposed to be considered by Authority for true up of First Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Interest	364.91	513.65	571.30	580.83	541.72
Average debt	4,181.74	5,241.19	5,341.73	5,486.80	5,471.38
Effective cost of debt	10.00%				

Return on RSD

2.3.11 Authority has also looked at the submission made by DIAL regarding the return on RSD component utilized to fund the Project. Authority has noted the following relevant extracts in the TDSAT order dated April 23, 2018 on the matter of issues raised by DIAL in the First Control Period.

Page No 114, Para no 105 “Whether voluntarily or mandatorily, there is no doubt that the RSD amount has been used as an investment in the project and the SSA allows a fair return on the investment which is to be proportionate to the cost of investment”

Page no 115, Para no 106 “ At the least, the cost would be the rate of return made available by the approved funds having required ratings of CRISIL”

In light of the above order and the fact that RSD has already been invested in creating the assets by airport operators used by the stakeholders, Authority commissioned an independent study to suggest the treatment to be given to such investments. The independent study assessed the opportunity cost of RSD under two options, Option 1 and Option 2 as listed below;

Option 1:

If DIAL had raised the amount equivalent to RSD amount to invest in aero assets, the cost of financing would have been equal to cost of debt. Thus, the opportunity cost of RSD would be equal to the cost of debt at the time RSD was invested in aeronautical assets.

Option 2:

The RSD amount could have been invested in an escrow account in funds having required ratings from CRISIL, as specified in OMDA/SSA. The potential earnings from escrow account would be the loss incurred by DIAL by investing RSD amount in aeronautical assets for which they ought to be compensated. Thus, the opportunity cost of RSD amount should be equivalent to returns from the escrow account, as suggested in the TDSAT order.

The independent study has also opined that Option 2 is more difficult to implement as the returns from a specified CRISIL rated fund would vary over time and be subject to estimation whereas Option 1 is relatively stable and the cost of debt is frequently estimated by the Authority while determining the cost of capital.

2.3.12 Authority has proposed to consider return on RSD as equivalent to the cost of debt for the First Control Period based on the recommendations of the independent study. **Authority seeks stakeholder’s views on the proposal to consider the return on RSD as equivalent to the cost of debt.** The summary of the study can be seen in [Annexure 6](#). The independent study is attached as an appendix (**Appendix 5**) to this consultation paper.

2.3.13 Further Authority also understands that some stakeholders have taken the matter to courts for adjudication and any decision taken by the Authority in this regard in the tariff order shall be subject to the final outcome of the adjudication.

Weighted Average Cost of Capital

2.3.14 Authority hence proposes to true up WACC considering the proposal regarding the return on RSD, consideration of upfront fee as part of equity as per the directions on TDSAT and also considering the actual cost of debt as submitted by DIAL. The WACC for First Control Period has been estimated at 11.65% as part of the tariff determination for the current Control Period against 10.33% in the Tariff Order for the Second Control Period as shown in the table below;

Table 7: WACC Proposed to be considered by Authority towards True Up for First Control Period

FY ending March 31	2010	2011	2012	2013	2014
Cost of Equity	16%	16%	16%	16%	16%
Cost of RSD	10%	10%	10%	10%	10%
Cost of Debt	10%	10%	10%	10%	10%
Equity	2,532.38	2,450.00	2,450.00	2,450.00	2,450.00
RSD	884.75	1,389.41	1,427.18	1,471.51	1,471.51
Debt	5,239.80	5,241.80	5,241.80	5,202.01	4,944.22
<i>Equity Proportion</i>	27.50%				
<i>RSD Proportion</i>	14.82%				
<i>Debt Proportion</i>	57.69%				
WACC for the First Control Period	11.65%				

2.4 True up of Operating Expenses

DIAL's submissions regarding True up of Operating Expenses for the First Control Period

Rehabilitation of Runway 10/28

2.4.1 DIAL in their tariff proposal has also referred to the fact that Authority had approved the project cost related to DIAL in the order no 28/2011-12. As per the order, the Authority while disallowing certain amount in the order had also disallowed Rs. 17.50 Cr expense in capex and allowed the same as part of operational expenditure. The relevant extract of order no 28/2011-12 is as below;

“KPMG have suggested that the project cost of this work may be taken as Rs.72.5 crores and an amount of Rs.17.5 crores may be allowed only as operating expense in the financial year in which it has been incurred. Authority had taken a tentative view that the recommendations of the KPMG in the matter were fair and, therefore, an amount of Rs. 37.50 crores may be excluded from the project cost. DIAL have accepted the disallowance of Rs. 17.50 crores on the runway rehabilitation and have stated they shall be treating the same as opex in their tariff filing.”

2.4.2 DIAL has indicated that AERA while truing up for the First Control Period at the time of tariff determination for the Second Control Period as per the order for the Second Control Period has inadvertently omitted the above costs as an operating expense. DIAL has mentioned that as the same is an error of omission, they have considered this cost in First Control Period true up computation as an operating expense in FY 2011 and request the Authority to allow the same as operating expenses.

Foreign Exchange Rate Variation

2.4.3 DIAL has submitted that as part of cost optimization strategies, it had taken foreign currency loans in FY 2010 and FY 2014. The same as indicated by DIAL had led to lower cost which has been passed on to the passengers in terms of lower tariff. However, DIAL has informed that such cost optimization strategies has led the company exposed to foreign currency fluctuations.

2.4.4 DIAL has hence submitted the actual forex losses pertaining to the First Control Period and has hence requested AERA to consider the same as an expense for truing up. The submission is as below;

Table 8: Actual Forex Losses submitted by DIAL for First Control Period as per MYTP

Particular (Rs. Cr)	2010	2011	2012	2013	2014	Total
Forex – Aeronautical	(0.08)	1.44	9.05	31.36	79.59	121.36
Forex - Non-Aeronautical	(0.01)	0.17	1.09	3.78	9.59	14.62
Total	(0.09)	1.61	10.14	35.14	89.18	135.98

2.4.5 Based on above considerations, the Operating Expenses submitted by DIAL for First Control Period can be seen in the table below;

Table 9: Operating Expenses submitted by DIAL for First Control Period as per MYTP

Year ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
VRS Aero	71.83	29.38	43.26	17.40	17.12
Interest on DF			350.50		
Staff Cost	90.25	123.48	124.27	106.47	104.65
Administrative and General Expenses (including forex losses and expenses associated with rehabilitation of runway)	59.96	87.68	115.24	125.24	187.73
Electricity and Water Charges	31.21	66.63	97.97	98.77	109.67
Operating Expenses	100.67	190.22	181.81	226.46	256.88
Airport Operator Fee	13.01	15.21	17.13	18.33	67.44

Year ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Property Tax	-	-	13.13	1.21	6.07
Total	366.93	512.60	943.31	593.88	749.56

Decisions taken by the Authority regarding True up of Operating Expenses for First Control Period as per Tariff Order for Second Control Period

2.4.6 The Authority had decided to consider the actual operating expenses as submitted through the auditor certificates for the First Control Period. The Authority had also decided to expense out interest on DF of Rs. 350.50 Cr incurred by DIAL in FY 2011-12. Regarding allocation of the operating expenses towards aeronautical and non-aeronautical, the allocation ratios were used as shown in the table below;

Table 10: Operating Cost allocation ratio considered by Authority towards true up of First Control Period as per Tariff Order of Second Control Period

Operating Expenses	Cost allocation %	Basis
VRS Aero	89.79%	In line with the allocation on manpower costs
Interest on DF	100%	In line with the tariff order for the First Control Period.
Staff Cost	89.79%	In line with the tariff order for the First Control Period.
Administrative and General Expenses	70.28%	In line with the tariff order for the First Control Period.
Electricity and Water Charges	100%	In line with the tariff order for the First Control Period.
Operating Expenses	91.89%	In line with the tariff order for the First Control Period.
Airport Operator Fee	3% of aeronautical revenues for the previous year	As Airport Operator fee is based on 3% of the gross revenue of DIAL.
Property Tax	87.54%	Weighted average of allocation ratios for the above elements.

2.4.7 The Authority had also decided to expense out the bad debts and also include expenses related to inline baggage screening related assets as part of the operating expenses for the First Control Period.

2.4.8 The Authority had also decided not to consider any fluctuations related to currency fluctuation on capital or interest payments or any other charges in respect of the ECB loan for true up of the First Control Period.

2.4.9 The operating expenses considered by Authority towards true up for First Control Period as per the tariff order for Second Control Period can be seen in the table below;

Table 11: Operating Expenses as considered by Authority towards true up of First Control Period as per Tariff Order of Second Control Period

Year ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
VRS Aero	71.83	29.38	43.26	17.40	17.12
Interest on DF	0.00	0.00	350.00	0.00	0.00
Staff Cost	90.25	123.49	124.27	106.47	104.65
Administrative and General Expenses	60.04	86.24	106.19	95.88	108.13
Electricity and Water Charges	31.21	61.29	86.89	98.17	106.54
Operating Expenses	100.67	177.97	193.06	227.06	260.01
Airport Operator Fee	13.01	15.21	17.13	18.33	67.44
Property Tax	0.00	0.00	13.13	1.21	6.07
Total	367.01	493.59	934.42	564.53	669.97

Authority's Examination and Proposals regarding issues pertaining to Operating Expenses for the First Control Period as part of the tariff determination process for the current Control Period

Rehabilitation of Runway 10-28

- 2.4.10 Authority has noted DIAL's submission with regards to the consideration of Rs. 17.50 Cr as part of operating expense in FY 2011 with regards to the costs incurred towards rehabilitation of runway. The relevant extract from Order 28/2011-12 is reproduced below;

***“Rehabilitation of Runway 10-28:** DIAL has proposed an inclusion of Rs. 110 Cr in the project cost towards rehabilitation of R/W 10-28. EIL had pointed out that the rehabilitation and strengthening works of runway 10-28 are not part of the Master Plan. In their estimate, actual cost of the work should be Rs. 90 Cr. KPMG, while agreeing to the fair cost estimate of Rs. 90 Cr by EIL, pointed out that DIAL has classified entire cost as capital expenditure as per Accounting Standard 10. However, as per paragraph 12.1 of the said Accounting Standard, only expenditure that increases the future benefits from the existing assets beyond its previously assessed standard of performance is included in the gross book value. This implies that the incremental expenditure, over and above the cost of normal repairs, that leads to an increase in the runway's life or load bearing capacity beyond its original design specifications can be capitalized. It has been observed that the Pavement Classification Number (PCN) of R/W 10-28 has decreased from a design level of 106 to 99. Post rehabilitation, the PCN is estimated to increase to 135. EIL has estimated fair cost of rehabilitation for upgrading to PCN 135 as Rs. 90 Cr. Based on the same, KPMG have estimated Rs. 17.5 Cr as proportionate amount spent on rehabilitation of runway to initial PCN value (i.e., 106) and balance Rs. 72.5 Cr (Rs. 90 Cr less Rs. 17.5 Cr) be treated as fair project cost. Thus, KPMG have suggested that the project cost of this work may be taken as Rs. 72.5 Cr and an amount of Rs. 17.5 Cr may be allowed only as operating expense in the financial year in which it has been incurred. Authority had taken a tentative view that the recommendations of the KPMG in the matter were fair and, therefore, an amount of Rs. 37.50 Cr may be excluded from the project cost. DIAL has accepted the disallowance of Rs. 17.50 Cr on the runway rehabilitation and has stated they shall be treating the same as OPEX in their tariff filing.”*

Authority based on the mentioned extract in the referred order is of the view that there is merit in DIAL's plea that Rs. 17.50 Cr should at the least be considered as an operating expense. Authority also noticed that DIAL during the time of determination of tariff for the Second Control Period has failed to claim the same as opex and has not raised the issue during the consultation process for the Second Control Period also. Authority has proposed to consider Rs. 17.50 Cr as an operating expense in FY 2011 and also henceforth requests DIAL to raise specific issues within the relevant control period.

Foreign Exchange Losses

- 2.4.11 Authority has looked at the submission regarding foreign exchange losses incurred by DIAL and has noted that the cost of debt considered takes into consideration the payment towards meeting the obligations under the hedge instruments taken by DIAL. Authority has also understood that the operator has taken only Interest Rate Swap and not Foreign Currency Swap for its foreign currency liability in the First Control Period.

Authority has taken the view that the costs incurred by DIAL towards hedging have been already considered under the cost of debt and the losses incurred by DIAL need not be considered as a pass-

through under operating expenses. Authority is of the view that the losses incurred are on account of the hedging principles adopted by DIAL and losses on account of the same need not be passed onto the airport users. The Authority has also noticed the claim made by DIAL in its tariff proposal which is as follows;

“DIAL as a part of cost optimization, leveraging on foreign currency inflow and optimizing cash flows have taken foreign currency loan in the FY’10 & FY’14. The benefit of lower cost has been passed on to the passenger in terms of lower tariff however on the other side due to currency fluctuation DIAL had to incur forex losses.”

Authority is of the view that if such forex losses were to be passed on along with the cost of hedge, the same would nullify whatever benefit DIAL is claiming that has been passed on to the passengers. The Authority had also allowed DIAL to consider the upfront cost of the new foreign currency loans along with the pre-closure cost of the existing loans in their submissions. DIAL have also submitted that they have taken this foreign currency loans leveraging on foreign currency inflow and optimizing the cash flows. Authority is guided by the principle of the SSA which says only efficient costs have to be considered. Authority has hence proposed not to consider forex losses as a pass-through under operating expenses for the First Control Period.

- 2.4.12 Authority proposes not to review any other expense items under the operating expenses and has proceeded to consider the remaining operating expenses as considered by Authority at the time of true up for the First Control Period as per the tariff order for the Second Control Period as it is. The net adjustments to the operating expenses as considered by the Authority in its tariff order for the Second Control Period towards true up for the First Control Period is as shown in the table below;

Table 12: Net Adjustments in Aeronautical Operating Expenses proposed to be considered by Authority for true up of First Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Operating Expenses as considered in the tariff order for the Second Control Period	367.01	493.59	934.42	564.53	669.97
Adjustment towards rehabilitation of runway	0.00	17.50	0.00	0.00	0.00
Operating Expenses proposed to be considered by the Authority towards true up for FCP	367.01	511.09	934.42	564.53	669.97

2.5 True up of Aeronautical Taxes

DIAL’s submissions regarding True up of Aeronautical Taxes for First Control Period

- 2.5.1 DIAL has considered the aeronautical tax as nil for the First Control Period as decided by the Authority in the tariff order of Second Control Period, while considering S Factor as part of aeronautical revenue to determine tax.

Decisions taken by the Authority regarding True up of Aeronautical Taxes for First Control Period as per Tariff Order of Second Control Period

- 2.5.2 The Authority at the time of tariff determination for the First Control Period had forecast aeronautical taxes of Rs. 196.08 Cr and Rs. 345.54 Cr for FY 2012-13 and FY 2013-14 respectively, the last two years of the First Control Period. The Authority had also determined that they shall be trueing up these aeronautical taxes based on the actual incidence of corporate tax. As DIAL had not paid any corporate taxes in these years based on the audited financial statement for FY 2012-13 and FY 2013-

14, in order to prevent unjust enrichment, Authority decided that only actual tax paid that can be ascribed to aeronautical taxes shall be reckoned for the purpose of determining target revenue, and has considered aeronautical tax as nil for the First Control Period.

Authority's Examination and Proposals regarding issues pertaining to Aeronautical Taxes for the First Control Period as part of the tariff determination process for the current Control Period

- 2.5.3 Authority has looked at TDSAT directions towards considering S Factor as part of the revenue base towards determination of aeronautical taxes and has proposed to call for a stakeholder consultation process in this regard only from the Third Control Period towards considering the S Factor as part of aeronautical revenue for providing aeronautical taxes as a benefit for the tariff determination process. Authority hence as part of this consultation paper has calculated Aeronautical Taxes for the First Control Period by excluding the S Factor as part of revenue to arrive at the aeronautical Profit Before Taxes (PBT). The aeronautical taxes are finally arrived at by considering the effective tax rate as per actuals on the aeronautical PBT for the First Control Period.

Authority had noted that the actual tax outgo from DIAL is nil in the First Control Period and hence the effective tax rate has been worked out as nil in the First Control Period. In line with its decision towards true up of aeronautical taxes for the First Control Period as per the tariff order for the Second Control Period, Authority has proposed to consider the aeronautical taxes as nil for the First Control Period.

2.6 True up of Revenue from Revenue Share Assets

DIAL's submissions regarding True up of Revenue from Revenue Share Assets for the First Control Period

- 2.6.1 As per the definition mentioned in OMDA, Revenue Share Assets are defined as below;

"Revenue Share Assets" shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (e.g. Public admission fee, etc.)"

DIAL as per their submission have considered revenue from Fuel Throughput Charges as part of the Revenue from Revenue Share Assets and have excluded revenues pertaining to Existing Assets and revenue from Disallowed Area from the consideration under Revenue from Revenue Share Assets. Further, the revenue share payable to AAI pertaining to the S Factor has also been excluded from the Revenue from Revenue Share Assets. The detailed justifications as submitted by DIAL as part of the tariff proposal can be seen in the below mentioned sections.

Fuel Throughput Charges

- 2.6.2 DIAL has represented that the revenue from the levy of Fuel Throughput Charge is the consideration for the concession awarded to fuel supply companies for supplying their product to air carriers out of their respective airports and hence eligible to be classified as revenue from Revenue Share Assets. The relevant extract from the petition is reproduced below;

"Delhi International Airport Limited ("DIAL") has been levying a Fuel Throughput Charge at the IGI Airport in consideration for the concession awarded to the fuel supply companies to supply their product to air carriers operating out of the respective airports like any other concession. The said Fuel Throughput Charge which is charged by DIAL to the oil companies is akin to royalty, for

permitting oil companies to supply fuel at the IGI Airport. However, the said charge is not directly relatable to supply of fuel to the aircrafts at the IGI Airport.

While Fuel Throughput Charge is the consideration for the concession awarded to the oil companies to supply their product to air carriers operating out of the respective airports, Fuel Infrastructure Fee is the levy charged by the owner of the facility (who may not necessarily be the airport operator) which generally comprises of the necessary infrastructure viz. Common Hydrant System, Pipeline, Storage Tank etc. required for the performance of the fuelling services. As such, Fuel Infrastructure Fee is the charge levied on the oil companies by the owner of the fuel infrastructure, which is Delhi Aviation Fuel Facility Private Limited (DAFFPL) in the case of IGI Airport, for the supply of fuel to aircrafts whereas Fuel Throughput Charge is a charge levied by DIAL for grant of the right to oil companies to provide their services at the IGI Airport.

There is a clear distinction between the levy of Throughput Fee and the Fuel Infrastructure Fee. In case of the former, the fee is the consideration for the concession awarded to the fuel supply companies to supply their product to air carriers operating out of the respective airports. The latter is a levy charged by the owner of the facility (may not necessarily be airport operator) which generally comprises of the necessary Infrastructure viz. Common Hydrant System, Pipeline, Storage Tank etc. required for the performance of the fuelling services. Therefore, throughput fee is not covered under Schedule 5 of OMDA and is consequentially not a charge for an Aeronautical Service.

In compliance with the provisions of the Act and adherence to the provision of OMDA, we submit that the throughput fee is a concession fee charged generally on per unit of ATF off take.

It is also relevant to note that not only DIAL but AAI has also been charging Fuel Throughput Charges at various other airports and the same was charged by AAI after negotiating the charges with the oil companies. As for the IGI Airport, AAI had been charging Fuel Throughput Charges in addition to the existing airport charges specified in Schedule 8 of the SSA, even before handing over the IGI Airport to DIAL which indicates that Fuel Throughput Charges is not in the nature of an aeronautical charge. Further, at the time of the bidding process for the IGI Airport, AAI issued a response to the queries of the bidders wherein it clearly stated that the airport operator would have the freedom to negotiate the quantum of Fuel Throughput Charges with the oil companies, thereby make it clear that the same would not be within the ambit of an aeronautical charge. The answer of AAI to pre-bid queries is as under:

“Pre-bid queries raised by the bidders at the bidding stage for CSIA and response to same by AAI

428	The heads of Aeronautical Services mentioned in Schedule 5 of OMDA are not separately captured in the format provided for business plan in RFP. Under which head do each of the Aero Services get clubbed?	In respect of Aeronautical Services the only charges levied are Landing Fees, Parking Fees, Housing Fees and the facilitation component of the Passenger Service Fee.
690	Oil Companies What is the present arrangement with companies supplying ATF and AAI. What are the charges received by AAI. Please provide copies of formal	Presently AAI is charging lease rental from oil companies for allotted land. However, oil companies (IOC, BPCL, & HPCL) have agreed to pay throughput charges with

	<p>arrangements.</p> <ul style="list-style-type: none"> · Is there any proposal for allowing private oil companies to supply ATF · What is the current arrangement for use of hydrant system and any new proposal for future? · Who is responsible for insurance of the Oil supply system 	<p>retrospective effect w.e.f. 1-4-2001. Quantum of throughput charge is to be agreed between AAI and oil companies.</p> <p>2. Yes.</p> <p>3. Currently hydrant at Tr-2 IGIA is owned by BPCL and all 3 companies IOC, HPCL, and BPCL share' this facility on a common usage basis.</p> <p>4. Oil Company is responsible for oil supply system.</p>
978	<p>Refer your reply no 95 to Query (IGIA), raised by one of the bidders wherein you have informed that "oil companies (IOC, BPCL, HPCL) have agreed to pay throughput charges with retrospective effect w.e.f. 1-4-2001."</p> <p>Kindly inform us 1) The throughput charge rate and the absolute amount - year wise that is due I expected to be due from each of the oil companies.2) The throughput of each oil company</p>	<p>The Oil Companies have recently agreed in principle to pay the throughput charges but exact quantum is not yet decided.</p>
1092	<p>Would the JVC be permitted to share the revenue from the fuel suppliers at the Airport apart from charging lease rentals?</p>	<p>Yes. JVC will have freedom to negotiate with the fuel companies.</p>

Pertinently, the right to mutually agree and sign agreements with the oil companies has also been granted to DIAL in Clause 5.2 of the OMDA, which states as under:

“5.2 Transition Phase

(a) The period commencing from Effective Date and terminating three (3) months thereafter shall constitute the **Transition Phase**. Provided however that in the event the activities proposed to be undertaken during the Transition Phase have not been completed within the abovementioned period of three (3) months, then the Transition Phase shall be extended by an additional period of three (3) months, and in such event, the period commencing from Effective Date and terminating six (6) months thereafter shall constitute the **Transition Phase**.

(b) During the Transition Phase, the following activities shall take place:

(i) **Existing Contracts:** The JVC shall take best efforts, and AAI shall render all reasonable assistance, to transfer / novate AAI under all existing contracts and agreements between AAI and any third party, as relatable to the Airport, with the JVC, on the principle that such transfer / novation

would release AAI of all liabilities and obligations under such contracts or agreements as arising from and after the Effective Date (except those pertaining to Legacy Matters). The Parties, along with relevant third parties shall execute necessary documentation or put in place necessary arrangements for the aforesaid transfer / novation. The Parties expressly agree that in respect of existing arrangements of Indian Airlines Ltd. and Air India Ltd. for usage of land and/or building at the Airport and Public Sector oil companies in respect of common hydrant infrastructure for aircraft fuelling at the Airport, for which no express written contract has been executed or presently exists, such existing arrangements shall continue for a period of six (6) months from the Effective Date and the JVC shall during such period mutually agree with Indian Airlines Ltd., Air India Ltd. and Public Sector Oil companies in respect of such arrangements going forward. Provided however that any third party contract that cannot be specifically novated to the JVC for any reason whatsoever shall be performed by the JVC (at its own risk and cost) for and on behalf of AAI (as if the JVC was an original party to the said contracts, in place of AAI). Provided further that JVC shall indemnify and keep indemnified the AAI against any liability or costs arising under such contracts (including, for the avoidance of doubt, contracts relating to capital works-in-progress included in the list of Mandatory Capital Projects), including specifically, payments due to the counter-parties of such contracts or to any other Entities pursuant to such contracts. Any benefits arising from such contracts shall also vest with JVC. Nothing contained in this Article 5.2 (b) (i) shall prejudice the payment obligation of the JVC in respect of payments due from August 30, 2005 under contracts for capital works-in-progress as contained in Article 5.2 (b) (ii) hereof.”

As such, Clause 5.2 of the OMDA expressly allows DIAL to enter into contracts with oil companies.

As per Schedule 5, “Common hydrant infrastructure for aircraft fuelling services by authorized providers” is an Aeronautical Service. However, as explained above, Fuel Throughput Charge is not covered by the foregoing. Further, Aeronautical Services have also been defined in Section 2 of the AERA Act. The same states that “aeronautical service” means any service “for supplying fuel to the aircraft at an airport”. However, it is to be borne in mind that the charge against supply of fuel to aircrafts is Fuel Infrastructure Charge, as detailed above, and not Fuel Throughput Charge. As such, Fuel Throughput Charge cannot be considered a charge against service of supply of fuel to aircrafts as Fuel Infrastructure Charge and Fuel Throughput Charge are different charges, levied by different entities for different purposes. Hence, Fuel Throughput Charge is not an Aeronautical Charge even in terms of the AERA Act.

A bare perusal of Schedule 6 of the OMDA shows that Fuel Throughput Charge is not even a charge against a Non-Aeronautical Service under the OMDA. In view of the same, the question which therefore, arises is that what is the nature of Fuel Throughput Charge and under what type of charge can the same be categorized. A further question which arises is as to how the revenue from Fuel Throughput Charge is to be treated for the purpose of determination of Aeronautical Tariff.

The answer to the said query lies in the definition of clause (b) of Revenue Share Assets under the formula provided in schedule 1 of SSA which reads as under:

““Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues arising from Non-Aeronautical Assets (eg. Public Admission Fee)”

Therefore, since Fuel Throughput Charge is not considered as revenue arising from Non-Aeronautical Assets and is as such, related to aeronautical services, the same would be considered as

gross revenue from Revenue Share Assets. The only example of revenue from aero-related services which is given in the SSA, is of public admission fee. Public admission fee is charged by DIAL for admission to the passenger terminal building. While the passenger terminal building is an Aeronautical Asset, public admission fee which is charged on account of the existence of the same but is not relatable to any Aeronautical Service being provided at the passenger terminal building, is categorised as revenue from an aero-related service. Similarly, Fuel Throughput Charges, which is charged on account of existence of the fuel infrastructure, but is not related to provision of any aeronautical service therefrom, can be categorised as revenue from aero-related services.

As far as the treatment of revenue from Fuel Throughput Charge is concerned, the definition of S-factor (which is a regulatory block for the calculation of Target Revenue) states that 30% of the gross revenue from Revenue Share Assets shall be used for cross-subsidization of the Aeronautical Revenue. In terms of the said definition, since revenue from Fuel is to be considered as gross revenue from Revenue Share Assets, 30% of the same would be a part of the S factor and be used for cross-subsidization of the Target Revenue for Aeronautical Services.

In view of the above, in current tariff filing we have considered Fuel Throughput Charges as a part of the revenue from Revenue Share Assets, 30% of which is in turn used for cross-subsidization of the Target Revenue for calculation of the aeronautical tariff.”

Revenue from Existing Assets

- 2.6.3 DIAL has indicated that in order to provide the services under OMDA, DIAL utilises aeronautical assets, non-aeronautical assets, Non Transfer Assets and Existing Assets whose definitions have been reproduced verbatim as below;

“Aeronautical Assets” shall mean those assets, which are necessary or required for the performance of Aeronautical Services at the Airport and such other assets as JVC procures in accordance with the provisions of the Project Agreements (or otherwise on the written directions of the GOI/AAI) for or in relation to, provision of any Reserved Activities and shall specifically include all land (including Excluded Premises), property and structures thereon acquired or leased during the Term in relation to such Aeronautical Assets.”

“Existing Assets” means the physical, tangible, intangible and other assets of whatsoever nature existing at the Airport Site as on the date hereof except working capital assets other than inventory, stores and spares.”

“Non-Aeronautical Assets” shall mean:

1. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part I of Schedule 6 and any other services mutually agreed to be added to the Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity)
2. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part II of Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity), to the extent such assets (a) are located within or form part of any terminal building; (b) are conjoined to any other Aeronautical Assets, assets included in paragraph (i) above and such assets are incapable of independent access and independent existence; or (c) are predominantly servicing/ catering any terminal complex/ cargo complex.

And shall specifically include all additional land (other than the Demised Premises), property and structures thereon acquired or leased during the Term, in relation to such Non-Aeronautical Assets.

“Non-Transfer Assets” shall mean all assets required or necessary for the performance of Non-Aeronautical Services as listed in Part II of Schedule 6 hereof as located at the Airport Site (irrespective of whether they are owned by the JVC or any third Entity), provided the same are not Non-Aeronautical Assets.

- 2.6.4 DIAL has submitted that based on their interpretation of the above mentioned clauses, non-aeronautical revenue accruing from Existing Assets can't be considered as part of revenue from Revenue Share Assets as these assets are owned by AAI and not by JVC or any third entity and hence consequently should be exempted while considering revenue from Revenue Share Assets.

The relevant extract from the DIAL tariff proposal is as shown below;

“As per Order No. 40/2015-16 dated 08.12.2015 passed by AERA for determination of Aeronautical Charges for IGI Airport, New Delhi (DIAL) for the Second Control Period (01.04.2014-31.03.2019), AERA had decided that for the time being, the revenue realized by DIAL from Commercial Property Development (CPD) shall not be considered for determination of Aeronautical Tariff in respect of IGI Airport, New Delhi. It was also decided by AERA that AERA would take the considered opinion of Airports Authority of India (AAI) and Ministry of Civil Aviation (MoCA) in this regard and thereafter, reconsider the treatment of revenue from CPD towards determination of Aeronautical Charges. The relevant part of the Order dated 08.12.2015 is as under:

“14.20.3 AAI/MoCA being the agencies of the sovereign to have leased the land to DIAL are best placed to prescribe the mechanism for land monetization by DIAL in future and the formulation for treatment of revenue generated from monetization of land towards determination of aeronautical tariff in respect of IGI Airport, Delhi. The Authority proposed to request to AAI/MoCA for their considered view in this regard.

14.20.4 Finally, the Authority proposed not to consider the amount of Rs. 390.05 crore for the First Control Period (revenues realized by DIAL from Commercial Property Development) and Rs. 549.24 crore for the Second Control Period (revenues projected to be realized by DIAL from Commercial Property Development) towards determination of aeronautical tariff in respect of IGI Airport, Delhi, pending the receipt of views of AAI/MoCA.”

Accordingly, DIAL has also analyzed the contractual provisions contained in the Operation, Management and Development Agreement (OMDA) dated 04.04.2006 executed between AAI and DIAL and the State Support Agreement (SSA) dated 26.04.2006 executed between The Government of India (GOI) and DIAL which are relevant to the treatment of revenue from CPD for determination of Aeronautical Charges. Further, a detailed analysis of the calculation of S-factor under SSA has also been carried out by DIAL. The same is being presented hereunder for AERA's consideration:

(I). Under the OMDA, DIAL has been granted the functions of operating, maintaining, developing, designing, constructing, upgrading, modernizing, financing and managing the IGI Airport, New Delhi (“Airport”). In order to perform its functions, DIAL has to perform services and activities constituting Aeronautical Services and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport as envisaged in Clause 2.1.1 and 2.1.2 of the OMDA which reads as under:

“2.1 Grant of Function

2.1.1 AAI hereby grants to the JVC, the exclusive right and authority during the Term to undertake some of the functions of the AAI being the functions of operation, maintenance, development, design, construction, upgradation, modernization, finance and management of the Airport and to perform services and activities constituting Aeronautical Services, and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport and the JVC hereby agrees to undertake the functions of operation, maintenance, development, design, construction, upgradation, modernization, finance and management of the Airport and at all times keep in good repair and operating condition the Airport and to perform services and activities constituting Aeronautical Services and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport, in accordance with the terms and conditions of this Agreement (the “Grant”).”

2.1.2 Without prejudice to the aforesaid, AAI recognizes the exclusive right of the JVC during the Term, in accordance with the terms and conditions of this Agreement, to:

(i) develop, finance, design, construct, modernize, operate, maintain, use and regulate the use by third parties of the Airport;

(ii) enjoy complete and uninterrupted possession and control of the Airport Site and the Existing Assets for the purpose of providing Aeronautical Services and Non-Aeronautical Services;

(iii) determine, demand, collect, retain and appropriate charges from the users of the Airport in accordance with Article 12 hereto; and

(iv) Contract and/or sub contract with third parties to undertake functions on behalf of the JVC, and sub-lease and/or license the Demised Premises in accordance with Article 8.5.7.

Further, Clause 2.2.3 and 2.2.4 of the OMDA state as under:

“2.2.3 Aeronautical Services, Non-Aeronautical Services and Essential Services

Subject to the foregoing and to Applicable Law, JVC shall undertake/ provide Aeronautical Services and Essential Services at the Airport Site. JVC may seek to undertake/provide Non-Aeronautical Services at the Airport Site by including them in the proposed (draft) Master Plan, provided however, if the same form a part of the (final) Master Plan then the same shall be undertaken as provided in this Agreement. JVC and AAI shall upon mutual agreement between the Parties update the list of Non-Aeronautical Services to include such other activities, as requested by AAI or JVC.

Notwithstanding anything contained in this Agreement, the JVC shall not undertake any activities at the Airport Site other than the Aeronautical Services, Non-Aeronautical Services and Essential Services.

2.2.4 It is expressly understood by the Parties that JVC shall provide Non-Aeronautical Services at the Airport as above, provided however that the land area utilized for provision of Non-Transfer Assets shall not exceed five percent (or such different percentage as set forth in the master plan norms of the competent local authority of Delhi, as the same may change from time to time) of the total land area constituting the Demised Premises. Provided however that the Non-Transfer Assets, if any, that form part of the Carved-Out Assets and/or situated upon

the Existing Leases shall be taken into account while calculating the percentage of total land area utilized for provision of Non-Transfer Assets.”

The aforementioned services are defined in the OMDA as under:

“ “Aeronautical Services” shall have the meaning assigned hereto in Schedule 5 hereto.”

“Essential Services” shall mean those Aeronautical Services and Non-Aeronautical Services that are listed in Schedule 16 hereof and such other services that are mutually agreed to be added to the schedule from time to time.

“Non-Aeronautical Services” shall mean such services as are listed in Part I and Part II of Schedule 6 hereof.”

In order to provide the aforementioned services, DIAL uses Aeronautical Assets, Non-Aeronautical Assets, Non-Transfer Assets, Existing Assets which are defined in the OMDA as follows:

“Aeronautical Assets” shall mean those assets, which are necessary or required for the performance of Aeronautical Services at the Airport and such other assets as JVC procures in accordance with the provisions of the Project Agreements (or otherwise on the written directions of the GOI/AAI) for or in relation to, provision of any Reserved Activities and shall specifically include all land (including Excluded Premises), property and structures thereon acquired or leased during the Term in relation to such Aeronautical Assets.”

***“Existing Assets”** means the physical, tangible, intangible and other assets of whatsoever nature existing at the Airport Site as on the date hereof except working capital assets other than inventory, stores and spares.”*

“Non-Aeronautical Assets” shall mean:

- 1. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part I of Schedule 6 and any other services mutually agreed to be added to the Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity)*
- 2. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part II of Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity), to the extent such assets (a) are located within or form part of any terminal building; (b) are conjoined to any other Aeronautical Assets, assets included in paragraph 1 above and such assets are incapable of independent access and independent existence; or (c) are predominantly servicing/ catering any terminal complex/ cargo complex*

And shall specifically include all additional land (other than the Demised Premises), property and structures thereon acquired or leased during the Term, in relation to such Non-Aeronautical Assets.”

“Non-Transfer Assets” shall mean all assets required or necessary for the performance of Non-Aeronautical Services as listed in Part II of Schedule 6 hereof as located at the Airport Site (irrespective of whether they are owned by the JVC or any third Entity), provided the same are not Non-Aeronautical Assets.”

It is also important in this context to refer to the definitions of Transfer Date and Revenue contained in OMDA as under:

“Transfer Date” shall mean the date on which JVC transfers possession (and in respect of such assets that are not owned by AAI, ownership and possession) of the Transfer Assets and/ or Non-Transfer Assets, as the case may be, to AAI or its nominee in accordance with the terms hereof, which shall be the date of termination as per the relevant notice of termination issued by JVC or AAI, as the case may be, or the date of expiry of this Agreement.

“Revenue” means all pre-tax gross revenue of JVC, excluding the following: (a) payments made by JVC, if any, for the activities undertaken by Relevant Authorities or payments received by JVC for provision of electricity, water, sewerage, or analogous utilities to the extent of amounts paid for such utilities to third party service providers; (b) insurance proceeds except insurance indemnification for loss of revenue; (c) any amount that accrues to JVC from sale of any capital assets or items; (d) payments and/or monies collected by JVC for and on behalf of any governmental authorities under Applicable Law (e) any bad debts written off provided these pertain to past revenues on which annual fee has been paid to AAI. It is clarified that annual fee payable to AAI pursuant to Article 11 and Operational Support Cost payable to AAI shall not be deducted from Revenue.

As you are aware, in so far as assets owned or belonging to AAI OMDA refers to the same specifically in unambiguous terms. This is clear from the following Article 20.1.1 of OMDA extracted below:

20.1.1 The JVC hereby agrees and undertakes that from the Effective Date and during the Term and thereafter, it shall indemnify and keep indemnified and otherwise save harmless, AAI, its agents and employees, from and against all claims, demands made against and/ or loss caused and/ or damages suffered and/ or cost, charges/ expenses incurred or put to and/ or penalty levied and/ or any claim due to injury to or death of any person and/ or loss or damage caused or suffered to property owned or belonging to AAI, its agents and employees or third party as a result of any acts, deeds or thing done or omitted to be done by JVC or as a result of failure on the part of JVC to perform any of its obligations under this Agreement or on the JVC committing breach of any of the terms and conditions of this Agreement or on the failure of the JVC to perform any of its statutory duty and/ or obligations or failure or negligence on the part of JVC to comply with any statutory provisions or as a consequence of any notice, show cause notice, action, suit or proceedings, given, initiated, filed or commenced by any third party or Government Authority or as a result of any failure or negligence or default of JVC or its contractor(s) and/ or sub-contractors and/ or invitees as the case may be, in connection with or arising out of this Agreement and/ or arising out of or in connection with JVC’s use and occupation of Airport Site and/ or Airport and/ or the provision of Airport Services.

To enable DIAL to carry out the functions of operating, maintaining, developing, designing, constructing, upgrading, modernizing, financing and managing the Airport, the AAI agreed to demise in favour of DIAL, Demised Premises in terms of the Lease Deed dated 25.04.2006. It is pertinent to refer to the Article 2.1 (Demised Premises), Article 5.1 (Term), and Article 5.2 (Reversion) of the Lease Deed which are reproduced below:

“2.1 Demised Premises

2.1.1 In consideration of the Lease Rental, OMDA and the covenants and warranties on the part of the Lessee therein and herein, the Lessor, in accordance with the AAI Act and the terms and conditions set forth herein, hereby, demise to the Lessee, commencing from the Effective Date, all the land (along with any buildings, constructions or immovable assets, if any, thereon) which is described, delineated and shown in the Schedule 1 hereto, other than (i) any lands (along with any

buildings, constructions or immovable assets, if any, thereon) granted to any third party under any Existing Lease(s) constituting the Airport on the date hereof; and (ii) any and all of the Carved Out Assets and the underlying land together with any buildings, constructions or immovable assets thereon, on an “as is where is basis” together with all Encumbrances thereto, (hereinafter “Demised Premises”) to hold the said Demised Premises, together with all and singular rights, liberties, privileges, easements and appurtenances whatsoever to the said Demised Premises, hereditaments or premises or any part thereof belonging to or in anyway appurtenant thereto or enjoyed therewith, for the duration of the Term for the sole purpose of the Project, and for such other purposes as are permitted under this Lease Deed.”

“5.1 Term

The lease granted in pursuance of this Lease Deed shall be for a period of 30 years from the Effective Date and shall, in the event the lessee renews the term of the OMDA in accordance with Article 18.1(b) therein, be renewed for an additional period of thirty (30) years (“Term”). Notwithstanding anything contained in this Lease Deed, the Term shall be co-terminus with the term of the OMDA, and this Lease Deed shall terminate automatically with the expiry or early termination of the OMDA. The Parties hereby expressly agree that in the event of a Substitution (as defined in the Substitution Agreement) under the provisions of the Substitution Agreement, this Lease Deed shall forthwith terminate.

5.2 Reversion

5.2.1 On expiry of the Term or early termination of this Lease Deed, for any reason whatsoever:

i. the Lessee shall, subject to sub-part (ii) and (iii) of this Article 5.2.1, surrender to the Lessor, the Demised Premises together with all assets, buildings, fixtures, runways, all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the Demised Premises, hereditaments or premises or any part thereof belonging to or in anyway appurtenant thereto or enjoyed therewith, as constituting the Airport (as such time), without any Encumbrances (except encroachments that have not been removed and are existing on the date hereof. For the purposes hereof, Parties expressly agree that “encroachments existing on the date hereof” and words of similar import shall imply those portions of the Demised Premises that are encroached on the date hereof, as identified in Schedule 2 hereof).

ii. The Lessee shall, in accordance with the OMDA, transfer to the Lessor, all the Transfer Assets together with all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the said Transfer Assets, hereditaments or premises or any part thereof belonging to or in any way appurtenant thereto or enjoyed therewith without any Encumbrances and the Lessor hereby acknowledges and agrees to purchase/accept, in accordance with the terms set out in the OMDA, the aforesaid transfer of all Transfer Assets together with all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the said Transfer Assets, hereditaments or premises or any part thereof belonging to or in any way appurtenant thereto or enjoyed therewith without any Encumbrances.

iii. The Lessor shall have the right, but not the obligation, to purchase from the Lessee, in accordance with the terms and conditions set forth in the OMDA, any and all Non-Transfer Assets (in part or in whole) free and clear of all Encumbrances, and the Lessee hereby undertakes and agrees to transfer to the Lessor, in accordance with the terms and conditions set forth in the OMDA,

such Non-Transfer Assets (whether in whole or in part) that the Lessor may elect to purchase, free and clear of all Encumbrances.

Provided however, in the event the Lessor elects not to purchase from the Lessee any and / or all Non-Transfer Assets, then the Parties shall enter into a revised lease deed (“Revised Lease Deed”) in relation to such Non-Transfer Assets and the underlying land together with all assets, buildings, fixtures, all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the such Non-Transfer Assets on such commercial terms and conditions as may be mutually agreeable. Provided however, the terms and conditions of the Revised Lease Deed shall not be inferior to terms and conditions for leases entered into for comparable immovable property. Any stamp duty, registration charges or other fees, taxes or charges of any kind whatsoever pertaining to the Revised Lease Deed and execution thereof shall be borne by the Lessee. Provided further, in the event the Parties do not, for whatsoever reason, agree on the terms and conditions of such Revised Lease Deed within six(6) months of the expiry or early termination of this Lease Deed, the Lessee hereby undertakes to provide Lessor vacant possession of such land.

iv. Parties hereby expressly recognize that the Lessor shall (without prejudice to its rights of access under the OMDA, and subject to the Revised Lease Deed) have the right to re-enter and take vacant possession of the Demised Premises upon the expiry or early termination of this Lease Deed.”

While under the OMDA, DIAL is free to fix the charges for Non-Aeronautical Services, the charges for Aeronautical Services referred to as Aeronautical Charges, levied by DIAL at the Airport have to be determined as per the provisions of the SSA. In this behalf, it is relevant to refer to Article 12.1 and 12.2 of the OMDA which state as under:

“12.1 Tariff

*12.1.1 For the purpose of this Agreement, the charges to be levied at the Airport by the JVC for the provision of Aeronautical Services and consequent recovery of costs relating to Aeronautical Assets shall be referred to as **Aeronautical Charges**.*

12.1.2 The JVC shall at all times ensure that the Aeronautical Charges levied at the Airport shall be as determined as per the provisions of the State Support Agreement. It is hereby expressly clarified that any penalties or damages payable by the JVC under any of the Project Agreements shall not form a part of the Aeronautical Charges and not be passed on to the users of the Airport.

12.2 Charges for Non-Aeronautical Services

Subject to Applicable Law, the JVC shall be free to fix the charges for Non-Aeronautical Services, subject to the provisions of the existing contracts and other agreements.”

We also draw your kind attention to the following provisions of the OMDA and SSA which are relevant:

OMDA:

Schedule 11. Insurance. 1.1 Subject to Applicable Law, JVC must at its own cost and expense ensure that the insurances specified in this paragraph are effected from the Effective Date and are maintained in full force for the remainder of the Term.

*(a) Insurances in respect of “**all risks**” as customarily covered by such insurance policies for physical loss or damage to the Airport (including all assets thereon, including but not limited to Aeronautical Assets, Non-Aeronautical Assets and Existing Assets) and all or any structures*

(including temporary structures), plant (including hired in plant) and equipment including computer equipment and vehicles on the Airport, to their full rebuilding or replacement cost (including allowance for professional fees and removal of debris costs), increased from time to time as necessary to maintain such full rebuilding or replacement cost.

Schedule 21 Duties of Independent Engineer, (c) to review development reports submitted by the JVC to assess compliance of works undertaken in relation to the Development Standards and Requirements as detailed in Schedule 1 and with the approved Major Development Plan. In this regard, the Independent Engineer shall ensure that

(i) owners requirements, Master Plan requirements, specifications and design parameters in any agreement or agreed through OMDA mechanism have been fully addressed/ complied with.

Substitution Agreement, Article 1, definitions 1.1 Substitution, (v) transfer by the JVC of all assets owned by the JVC to the Selectee;

8.5.7, (i) Sub-contracting, sub-licensing and licensing, (d) Without prejudice to the foregoing, every contract entered into by the JVC shall be on an arms-length basis (and comply with contracting procedures set forth in Schedule 12), and shall contain an express provision allowing the transfer of the rights and obligations of the JVC under such contract to the AAI in the event of termination or expiry hereof. Every contract (including any sublease or license arrangement) entered into by the JVC shall contain an express provision recognising the right of the AAI to acquire the Transfer Assets and the Non-Transfer Assets (including reversion of underlying land) in the manner provided herein, and contain an undertaking by the counter-party (ies), licensee/ sub-lessees, or owners of the relevant asset, as the case may be to transfer the relevant Transfer Asset and/ or the Non-Transfer Asset (including the reversion of the underlying land), as the case may be, upon the exercise of such right by AAI. JVC shall further procure that any contracts entered into by any counter-party (ies), licensees/ sublessees, as the case may be and relatable to any Transfer Asset and/ or the Non-Transfer Asset shall also recognise the right of the AAI to acquire the Transfer Assets and the Non-Transfer Assets in the manner provided herein, and contain an undertaking by the counter-party (ies), sub-licensee, sub-sub-lessees, as the case may be to transfer the relevant Transfer Asset and/ or the Non-Transfer Asset, as the case may be, upon the exercise of such right by AAI.

19.3.2 In order to procure the foregoing, in addition to complying with the provisions of Article 8.5.7 hereof, JVC shall procure that in the event any third Entity has any proprietary interest in any Transfer Asset and/ or Non-Transfer Asset (the "Owner Entity"), the arrangements/ agreements entered into by the JVC or another third Entity with such Owner Entity explicitly recognise the right of AAI to acquire the said Transfer Asset and/or Non-Transfer Asset as the case may be, in accordance with the terms hereof, and contain an undertaking from such Owner Entity to transfer the relevant Transfer Asset and/or Non-Transfer Asset as the case may be, to AAI in accordance with the terms hereof.

SSA

“3.1 Airport Economic Regulatory Authority

3.1.1 GOI's intention is to establish an independent airport economic regulatory authority (the "Economic Regulatory Authority") which will be responsible for certain aspects of regulation (including regulation of Aeronautical Charges) of certain airports in India. GOI agrees to use reasonable efforts to have the Economic Regulatory Authority established and operating within two

(2) years from the Effective Date. GOI further confirms that, subject to Applicable Law, it shall make reasonable endeavours to procure that the Economic Regulatory Authority shall regulate and set/ re-set Aeronautical Charges, in accordance with the broad principles set out in Schedule I appended hereto. Provided however, the Upfront Fee and the Annual Fee paid/ payable by the JVC to AAI under the OMDA shall not be included as a part of costs for provision of Aeronautical Services and no pass through would be available in relation to the same.

...

3.1.3 GOI confirms that till such time as the Economic Regulatory Authority commences regulating Aeronautical Charges, the same shall be approved by GOI in accordance with the broad principles set out in Schedule I appended hereto.”

We also draw your attention to Clause 12 (c) of National Civil Aviation Policy (NCAP), which is also relevant and the same states as under:

12. Airports developed by State Governments, Private sector or in PPP mode

MoCA will continue to encourage development of airports by the State Governments or the private sector or in PPP mode. MoCA will also encourage the State Governments to develop new airports in their State by forming SPV with Airport Authority of India or with other interested Public Sector Undertakings/ Industry in order to create stake and ownership. Wherever so required, MoCA will endeavour to provide regulatory certainty with the following framework:

a) MoCA will coordinate with AERA, AAI, airlines, airport operators and stakeholders like cargo, MRO, ground handling, etc to identify ways to bring down airport charges, while abiding by the provisions of existing concession agreements and contracts.

b) MoCA will endeavour that the future airport projects in India, both greenfield and brownfield, have cost efficient functionality with no compromise on safety, security and efficiency.

c) To ensure uniformity and level playing field across various operators, future tariffs at all airports will be calculated on a ‘hybrid till’ basis, unless otherwise specified for any project being bid out in future. 30% of non-aeronautical revenue will be used to cross-subsidise aeronautical charges. In case the tariff in one particular year or contractual period turns out to be excessive, the airport operator and regulator will explore ways to keep the tariff reasonable, and spread the excess amount over the future.

...

In terms of Clause 12 of the OMDA read with Clause 3.1 of the SSA, the Aeronautical Charges are to be determined in line with the principles enumerated in Schedule 1 of the SSA which state that the determination of Aeronautical Charges is to be as per shared till inflation -X price cap model. The determination of Aeronautical Charges is preceded by the calculation of Target Revenue and the same is calculated as under:

“Calculating the aeronautical charges in the shared till inflation – X price cap model

The revenue target is defined as:

$$TR_i = RB_i \times WACC_i + OM_i + D_i + T_i - S_i$$

Where \underline{TR} = Target Revenue

RB = regulatory base pertaining to Aeronautical Assets and any investments made for the performance of Reserved Activities etc. which are owned by the JVC, after incorporating efficient capital expenditure but does not include capital work in progress to the extent not capitalised in fixed assets. It is further clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed for capitalization in the regulatory base. It is further clarified that the Upfront Fee and any pre-operative expenses incurred by the Successful Bidder towards bid preparation will not be allowed to be capitalised in the regulatory base

WACC = nominal post-tax weighted average cost of capital, calculated using the marginal rate of corporate tax.

OM = efficient operation and maintenance cost pertaining to Aeronautical Services. It is clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed as part of the operation and maintenance cost.

D = depreciation calculated in the manner as prescribed in Schedule XIV of the Indian Companies Act, 1956. In the event, the depreciation rates for certain assets are not available in the aforesaid Act, then the depreciation rates as provided in the Income Tax Act for such asset as converted to straight line method from the written down value method will be considered. In the event, such rates are not available in either of the Acts then depreciation rates as per generally accepted Indian accounting standards may be considered.

T = corporate taxes on earnings pertaining to Aeronautical Services.

S = 30% of the gross revenue generated by the JVC from Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges. (emphasis added)

“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (eg: Public Admission Fee)

i = time period (year) i “

It is therefore clear that as per the calculation of Target Revenue in terms of Schedule 1 of the SSA, S-factor is 30% of the gross revenue generated by DIAL from Revenue Share Assets. The Revenue Share Assets mainly consist of Non-Aeronautical Assets. Hence, in order to accurately calculate the gross revenue from Revenue Share Assets, the definition of ‘Non-Aeronautical Assets’ as provided in the OMDA has to be considered and applied.

From the definition of Non-Aeronautical Assets, it clearly transpires that Existing Assets (also known as Demised premises or AAI Assets) lie outside the purview of Non-Aeronautical Assets. As per the said definition, the Non-Aeronautical Assets would include:

- (i) All assets required for the performance of Non-Aeronautical Services listed in Part I of Schedule 6.

- (ii) *All assets required for the performance of Non-Aeronautical Services listed in Part II of Schedule 6, if they are (a) located within terminal building, (b) conjoined to other aeronautical assets and without direct access, or (c) are predominantly servicing/ catering any terminal complex/ cargo complex, and*
- (iii) *all additional land (other than the Demised Premises), property and structures thereon acquired or leased during the Term, in relation to such Non-Aeronautical Assets.*

It is important to note the words “irrespective of whether they are owned by the JVC or any third Entity” appearing in the definition of Non-Aeronautical Assets under OMDA. The term Entity has been defined in OMDA as “any person, body corporate, trust, partnership firm or other association of persons/ individuals whether registered or not”. The Third Entity obviously means and refers to an entity which is not a party to OMDA. In fact the Lease Deed defines the term Third Party as “any Entity other than the Parties to this Lease Deed”. As such, the meaning and import of Third Entity is very clear and means an Entity other than JVC and AAI who are parties to OMDA. In other words AAI is not a Third Entity referred to in the definition of Non-Aeronautical Assets. Also it is worth noting that wherever a reference to AAI has been made, the same is clearly referred to as AAI. Therefore the Non-Aeronautical Assets referred only to ‘assets owned’ by either JVC or any Third Entity, and not to any assets owned by AAI. The Existing Assets are neither owned by JVC nor owned by any Third Entity and they are owned by AAI only. The AAI assets/Demised Premises/Existing Assets have been clearly left out in the definition of Non-Aeronautical Assets. There is no doubt that Existing Assets are owned by AAI only.

Incidentally, it is also relevant to note the use of the word ‘irrespective’ and ‘owned’ appearing in the definition of Non-Aeronautical Assets under OMDA. These words have been used in relation to JVC or a third Entity and not in relation to AAI. The word ‘owned’ means any asset that goes into the balance sheet of the JVC or any third Entity. The Existing Assets are owned by AAI and they are in the balance sheet of AAI. It therefore, clear that any asset which is not owned by the JVC or any third Entity is not part of Non-Aeronautical Assets as defined in the OMDA.

The above position is also clear and demonstrated from the following:

The method of reversion given under Article 5.2 of the Lease Deed specifies a different mechanism of reversion for Demised Premises (which includes Airport Site as well as Existing Assets) as these are owned by AAI and not by DIAL or by any third Entity and the Lease Deed correctly provides that such Demised Premises shall be surrendered at the end of the Term and not transferred.

The definition of Transfer Date under OMDA also, makes a differentiation between methods of transfer of assets which are owned by the DIAL and the ones which are owned by AAI but are leased to DIAL as a part of the Demised Premises. In the case of the former both possession as well as ownership is to be transferred by DIAL to AAI on the Transfer Date, where as in the case of the latter, only possession is to be transferred since the ownership of such assets lies with the AAI only.

Schedule 11 of the OMDA which pertains to obtaining insurance for “Aeronautical Assets, Non-Aeronautical Assets and Existing Assets” also provides that Existing Assets are not included in Non-Aeronautical Assets. Schedule 11 envisages three categories of assets, each separate and distinct from the other, i.e., Aeronautical Assets, Non-Aeronautical Assets and Existing Assets. It is therefore clear that Existing Assets are in their own category distinct from Non-Aeronautical Assets.

In view of the above, Existing Assets are not Non-Aeronautical Assets and therefore, the same are outside the purview of Revenue Share Assets under SSA.

It is also pertinent to point out that as per the scheme of the SSA, since Non-Aeronautical Assets are a part of Revenue Share Assets, revenue from the same is included in the calculation of S-factor. However, revenue from Non-Aeronautical Assets is a subset of “non-aeronautical revenue” and therefore, in terms of the SSA, it is revenue from Non-Aeronautical Assets only that is to be considered for calculation of S-factor and not the non-aeronautical revenue as a whole. In this regard, it is also pertinent to point out that the National Civil Aviation Policy, in Clause 12(c) lays down that for future airports, 30% of the non-aeronautical revenue shall be used for cross-subsidization which is distinct from the mandate of the SSA. Therefore as far IGI Airport, Delhi is concerned; the mandate contained in SSA i.e. 30% of gross revenue from Non-Aeronautical Assets shall be followed and not 30% of non-aeronautical revenue.”

Revenue from Disallowed Area

2.6.5 As per the definition mentioned in OMDA, Revenue Share Assets is defined as below;

“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (e.g. Public admission fee, etc.)”

““Non-Aeronautical Assets” shall mean:

1. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part I of Schedule 6 and any other services mutually agreed to be added to the Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity)

2. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part II of Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity), to the extent such assets (a) are located within or form part of any terminal building; (b) are conjoined to any other Aeronautical Assets, assets included in paragraph (i) above and such assets are incapable of independent access and independent existence; or (c) are predominantly servicing/ catering any terminal complex/ cargo complex

2.6.6 DIAL has brought into notice the disallowed area of 8,652 sq.m. which the technical auditor EIL has indicated that such an area need not have been built as there is sufficient F&B area available already. DIAL mentions that the Authority, based on the technical auditor’s report, had disallowed the cost pertaining to disallowed area while approving the project cost. Thus, DIAL in their submission has excluded the revenue from this disallowed area while determining the revenue from Revenue Share Assets as it considers that the Authority had ascertained that the area was not required for performance of non-aeronautical services.

Deduction of Annual Fee pertaining to the Revenue Share Assets

2.6.7 DIAL has requested for exclusion of Annual Fee pertaining to revenue from Revenue Share Assets, while arriving at the S Factor i.e. the revenue considered for 30% cross subsidization shall be post deduction of the Annual Fee pertaining to the revenue from Revenue Share Assets. The relevant extract from the tariff proposal is as shown below;

“From the method of calculation of S-factor for the purpose of calculating the Target Revenue, it clearly transpires that the Annual Fee payable by DIAL to the AAI should be deducted from the gross revenue from Revenue Share Assets. The following contractual position clearly establishes the same:

Clause 3.1.1 of the SSA provides that ‘the Upfront Fee and the Annual Fee paid/ payable by the JVC to AAI under the OMDA shall not be included as a part of costs for provision of Aeronautical Services and no pass through would be available in relation to the same’.

On the same basis it follows that Annual Fee, which is not a cost for provision of aeronautical services as per Clause 3.1.1, is also not a cost for provision of Non-Aeronautical Services and in turn it is not a cost in relation to revenue from Revenue Share Assets.

The aforesaid position is also buttressed by the proposition that a cost in relation to a particular revenue is the cost incurred to earn the said revenue. Conversely, cost in relation to a particular revenue is such cost, without incurring which the said revenue cannot be earned. As such, any cost in relation to revenue would have to be incurred before any such revenue can be earned. However, Annual Fee is not a cost in relation to revenue from Revenue Share Assets since, the same accrues only after the said revenue has been earned and is not a pre-requisite for earning such revenue.

On the other hand, as per OMDA, the definition of “Revenue meaning all pre-tax gross revenue of JVC (subject to deductions mentioned in OMDA) specifically provides that “annual fee payable to AAI pursuant to Article 11 and Operational Support Cost payable to AAI shall not be deducted from Revenue. However, there is no such prescription for not deducting the Annual Fee paid/payable to AAI while calculating “S” factor.

Indisputably, payment of Annual Fee is not a cost in relation to the gross revenue generated by the JVC from the Revenue Share Assets.

It may not be out of place to bring out here the difference in wordings in SSA at two places; Clause 3.1.1 of SSA provides that;

....GOI further confirms that, subject to Applicable Law, it shall make reasonable endeavours to procure that the Economic Regulatory Authority shall regulate and set/ re-set Aeronautical Charges, in accordance with the broad principles set out in Schedule 1 appended hereto. Provided however, the Upfront Fee and the Annual Fee paid / payable by the JVC to AAI under the OMDA shall not be included as part of costs for provision of Aeronautical Services and no pass-through would be available in relation to the same. However, Schedule 1 of the same SSA states that .. “S = 30% of the gross revenue generated by the JVC from Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges.”

Clearly while drafting the SSA, when some stipulation was to be made with reference to Annual Fee, it was clearly mentioned as such (3.1.1.of SSA).

At any rate, AF is not a cost to earn such revenue because evidently, even if Revenue is Nil there can still be costs associated with and incurred to earn Revenue (that happens to be nil) but in such a case Annual Fee also is Nil. Further, the costs in relation to such revenue shall not be included while calculating Aeronautical Charges shall mean the costs in relation to such revenue shall not be deducted from the gross revenue generated from Revenue Share Assets.

From the foregoing it is clear that Annual Fee is not a cost in relation to Revenue Share Assets. As such, the Annual Fee can be deducted from gross revenue generated from Revenue Share Assets.

Hence, Annual Fee shall be reduced from gross revenue generated from Revenue Share Assets and 30% of the resultant gross revenue generated from Revenue Share Assets only shall be considered for calculation of Aeronautical Charges in terms of the SSA.”

2.6.8 Based on the above submissions, DIAL has hence considered revenue from Revenue Share Assets for cross subsidization taking into consideration the following;

- Inclusion of revenue from Fuel Farm Throughput Charges
- Exclusion of revenue from Existing Assets
- Exclusion of revenue from Area disallowed by the Authority at the time of approval of Project Cost
- Reduction of annual fee payable to AAI pertaining to revenue from Revenue Share Assets.

2.6.9 Based on the above considerations, the Revenue from Revenue Share Assets submitted by DIAL for First Control Period can be seen in the table below;

Table 13: Revenue from Revenue Share Assets submitted by DIAL as per MYTP

Year Ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Air Traffic Related Revenues (including Fuel Throughput Charge)	122.73	150.53	181.14	183.82	202.81
Passenger Related Revenues	224.15	193.57	319.88	379.59	470.35
Contract Linked Revenues	160.13	215.78	296.77	332.34	344.23
Cargo	177.74	139.41	128.46	129.38	140.73
Other Income	18.56	18.52	38.32	80.85	81.74
Total Non-Aero Revenue (A)	703.31	717.81	964.57	1,105.98	1,239.86
Exclusions					
Portions of Other Income Excluded by DIAL such as Investment Income, Dividend Income (B)	10.10	12.54	37.43	79.98	54.52
Revenue from Existing Assets ©	524.49	293.55	232.37	221.43	223.45
Revenue from Disallowed Area (D)	-	4.00	11.91	12.81	13.16
Non Aero Revenue post exclusions as mentioned above (E=A-B-C-D)	168.72	407.71	682.85	791.76	948.73
Revenue share of 45.99% on the above (F=0.4599 X E)	77.60	187.51	314.04	364.13	436.32
Non aero Revenues for Cross Subsidization (G=E-F)	91.13	220.21	368.81	427.63	512.41
S Factor to be considered for Cross Subsidization (S=0.30 X G)	27.34	66.06	110.64	128.29	153.72

Decisions taken by the Authority regarding True up of Revenue from Revenue Share Assets for First Control Period as per Tariff Order for Second Control Period

- 2.6.10 The Authority at the time of true up for the First Control Period as per tariff determination for the Second Control Period had mentioned that true up of non-aeronautical revenues was not explicitly provided in the First Control Period based on the premise that setting up of JVCs by DIAL shall increase the non-aeronautical revenues accruing to DIAL, which would have allowed them to retain the upside. Authority had hence at the time of issuance of consultation paper for the Second Control Period proposed not to true up the non-aeronautical revenue realised by DIAL for the First Control Period apart from adjustments towards Other Income and Fuel Into Plane Services. However based on submissions by various stakeholders and considering the fact that non-aeronautical revenue realized by DIAL in the First Control Period is less than those projected at the time of determining tariffs for the First Control Period, the Authority had decided to true up non-aeronautical revenues.
- 2.6.11 The Authority under the revenue items submitted as part of Other Income had decided to consider the revenues arising out of sale of Other materials/Scrap- Others, Profit on sale of depreciable assets, management fees, miscellaneous income, Others and Tender Cost recovery as part of revenue for cross subsidization. The interest income received by DIAL (on bank deposits, other deposits and on account of delayed payments) and profit on sale of investments have not been considered as part of revenue for cross subsidization on account of these being considered as part of cash flow management of DIAL. Dividend income realized by DIAL from investments in JVs had also not been considered for cross subsidization.
- 2.6.12 The Authority had considered revenue from Fuel Into Plane services as aeronautical in addition to Fuel Throughput Charges. The reasoning was based on reference to Schedule 5 of the OMDA according to which “Common Hydrant Infrastructure for aircraft fuelling services by authorized providers” clearly refers to the Fuel Into Plane (ITP) services. The Authority’s view was that any fee consequent to the supply of fuel to the aircraft (which is an aeronautical service) called by any name whatsoever (Fuel Throughput/License Fee etc.) would be aeronautical revenue as per the provisions of both AERA Act 2008 and OMDA.
- 2.6.13 The Authority had also decided that revenue from cargo and ground handling services shall be treated as non-aeronautical revenue in line with the directive from MoCA vide its letter No.AV.24032/4/2012-AD, dated 09.03.2012.
- 2.6.14 The Revenue from Revenue Share Assets considered by the Authority for true up of First Control Period as per tariff order for Second Control Period can be seen in the table below;

Table 14: Revenue from Revenue Share Assets considered by Authority towards true up of First Control Period as per Tariff Order for Second Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Non-Aeronautical Revenues	424.65	454.65	669.64	774.71	882.58
Cargo Revenues	34.27	122.31	109.21	110.51	118.82
Cargo Handling Revenues	135.59	-	-	-	-
Other Income	8.46	5.48	0.89	0.87	27.22
Revenue from Revenue Share Assets to be considered for cross subsidization	608.23	598.70	799.00	904.97	1050.53
30% of the Revenue from Revenue Share Assets	182.47	179.61	239.70	271.49	315.16

Authority's Examination and Proposals regarding issues pertaining to Revenue from Revenue Share Assets for the First Control Period as part of the tariff determination process for the current Control Period

Revenue from Fuel Farm Throughput Charges

2.6.15 The Authority has looked at DIAL's submission regarding revenue from Fuel Throughput Charge and has noted the following contentions of DIAL based on which they have requested for classification of the same as revenue from Revenue Share Assets instead of aeronautical revenues;

1. Fuel Throughput Charge which is charged by DIAL to the oil companies is akin to royalty for permitting oil companies to supply fuel at the IGI Airport and is not directly relatable to supply of fuel to the aircrafts at the IGI Airport.
2. Fuel Throughput Charge is the consideration for the concession awarded to oil companies to supply their product to air carriers which has to be contrasted with the Fuel Infrastructure Charge levied by DAFFPL which owns the fuel infrastructure. Fuel Throughput Charge is hence not covered under Schedule 5 of the OMDA which lists out the Aeronautical Services.
3. AAI has been charging such Fuel Throughput Charges in the past after negotiating such charges with the oil companies and as per the pre-bid reply to queries raised by bidders at the time of bidding, it has been mentioned that JVC will have freedom to negotiate with the fuel companies.
4. Fuel Throughput Charge is not an aeronautical charge even under AERA Act and shall not be covered under even Non-Aeronautical services but shall be covered under the definition of Revenue from Revenue Share Assets which is defined as
 - i. *“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues arising from Non-Aeronautical Assets (eg. Public Admission Fee)”*

The Authority at the time of tariff determination for the Second Control Period, has looked into this matter and considered Fuel Throughput Charges as aeronautical charges based on the sound reasoning that any fee collected by the airport operator consequent to the supply of fuel to the aircraft (which is an aeronautical service) called by any name whatsoever (Fuel Throughput/License Fee etc.) would be an aeronautical revenue as per the provisions of both AERA Act 2008 and OMDA.

The activities and the revenues associated with Fuel Throughput charges and Fuel Farm Infrastructure Charges /Fuel Into Plane services are by nature associated with aeronautical services which has been further affirmed under Schedule 5 of the OMDA which mentions

“Common Hydrant infrastructure for aircraft fueling services by authorized providers”

under Aeronautical Services.

Clearly any revenue earned by the airport operator from the above mentioned activity, even though the same is carried out by authorized providers, should form part of revenues from aeronautical services.

Further the Authority is of the view that the fact that AAI has been charging such revenues in the past post negotiation with fuel farm companies and the fact that airport operators have also been given the freedom to charge the same post negotiation at the time of bidding for the airport, doesn't imply that such Fuel Throughput Charges have to re-classified as revenue from Revenue Share Assets. It is to be

noted that AERA has determined the Fuel Throughput Charge as Rs. 500/KL as part of the order allowing DIAL to charge Base Airport Charges plus 10% from December 1, 2018 under aeronautical charges and the same is implemented by DIAL.

Considering the fact that Fuel Farm Throughput Charges can be conclusively considered under aeronautical revenues, the need for classifying such revenue stream under the definition of Revenue from Revenue Share Assets which is the contention of DIAL as per Point 4 above, doesn't arise and is not warranted.

Hence, the Authority in line with its decision taken in the tariff order for the Second Control Period proposes that revenue from Fuel Farm Throughput Charges shall be considered as aeronautical revenues across all control periods as part of its tariff determination exercise for the current Control Period.

Revenue from Disallowed Area

- 2.6.16 The Authority has looked at DIAL's submission with regards to Revenue from disallowed area. The Authority is of the view that as long as the Concessionaire realises non-aeronautical revenue from the disallowed area, such revenues should form part of the revenue from the Revenue Share Assets. The view is based on the fact that even though the dis-allowed area is excluded as investment for the purpose of determination of aeronautical tariff, DIAL is able to realise revenues from such disallowed area. In fact the Non-Aeronautical Asset definition specifically includes the assets which are located within or forms part of any terminal building and are incapable of independent access and independent existence as highlighted in the previous sections. Based on this definition the revenue generated from this disallowed area forms part of the revenue from Revenue Share Assets.

Authority has noted that this point has already been discussed and decision has been taken by the Authority not to exclude such revenue from disallowed area from the Revenue from Revenue Share Assets at the time of tariff determination for the Second Control Period. Authority doesn't see any merit in reversing its decision with regards to the treatment of revenue from disallowed area and hence proposes not to exclude such revenue from disallowed area as part of revenue from Revenue Share Assets.

Revenue from Existing Assets

- 2.6.17 The Authority has looked at the submission of DIAL with regards to the revenue from Existing Assets requesting for excluding the same from Revenue from Revenue Share Assets. The Authority has requested for details of these revenues and the details as submitted by DIAL are as shown in the table below;

Table 15: Details of Revenues from Existing Assets submitted by DIAL as per MYTP

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Revenues from Existing Assets					
Land License Fee	125.34	107.13	114.55	108.06	116.25
Hangar				13.34	17.67
Inflight Kitchen Fee	3.22	9.65	16.54	24.53	16.41
Retail- Duty Free	120.05	8.85			
Ground Handling Related Revenue		9.54			
Car Parking	21.66	6.42			
Radio Taxi	2.82	3.34	4.59	4.66	5.91
Advertisement	31.24	11.42			

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Bank ATM		1.00	0.36	0.41	0.77
Food and Beverages	19.42	7.57	2.31	2.11	2.66
Forex			0.03		
Other Travel Services		0.04	0.65	0.95	1.14
Retail Duty Paid	2.89	1.59	0.12	0.70	4.50
Telecom	14.16	5.53	0.38	0.18	1.70
Misc Others	9.49	3.01			
Total (A)	350.29	175.09	139.53	154.94	167.01
Cargo Revenue (Self Handled) (B)	141.04	16.70			
Cargo Revenue (as demised premises) (C)	33.16	101.76	92.85	66.49	56.44
Reduction on T2 Assets deployed by DIAL (D)	0.00	0.00	0.00	0.00	0.00
Total revenue from demised premises (A+B+C+D)	524.49	293.55	232.38	221.43	223.45

The total revenues accrued from such Existing Assets over the First Control Period based on the DIAL submission is Rs. 1,495.29 Cr. Authority has also noticed that such revenue from Existing Assets as claimed by DIAL constitutes roughly 30% of its total non-aero revenues for the First Control Period.

The Authority has looked at the terms of the OMDA and the definition of Existing Assets is presented below;

“Existing Assets” means the physical, tangible, intangible and other assets of whatsoever nature existing at the Airport Site as on the date hereof except working capital assets other than inventory, stores and spares.”

The Authority is of the view that Existing Assets don't share a mutually exclusive relation with aeronautical or non-aeronautical assets and the term Existing Assets has been defined as such to demarcate and identify those assets already existing prior to the execution of OMDA.

The definition of non-aeronautical assets doesn't exclude Existing Assets. In fact the definition of Non-Aeronautical Assets specifically states

“all assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part II of Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity), to the extent such assets

(a) are located within or form part of any terminal building;

(b) are conjoined to any other Aeronautical Assets, assets included in paragraph (i) above and such assets are incapable of independent access and independent existence; or

(c) are predominantly servicing/ catering any terminal complex/ cargo complex”.

As these Existing Assets are forming part of the terminal building, are conjoined to other aeronautical assets, are incapable of independent access and independent existence, and are predominantly servicing/catering terminal complex/cargo complex, exclusion of the revenue from Existing Assets is not justified. Authority is of the view that as long as the non-aeronautical revenues accrue to the Concessionaire from Existing Assets, the same has to be considered for cross subsidization.

Authority's view is that if such revenues from Existing Assets were supposed to be excluded from Revenue from Revenue Share Assets, the definition of such Revenue Share Assets would have

specifically mentioned the same in no uncertain terms. The part of the definition of Revenue Share Assets which the operator has highlighted “irrespective of whether they are owned by the JVC or any third entity” cannot be interpreted as “Existing Assets owned by AAI” have to be excluded from such Revenue Share Assets.

Authority is of the strong view that ownership of the Assets by the JVC or any other entity shall not be criteria for exclusion of revenues as long as the revenues accrue to the JVC.

Authority based on the review of the above mentioned clauses and examinations of the same is of the view that DIAL’s submission to exclude such Revenue from Existing Assets doesn’t have any logical reasoning. The submission itself seems to be an afterthought as no such issues were raised at the time of tariff determination for the last two Control Periods and the current submission refers to the interpretation of the unwritten words in the SSA rather than present definitions and clauses concerning tariff determination which are very clear.

The Authority hence proposes to consider Revenue from Revenue Share Assets as was done for determination of tariff for the First Control Period without any deduction to exclude the Revenue from ‘Existing Assets’.

Treatment of Annual Fee pertaining to Revenue Share Assets

2.6.18 The Authority has looked at DIAL’s submission regarding exclusion of Annual Fee pertaining to revenue from Revenue Share Assets, while arriving at the S Factor i.e. the revenue considered for 30% cross subsidization and has noted the following points under DIAL’s submission;

1. DIAL has based this submission on the Clause 3.1.1 of the SSA which provides that the “Upfront Fee and the Annual Fee paid/payable by JVC to AAI under the OMDA shall not be included as a part of costs for provision of Aeronautical Services and no pass through would be available in relation to the same.” and inferred that Annual Fee which is not a cost for provision of aeronautical service as per Clause 3.1.1 of the SSA is also not a cost for provision of Non-Aeronautical services and hence not a cost in relation to revenue from Revenue Share Assets.

DIAL has also mentioned that definition of Cost in relation to a particular revenue is the cost incurred to earn such revenue and based on the definition, Annual Fee is not a cost in relation to Revenue from Revenue Share Assets as the same accrues only after the said revenue has been earned and is not a prerequisite for earning such revenues.

2. DIAL has indicated that while the definition of Revenue under the OMDA specifically provides that annual fee payable to AAI pursuant to Article 11 and operational Support Cost payable to AAI shall not be deducted from Revenue, there is no such prescription for not deducting the Annual Fee paid/payable to AAI while calculating the S Factor.
3. DIAL has also mentioned that under the definition of S Factor which is defined as 30% of the Gross Revenue generated by the JVC from the Revenue Share Assets, it is mentioned that costs in relation to such revenue shall not be included while calculating Aeronautical Charges meaning the costs associated with revenue from Revenue Share Assets shall not be included. DIAL has concluded that since Annual Fee is not a cost it has to be excluded i.e. deducted from the Revenue from Revenue Share Assets while arriving at the S Factor.

The Authority has noted that this submission along with the justifications is being raised by DIAL for the first time and has not been raised in the earlier tariff proposals for the first two control periods or before the relevant Courts and seems only an afterthought. The Authority has examined the

provisions referred to by DIAL in the OMDA and SSA. Definition of Revenue as per OMDA follows with emphasis on relevant portion;

“Revenue” means all pre-tax gross revenue of JVC, excluding the following: (a) payments made by JVC, if any, for the activities undertaken by Relevant Authorities or payments received by JVC for provision of electricity, water, sewerage, or analogous utilities to the extent of amounts paid for such utilities to third party service providers; (b) insurance proceeds except insurance indemnification for loss of revenue; (c) any amount that accrues to JVC from sale of any capital assets or items; (d) payments and/or monies collected by JVC for and on behalf of any governmental authorities under Applicable Law (e) any bad debts written off provided these pertain to past revenues on which annual fee has been paid to AAI. It is clarified that annual fee payable to AAI pursuant to Article 11 and Operational Support Cost payable to AAI shall not be deducted from Revenue.

The Authority has also looked into the Clause 3.1.1 of the SSA which is reproduced below with emphasis applied to the relevant portion.

“GOI further confirms that, subject to Applicable Law, it shall make reasonable endeavours to procure that the Economic Regulatory Authority shall regulate and set/ re-set Aeronautical Charges, in accordance with the broad principles set out in Schedule 1 appended hereto. Provided however, the Upfront Fee and the Annual Fee paid/payable by the JVC to AAI under the OMDA shall not be included as part of costs for provision of Aeronautical Services and no pass-through would be available in relation to the same.”

The Annual Fee under Article 11 in the OMDA refers to the 45.99% of the Projected Revenue for the year in 12 equal monthly installments which shall be adjusted in the event Projected Revenue is higher or lower than the actual Revenue such that the Annual Fee paid in a year doesn't exceed 45.99% of the actual Revenue earned by the JVC.

Clause 3.1.1 of the SSA makes it very clear that no pass-through would be available in relation to the Annual Fee. The same has been built in the past tariff orders and orders have been issued ensuring that the operator doesn't recover the Annual Fee through any tariff determination principle. The Annual Fee definition as per Article 11 of the OMDA very clearly brings out that it is 45.99% of the total revenue of the company, i.e. both aeronautical as well as non-aeronautical revenue and clause 3.1.1 states specifically that no pass through is permitted.

The same is logical as the Annual Fee is the percentage quoted to win the airport project and hence shouldn't form part of pass-through costs and has to be incurred by the airport operator on their own from the concession awarded to them to earn revenues.

The Authority has also looked at the Schedule 1 of the SSA which defines S Factor as below;

“S = 30% of the gross revenue generated by the JVC from Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges”

The context in which costs are mentioned here in the SSA refers to the costs associated with generating gross Revenue from Revenue Share Assets and same shall not be allowed as pass-through while calculating aeronautical revenues. The inference by DIAL that Annual Fee pertaining to revenue from Revenue Share Assets should not be considered as a cost and should be deducted from the revenue from Revenue Share Assets doesn't have any relevance to the context the definition is meant for.

Further if SSA/OMDA's intent is to deduct the Annual Fee while arriving at revenue from Revenue Share Assets in the calculation of S Factor the same would have been spelt out clearly. The fact that OMDA/SSA doesn't say that some revenue/cost stream should not be deducted while arriving at S Factor doesn't mean that Authority should carry out the deduction.

The definition of S Factor as per SSA is mentioned as 30% of the revenue generated from Revenue Share Assets and the definition of Revenue as per OMDA mentions no deduction of Annual Fee. The only clear interpretation, if at all that can be obtained from reading these provisions in the SSA and the OMDA, is that since Revenue should not carry any deduction with regards to Annual Fee, 30% of the Revenue from Revenue Share Assets which is defined as the S Factor should also not carry any deduction with respect to Annual Fee.

Clearly the proposal of DIAL to exclude revenue share of 45.99% pertaining to the Revenue from Revenue Share Assets is tantamount to allowing the pass-through of the Annual Fee paid with regards to Revenue Share Assets which is against the tariff setting principles as given in SSA.

Therefore, Authority proposes not to exclude the Annual Fee on the Revenue from Revenue Share Assets while arriving at the S Factor.

2.6.19 Based on its proposals as mentioned above, the Authority proposes nil adjustments to the Revenue from Revenue Share Assets considered towards true up of the First Control Period as per the tariff order for the Second Control Period.

Table 16: Adjustments towards Revenue from Revenue Share Assets proposed to be considered by the Authority for the True up of First Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
30% of Revenue from Revenue Share Assets considered for cross subsidization as per the tariff order for the Second Control Period towards First Control Period True up	182.47	179.61	239.70	271.49	315.16
Revenue from Revenue Share Assets considered by Authority in the Second Control Period Tariff order towards True up of First Control Period	608.23	598.70	799.00	904.97	1050.53
Adjustment proposed by the Authority towards Revenue from Revenue Share Assets	-	-	-	-	-
Revised Revenue from Revenue Share asset	608.23	598.70	799.00	904.97	1050.53
30% of Revenue from Revenue Share Assets considered for cross subsidization	182.47	179.61	239.70	271.49	315.16

2.7 Revised True up for the First Control Period

DIAL's submissions regarding True up for First Control Period

2.7.1 The revised true up for the First Control Period submitted by DIAL is as shown in the table below;

Table 17: Revised True up submitted by DIAL for First Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Return on RAB	359.23	761.34	1,205.21	1,109.75	1,065.45
Expense	366.93	512.60	943.31	593.88	749.56
Depreciation	111.90	224.81	374.96	337.28	372.63
Taxes	-	-	-	-	-
Gross Target Revenue	838.05	1,498.75	2,523.48	2,040.91	2,187.64
Less: Cross Subsidy from NAR	27.34	66.06	110.64	128.29	153.72
Net Target Revenue	810.71	1,432.69	2,412.83	1,912.62	2,033.92
Actual Revenue	422.14	464.81	482.92	2,126.95	2,671.54
Difference	388.57	967.88	1,929.91	(214.33)	(637.62)
WACC	14.42%				
PV Factor	1.71	1.50	1.31	1.14	1.00
Total True up for CP1	3,760.15				

Authority's estimate of True up for the First Control Period as per Tariff Order for Second Control Period

2.7.2 The Authority had estimated the True up for the First Control Period as per the tariff order for the Second Control Period as shown in the table below;

Table 18: True up Considered by the Authority for First Control Period as per the Tariff order for Second Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Regulatory Asset Base (RAB)	2479.85	5208.26	8254.13	7458.08	7118.46
WACC	10.33%	10.33%	10.33%	10.33%	10.33%
Return on RAB (A= RAB X WACC)	256.17	538.01	852.65	770.42	735.34
Expense (E)	367.01	493.59	934.42	564.53	669.97
Depreciation (D)	110.60	220.99	369.63	328.94	363.57
Taxes (T)	0.00	0.00	0.00	0.00	0.00
Gross Target Revenue (GTR=A+E+D+T)	733.77	1252.59	2156.70	1663.89	1768.88
Less: Cross Subsidy from NAR (NAR)	182.47	179.61	239.70	271.49	315.16
Net Target Revenue (NTR=GTR- NAR)	551.30	1072.98	1917.00	1392.40	1453.72
Actual Aero Revenue Realised (AR)	507.13	570.88	611.07	2247.93	2806.35
Difference (NTR - AR)	44.17	502.1	1305.93	(855.53)	(1352.63)
NPV of the difference as on April 1, 2014	72.22	743.98	1753.89	(1041.41)	(1492.36)
Total true up for CP1	36.33				

The total true up for the First Control Period was arrived at as Rs. 36.33 Cr by the Authority at the time of tariff determination for the Second Control Period.

Authority's Examination and Proposals regarding Target Revenue for the First Control Period which shall be trued up as part of tariff determination exercise for the current Control Period

2.7.3 Authority, based on the examination of various building blocks, has determined the revised true up for the First Control Period as can be seen in the table below;

Table 19: True Up Proposed to be considered by Authority for First Control Period

FY ending March 31 (Rs. Cr)	2010	2011	2012	2013	2014
Regulatory Asset Base (RAB)	2,479.85	5,208.26	8,254.12	7,595.47	7,289.51
WACC	11.65%	11.65%	11.65%	11.65%	11.65%
Return on RAB (A= RAB X WACC)	288.91	606.78	961.63	884.90	849.25
Expense (E)	367.01	511.09	934.42	564.53	669.97
Depreciation (D)	110.60	220.99	369.63	331.27	366.51
Taxes (T)	-	-	-	-	-
Gross Target Revenue (GTR = A+E+D+T)	766.52	1,338.86	2,265.68	1,780.70	1,885.73
Less: Cross Subsidy from Revenue Share Assets (NAR)	182.47	179.61	239.70	271.49	315.16
Net Target Revenue (NTR = GTR-NAR)	584.05	1,159.25	2,025.98	1,509.21	1,570.57
Actual Aero Revenue Realised (AR)	507.13	570.88	611.07	2,247.93	2,806.35
True Up Amount (NTR - AR)	76.92	588.38	1,414.91	(738.72)	(1,235.78)
PV Factor (based on WACC)	1.55	1.39	1.25	1.12	1.00
True up Amount on an PV basis as on April 1, 2014	119.54	818.91	1,763.80	(824.78)	(1,235.78)
Total true up for CPI	641.68				

The Authority has proposed to revise the true up of the building blocks in the First Control Period as per the table above. The revision in the true up amount for the First Control Period from Rs 36.33 Cr as determined as per the Tariff Order for the Second Control Period to Rs 641.68 Cr as shown in the table above is on account of the following;

- ✓ Adjustment in the RAB on account of the delayed capitalization of ATC Tower which has been funded out of DF and the associated adjustment in depreciation (Table 3).
- ✓ Revised Weighted Average Cost of Capital taking into account TDSAT directions regarding return to be provided on Refundable Security Deposits and consideration of upfront fee as part of equity and also consideration of the cost of debt at actuals. (Table 7).
- ✓ Consideration of cost associated with rehabilitation of Runway 10-28 as part of operating cost (Table 12)

Authority hence proposes to true up Rs. 641.68 Cr along with the proposed true up for the Second Control Period as part of the tariff determination for the Third Control Period.

2.8 Authority's Proposals regarding True up for the First Control Period

Based on the material before it and based on its analysis, the Authority proposes the following;

- 2.8.1 Authority proposes to consider the upfront fee of Rs. 150 Cr as part of equity base and true up WACC based on the cost of equity of 16%, cost of debt at actuals i.e. 10% and cost of RSD at the cost of debt i.e. 10% based on the recommendation of the independent study. The proposed recalculated WACC for the First Control Period is 11.65% (Table 7).
- 2.8.2 Authority proposes to apportion DF to the extent of Rs. 3065 Cr against aeronautical assets that are capitalized in the First Control Period and rework the aeronautical RAB and associated depreciation (Para 2.2.9).
- 2.8.3 Authority proposes not to consider Baggage Screening Related Assets as part of the RAB in the First Control Period and to consider these assets only after the remittance of the Passenger Service Fee Fund amount to MoCA (Para 2.2.10).
- 2.8.4 Authority proposes to consider costs incurred in relation to rehabilitation of Runway 10/28 to the extent of Rs. 17.50 Cr as part of the operating expenses for FY 2011 (Para 2.4.10).
- 2.8.5 Authority proposes not to consider forex losses as part of efficient O&M Costs for the First Control Period (Para 2.4.11).
- 2.8.6 Authority proposes to consider revenues from Fuel Throughput Charges earned in the First Control Period as part of aeronautical revenue (Para 2.6.15).
- 2.8.7 Authority proposes not to consider any adjustment in revenue from Revenue Share Assets towards revenue from Existing Assets, disallowed area, payment to AAI as part of 45.99% revenue share (Paras 2.6.16, 2.6.17 and 2.6.18).
- 2.8.8 Authority proposes to true up Rs. 641.68 Cr which shall be provided to the airport operator along with the proposed true up for the Second Control Period as part of the tariff determination for the Third Control Period.

3 TRUE UP FOR THE SECOND CONTROL PERIOD

3.1 Issues raised by DIAL pertaining towards True up for the Second Control Period

3.1.1 DIAL has raised the following issues concerning the Second Control Period for true up as part of their MYTP.

- Additions to Regulatory Asset Base,
- Weighted Average Cost of Capital,
- Aeronautical Depreciation,
- Operating Costs,
- Aeronautical Taxes,
- Treatment of various items under Revenue from Revenue Share Assets,
- Eligibility and Applicability of Base Airport Charges along with true up for the same.

3.1.2 For each of the issues raised by DIAL, Authority has looked at the decisions taken at the time of tariff determination for the Second Control Period and has then proceeded to examine the same as part of the tariff determination for the current Control Period. The following paras explain these issues in detail.

3.2 True up of Regulatory Asset Base

DIAL's submissions regarding true up of Regulatory Asset Base for the Second Control Period

3.2.1 DIAL, in consonance with their requests regarding true up for the First Control Period has requested for adjustment to the tune of Rs. 176.36 Cr (Rs. 3,241.36 Cr less Rs. 3,065 Cr)¹ to be carried out in the Regulatory Asset Base with regards to the excess reduction in Development Fee from the aeronautical Regulatory Asset Base concerned with the capitalization of the ATC Tower. DIAL has also requested for addition of the depreciated value of the Baggage Screening Related Assets (assuming addition of such assets in the First Control Period as per their submission) to the aeronautical RAB. The revised RAB as per the submission of DIAL as on March 31, 2014 is Rs. 7,373.36 Cr as against Rs. 7,105.60 Cr considered by AERA in the tariff order for the Second Control Period. DIAL has provided the actual additions to RAB in the Second Control Period to be considered for true up.

3.2.2 The asset allocation among aero and non-aero assets has been considered by DIAL based on the following methodology;

- Upfront Fee Paid to AAI which is an Intangible Asset has not been considered as part of aeronautical assets as the same are not mandated to be classified as aeronautical assets as per the SSA and hence the same has been classified as Inadmissible Assets.
- Assets on airside directly related to aeronautical activity such as investment in assets including runways, drainage, culverts, taxiways, aprons and bays, airfield ground lighting, satellite rescue and fire station, perimeter roads, boundary wall, sub stations, etc. have been

¹ The total amount collected through Airport Development Fee is Rs. 3,415 Cr and the estimated cost of ATC tower was Rs. 350 Cr which was capitalised only in FY 2019. DIAL's request in the tariff proposal is that the deduction towards ADF should correspond to the investment that is capitalised which is Rs 3415 less Rs 350 Cr i.e. Rs. 3,065 Cr. Against the same in the previous tariff order Rs. 3,241.36 Cr has been deducted towards Development Fee.

allocated as 100% aeronautical as they are classified as aeronautical activities under Schedule 5 of the OMDA.

- Investment in cargo terminal is completely classified as non-aeronautical in accordance with Schedule 6 of the OMDA while the investment in passenger terminal building is classified as aeronautical except in areas clearly identified towards retail or commercial activity.
- Assets which have common usage and support the overall functioning of the management of the airport for example administrative office have been allocated on the same proportion of the overall terminal area mix of IGIA.
- Assets which are not directly allocable to either aeronautical or non-aeronautical are classified as mixed assets. DIAL has allocated this in line with the treatment provided by the Authority in the tariff order for the Second Control Period based on the independent study report prepared by Jacobs Consultants.

3.2.3 Based on the submission and considering the above, the aeronautical asset addition during the years in the control period is as shown in the table below;

Table 20: Aeronautical Asset Addition submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Addition to Aeronautical Assets	50.78	104.52	113.14	59.02	652.06*	979.52

*includes assets capitalised with respect to Air Traffic Control Tower which shall be adjusted by DF to the extent of Rs. 350 Cr consequently.

3.2.4 Considering the above asset addition, the RAB for the Second Control Period as submitted by DIAL is as shown in the table below;

Table 21: Aeronautical RAB submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Aero RAB as submitted by DIAL	6,855.00	6,366.00	5,927.00	5,463.00	5,033.00	29,644.00

Decisions taken by the Authority regarding Regulatory Asset Base as per Tariff Order for the Second Control Period

3.2.5 The Authority at the time of tariff determination for the Second Control Period had decided to consider additions to RAB as submitted by DIAL for the Second Control Period adjusted for the inflation forecast. The details of aeronautical RAB and HRAB considered by the Authority for the Second Control Period are as shown in the table below;

Table 22: RAB considered by the Authority as per Tariff Order for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Opening Pro Rata Aeronautical RAB (A)	6,748.22	6,343.49	6,032.53	5,709.74	5,391.48
Addition to Aeronautical RAB for the year (B)	90.16	172.65	165.45	176.02	190.88
Additions to Aeronautical RAB carried over from RAB True Up (C)	15.18	-	-	-	-
Depreciation and Amortization towards aeronautical RAB (D)	510.07	483.61	488.24	494.28	499.08
Assets funded out of DF (E)	-	-	-	-	-
Closing Aeronautical RAB (F=A+B+C-D-E)	6,343.49	6,032.53	5,709.74	5,391.48	5,083.28
Opening Hypothetical Regulatory Asset Base	357.38	328.14	300.86	273.87	247.08

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
(G)					
Depreciation Pertaining to Hypothetical Regulatory Base (DHRAB)	29.24	27.28	26.99	26.79	26.48
Closing Hypothetical Regulatory Asset Base (H)	328.14	300.86	273.87	247.08	220.60
Opening RAB (A+G)	7,120.78	6,671.63	6,333.39	5,983.61	5,638.56
Depreciation pertaining to RAB (D+DHRAB)	539.31	510.89	515.23	521.07	525.56
Closing RAB (F+H)	6,671.63	6,333.39	5,983.61	5,638.56	5,303.88
Average RAB	6,896.21	6,502.51	6,158.50	5,811.09	5,471.22

- 3.2.6 Authority at the time of determination of tariff for the Second Control Period had decided to continue with the asset allocation ratio of 89.25% for aeronautical assets and 10.75% for non-aeronautical assets. The Authority had decided to commission an independent study to analyze the asset allocation for the Second Control Period among aeronautical and non-aeronautical assets.
- 3.2.7 The Authority had also decided to true up the Regulatory Asset Base and Return on RAB for the Second Control Period at the time of determination of aeronautical tariff for the Third Control Period based on actual additions to RAB and actual depreciation during the Second Control Period as per the actual date of capitalization of the assets on a pro rata basis.
- 3.2.8 Authority had also decided not to consider any adjustments related to foreign currency fluctuation on capital or interest payments or any other changes in respect of the ECB Loan. The Authority also mentioned that if it were to consider foreign exchange fluctuations by expensing out actual losses on this account as an operating expense, it would also true up WACC (including actual interest rates on domestic term loan).

Authority's Examination and proposals regarding issues pertaining to Regulatory Asset Base for the Second Control Period as part of the tariff determination exercise for the current Control Period

- 3.2.9 Authority has looked at DIAL's submission regarding additions/adjustments to Regulatory Asset Base on account of capex related to Baggage Screening Equipment, and adjustment towards DF utilized for ATC tower which as per the submission was capitalized in FY 2019.
- 3.2.10 The Authority as per the proposal mentioned in the earlier chapter regarding true up for the First Control Period has proposed to consider adjustment in DF only in the year the ATC tower gets capitalized which is in FY 2019. This adjustment is carried out on a pro rata basis for FY 2019 with the balance carried forward to the next year in line with the pro rata addition to the asset base.

The Authority has also noted that against the original envisaged cost of Rs. 350 Cr, the actual cost incurred at the time of ATC capitalization is Rs. 398.62 Cr with an increase of Rs. 48.62 Cr considered as an addition to RAB. The Authority has noted that DIAL had earlier proposed to fund the cost escalation through DF which was rejected by AERA. Hence DIAL has utilized its own cash accruals to fund the cost escalation. Authority based on the submission is of the opinion that as the cost incurred towards capitalization of ATC Tower is mandatory and has been incurred by DIAL based on its own sources, the cost escalation of Rs. 48.62 Cr could be considered as part of aeronautical RAB.

- 3.2.11 The Authority in continuation of the proposal in the First Control Period, to consider addition of Baggage Screening related assets towards Regulatory Asset Base only post remittance of the

collected amount to MoCA, has considered such additions only from FY 2019. The depreciation associated with this asset has also been estimated from FY 2019 to ensure that the asset is depreciated on an accelerated basis within the balance useful life of the asset. These adjustments have been carried out on a pro rata basis in line with the decision taken at the time of tariff determination for Second Control Period.

3.2.12 As per TDSAT order dated April 23, 2018 in the matter of issues raised by DIAL with regards to decisions taken by AERA in the First Control Period, AERA has commissioned an independent study concerning allocation of assets between aeronautical and non-aeronautical assets for the Second Control Period.

The independent study reviewed the various asset categories and developed a basis for segregation of various assets into aeronautical and non-aeronautical and based on the same has reclassified some portion of aeronautical asset addition to non-aeronautical asset addition. The recommendations of the independent study regarding allocation of assets are as follows;

Table 23: Summary of asset re-segregation in Second Control Period as per the independent study

Particular	Summary
Segregation of EPOS system integration to CCTV	DIAL has considered assets pertaining to EPOS system integration to CCTV as 100% aeronautical in nature. <i>The independent study determined that the costs related to software for monitoring retail sales integrated to CCTV to plug revenue leakage are non-aero in nature. Hence, the assets are re-segregated as 100% non-aeronautical.</i> Thus, the re-segregation of the asset reduces the RAB to an extent of Rs. 5.98 Cr in Second Control Period.
New Udaan Bhavan (NUB)	DIAL has allocated the assets related to NUB based on weighted average floor space of all the airport terminals as support functions of entire airport operations are managed from NUB. <i>The independent study determined that NUB premises are commonly used for operations of GMR group. Thus, the allocation is revisited to exclude total space and costs pertaining to area rented out to group entities. The balance costs are segregated on the weighted average terminal space.</i> Thus, re-segregation of these assets reduces the RAB to an extent of Rs. 3.59 Cr in Second Control Period.
Senior Management Development Operation	DIAL considers the expenses related to development of office of the Business Chairperson and Group Chairperson as common expenses with allocation of assets based on weighted average floor space of all terminals. <i>The independent study found that the senior management is entrusted with the responsibilities at the Group level. As it is not feasible for the independent study to determine the proportion of man-hours spent by senior management for group companies, the independent study has reallocated the expenses in the ratio of 50:50 for aero and non-aero.</i> Thus, the re-segregation of the concerned expenses reduces RAB to an extent of Rs. 3.61 Cr in Second Control Period.
Common Transit Houses	DIAL has taken 10 transit houses on lease and considered them as common assets with an aeronautical allocation of 84.10%. <i>The independent study states that as the purpose of visit of transiting personnel cannot be determined, an assumption of 50:50 allocation for aero and non-aero is considered for re-segregation.</i>

Particular	Summary
	Thus, the re-segregation of expenses reduces RAB to an extent of Rs. 7.95 Cr in Second Control Period.
Re-segregation of aeronautical assets to common assets	DIAL has considered a few assets in Terminal 2 as 100% aeronautical in nature. <i>The independent study in their analysis found that the expenses incurred for refurbishment and expansion of Terminal 2 include retail spaces. Hence, the study has re-segregated the assets with an aeronautical allocation of 84.20% based on floor space proportion of Terminal 2.</i> Thus, the re-segregation of these assets reduces RAB to an extent of Rs. 2.76 Cr in Second Control Period.
Common Assets reclassified to aeronautical assets	DIAL has considered assets such as perimeter intrusion systems, tetra mobile radio systems, sign boards and CISF assets as common assets allocated on the basis of weighted average floor space of all the terminals. <i>The independent study found that these assets are considered as aeronautical under schedule 5 of the OMDA. Hence, the same are re-classified as 100% aeronautical.</i> The re-segregation of these common assets increases the RAB to an extent of Rs. 0.31 Cr.
Total Adjustments to RAB	Rs. 23.58 Cr

The summary of the independent study concerning allocation of assets can be seen in [Annexure 1](#). The independent study also has been attached as an appendix (**Appendix 1**) to this consultation paper. Based on the above recommendations, the independent study has the following adjustments as part of the asset addition towards aeronautical RAB for the Second Control Period.

Table 24: Fixed Asset Adjustment as per the independent study for Second Control Period

Fixed Asset Adjustment (Rs. Cr)	FY 15	FY16	FY17	FY18	FY19	Total
(1) Total Investment in Fixed Assets during Second Control Period	54.19	126.58	143.95	72.89	686.21	1,083.82
(2) Investments in RAB during Second Control Period						
(i) Aeronautical Assets, <i>included in (1) above</i>	34.33	70.34	75.93	39.87	629.02	849.50
(ii) Adjustments to (2)(i) above for settlement/sale/deletion	(0.10)	(0.21)	(0.22)	(0.12)	0	(0.65)
(iii) Common Assets, <i>to the extent apportioned as Aeronautical Assets</i>	16.55	33.90	36.59	19.22	23.03	129.29
(iv) Adjustment for Air Traffic Control Tower funded from DF, <i>included in (2)(i) above*</i>	-	-	-	-	(350.00)	(350.00)
Total Investment in RAB during Second Control Period	50.78	104.04	112.3	58.97	302.05	628.14
(3) Proposed adjustments to RAB due to change in segregation logic, for reasons below:						
(i) Reworking based on the Hand Over – Take Over (HOTO) certificates	-	-	-	-	-	-
(ii) Segregation of the EPOS system integration to CCTV	(5.98)	-	-	-	-	(5.98)
(iii) New Udaan Bhavan Improvement	(0.41)	(1.30)	(0.33)	(1.23)	(0.32)	(3.59)
(iv) Senior Management Office Improvements	(0.02)	(2.22)	(0.77)	(0.25)	(0.35)	(3.61)
(v) Transit House Improvements	(0.06)	(0.37)	(2.86)	1.50	(3.15)	(7.95)
(vi) Segregation from Common to Aero	0.01	0.04	0.06	0.20	-	0.31

Fixed Asset Adjustment (Rs. Cr)	FY 15	FY16	FY17	FY18	FY19	Total
(vii) Segregation from Aero to Common	-	-	-	-	(2.76)	(2.76)
Total proposed adjustments to RAB	(6.47)	(3.85)	(3.90)	(2.78)	(6.58)	(23.58)
(4) Adjusted Investment in RAB during Second Control Period (4) = (2) + (3)	44.31	100.19	108.40	56.19	295.47	604.56
(5) Adjustments to the Opening RAB as on the 1st April 2014 for settlement/sale/deletion by DIAL.#	(23.89)	(1.38)	(19.18)	(10.84)	(2.77)	(58.06)
(6) Adjusted Investment in RAB during Second Control Period net of adjustments made to the opening RAB in the Second Control period (6) = (4) + (5)	20.42	98.81	89.22	45.35	292.70	546.50

* The total Investment in Gross Fixed Assets amounts to ₹ 733.82 crores. The number is arrived after deducting the Development Fee (DF) funding in ATC Tower for ₹ 350 crores from the total Investment in Gross Fixed Assets during Second Control Period (as per FAR of DIAL) of ₹ 1083.82 crores.

The total adjustments on account of Sales/Deletions/Settlement with contractors sums to ₹ 58.71 crores. Out of the total value of such sales/deletions/settlement, ₹ 0.65 crores (Refer item 2(ii) of Table 24) pertain to assets of Second Control Period and the remaining ₹ 58.06 crores (Refer item 5 of Table 24) pertained to assets related to the First Control Period and were adjusted to the Gross Fixed Assets of the Second Control period. The adjustment of Rs. 58.71 Cr gets covered under Depreciation (E) and Deletion (D) while arriving at the RAB for the Second Control Period (Table 26).

3.2.13 As can be seen from the above table, the independent study has proposed adjustments to DIAL's submissions which results in an amount of Rs. 23.58 Cr being re-classified from aeronautical asset addition to non-aeronautical asset addition during the Second Control Period. As a result, the aeronautical asset base for Second Control Period to an extent of Rs. 23.58 Cr has been reclassified from aeronautical assets to non-aeronautical assets.

3.2.14 The Authority has proposed to adopt the recommendations of the independent study for true up of Regulatory Asset Base for Second Control Period.

3.2.15 The adjustment of Rs. 23.58 Cr have been carried out on the additions over the Second Control Period as shown in the table below;

Table 25: Adjustments in Additions to RAB proposed by the Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Additions to RAB as submitted by DIAL as per Table 20	50.78	104.52	113.14	59.02	652.06	979.52
Additions to RAB as suggested by the independent study post reclassification as mentioned in Table 24	44.31	100.19	108.40	56.19	645.47#	954.56#
Net adjustments on DIAL's submission as considered by the Authority*	6.46	4.33	4.74	2.83	6.60	24.96*

*There is a difference in the asset addition to RAB assessed by the independent study and DIAL submission to the extent of Rs. 1.38 Cr which reflects in the net adjustment also. The same is on account of some rounding off error as noted by the independent study in its analysis.

#The total addition as per the table less the adjustment towards DF of Rs 350 Cr shall lead to the cost of Rs. 604.56 Cr mentioned as the total asset addition as per the independent study (Refer item 4 of Table 24). Similarly the addition in FY 2019 adjusted by Rs. 350 Cr would lead to the addition as mentioned in Table 24 for FY 2019.

These adjustments would result in the asset allocation ratio getting revised to 89.16% for the airport operator as on FY 2019 and 88.92% for the period from FY 2015-2018. Authority proposes to consider this asset allocation ratio for its analysis regarding true up for the Second Control Period. The asset allocation ratio so identified, as explained later also forms the basis for determining the efficient O&M Costs for the Second Control Period.

3.2.16 The revised RAB YoY (including the Hypothetical RAB) for the Second Control Period proposed to be considered by the Authority for tariff computation for the Third Control Period is as shown in the table below;

Table 26: Aeronautical RAB proposed to be considered by Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Opening Pro Rata Aeronautical RAB (A)	6,919.27	6,424.07	5,965.94	5,560.96	5,131.06
Pro Rata addition for the current year (B) ^s	16.26	20.52	30.75	20.43	252.14*
Pro Rata addition from the previous year (C) ^s	15.18 [#]	28.06	79.67	77.65	35.76
Deletions (D)	22.26	1.15	2.05	9.15	2.51
Depreciation and Amortization towards aeronautical RAB (E)	504.38	505.55	513.37	518.82	526.68
Assets funded out of DF (F)	-	-	-	-	117.95*
Pro Rata Aeronautical RAB for the Second Control Period (ARAB=A+B+C-D-E-F)	6,424.07	5,965.94	5,560.96	5,131.06	4,771.83
Opening Hypothetical Regulatory Asset Base	357.38	329.54	301.83	274.00	246.09
Depreciation Pertaining to Hypothetical Regulatory Base (DHRAB)	27.84	27.71	27.83	27.91	27.25
Closing Hypothetical Regulatory Asset Base	329.54	301.83	274.00	246.09	218.84
Average HRAB (HRAB)	343.46	315.69	287.92	260.05	232.47
RAB considered for the Second Control Period (ARAB + HRAB)	6,767.53	6,281.63	5,848.87	5,391.11	5,004.30
Depreciation pertaining to RAB (E+DHRAB)	532.22	533.26	541.20	546.73	553.93

*pro rata adjustment in additions for the FY 2019 has been carried out with the balance carried forward to FY 2020. The balance pertaining to B i.e. Pro Rata addition is Rs. 393.20 Cr which is arrived at by deducting Rs 252.14 Cr from Rs 645.46 Cr mentioned in Table 25 for the FY 2019 while the balance pertaining to F i.e. asset funded out of DF is Rs 232.05 Cr which is arrived at by deducting Rs 117.95 Cr from Rs 350 Cr which is the DF pertaining to ATC Tower. The balances shall be adjusted in the first year of Third Control Period at the time of RAB determination.

#pro rata adjustment as considered by Authority in the Second Control Period tariff order

\$The asset addition for each year as per Table 25 is split on a pro rata basis between the current year and the next year. For eg; the asset addition of Rs. 44.32 Cr in FY 2015 is split into Rs. 16.26 Cr in FY 2015 under (B) and Rs. 28.06 Cr in FY 2016 under (C).

3.3 **True up of Weighted Average Cost of Capital**

DIAL's submissions regarding True up of Weighted Average Cost of Capital for the Second Control Period

3.3.1 DIAL has made the following submission with regards to the Weighted Average Cost of Capital in line with similar submissions with regards to the WACC for the First Control Period.

- Cost of equity to be considered as 22.8%.
- Return on RSD to be considered as 16%.
- With regards to the cost of debt, DIAL has considered expensing out actual forex losses and has re-stated the cost of debt based on actual cost of debt in rupee terms, calculated by considering the actual outgo towards interest and hedging costs. The restated effective cost of debt is 9.28%.

3.3.2 Based on the above, the effective WACC has been considered as 14.06% which has been calculated as per the table below;

Table 27: Computation of WACC for Second Control Period submitted by DIAL as per MYTP

FY ending March 31	2015	2016	2017	2018	2019
Cost of Equity	22.86%	22.86%	22.86%	22.86%	22.86%
Cost of RSD	16.00%	16.00%	16.00%	16.00%	16.00%
Effective cost of debt	9.28%	9.28%	9.28%	9.28%	9.28%
Means of Finance Proportion					
Equity Proportion	27.16%	27.16%	27.16%	27.16%	27.16%
RSD Proportion	16.32%	16.32%	16.32%	16.32%	16.32%
Debt Proportion	56.52%	56.52%	56.52%	56.52%	56.52%
WACC	14.06%	14.06%	14.06%	14.06%	14.06%

Decisions taken by the Authority regarding Weighted Average Cost of Capital as per Tariff Order for the Second Control Period

3.3.3 The Authority at the time of tariff determination for the second control period had considered cost of debt for the Rupee Term Loan for the Second Control Period at 11.38% which shall be trued up at the time of determination of aeronautical tariff for the Third Control Period subject to a ceiling on the overall increase of 50 bps.

3.3.4 The Authority had also calculated the weighted average cost of debt for the Second Control Period considering the cost of borrowing for the ECB Loan and cost of borrowing for RTL which is as shown in the table below;

Table 28: Cost of Debt considered by Authority as per Tariff order for Second Control Period

FY ending March 31	2015	2016	2017	2018	2019
External Commercial Borrowing (ECB)	7.08%	7.39%	7.78%	7.77%	7.74%
Rupee Term Loan (RTL)	11.38%	11.38%	11.38%	11.38%	11.38%
Weighted Average Cost of Debt	9.78%	10.01%	10.25%	10.37%	10.53%

3.3.5 The Authority had considered cost of equity at 16% which is in line with the decision taken at the time of the tariff order for the First Control Period as the Authority felt that the relevant factors considered for arriving at 16% return on equity as reasonable and have not undergone any change in

the ensuing period. Authority had also decided to commission an independent study to determine the cost of equity applicable in respect of IGI, Airport, New Delhi at an appropriate time.

- 3.3.6 The Authority had decided to treat RSD as a means of finance at zero cost as the Authority felt that there were no costs involved in raising RSD.
- 3.3.7 Authority had decided that the Equity Base shall be reduced by the amount paid as Upfront Fee i.e. Rs. 150 Cr. Further Reserves and Surplus if positive shall also be considered as part of Equity Base and shall protect the Paid Up Equity if the Reserves and Surplus turn negative on account of accumulated losses. Based on these principles along with the cost of equity and cost of debt mentioned in the earlier paras, the Authority determined the Weighted Average Cost of Capital as 9.97%.
- 3.3.8 The Authority had also decided not to true up WACC at the time of determination for the Third Control Period except for the elements as below including;
- New Debt subject to the ceiling on the cost of debt for Rupee Term Loan at actuals as of April 1, 2014 plus 50 basis points.
 - New RSD (in addition to Rs. 1,471.51 Cr already considered by the Authority as means of finance while determining DF)
 - Fresh Paid up Equity (in addition to Rs. 2,300 Cr already considered by the Authority (after removing upfront fee of Rs. 150 Cr from the paid up equity of Rs. 2,450 Cr) as a means of finance while determining DF)
 - Funds from Reserves and Surplus on actuals, if positive during the Second Control Period.

Authority's Examination and proposal regarding issues pertaining to Weighted Average Cost of Capital for the Second Control Period as part of tariff determination exercise for the current Control Period

- 3.3.9 The Authority has looked at DIAL's submission with regards to the Weighted Average Cost of Capital. The Authority had at the time of the determination of WACC for the Second Control Period had indicated that WACC shall be trued up subject to new debt, additional equity infusion and additional RSD raised by DIAL, along with increase in reserves and surplus.
- 3.3.10 The Authority has also been directed by TDSAT to include the upfront fee of Rs. 150 Cr as part of equity base which has been carried out by the Authority along with the true up of WACC in the First Control Period.
- 3.3.11 The Authority has also noticed that the actual cost of debt as submitted by DIAL for the Second Control Period as 9.28% is considerably lesser than the weighted average cost of debt as considered by the Authority for the Second Control Period.

The Authority understands that the reduction in the cost of debt is on account of various refinancing exercises that DIAL had carried out based on which the debts have been refinanced with foreign currency bonds which has reduced the cost of borrowing. This cost of debt as noted by the Authority takes into consideration the outflow towards various hedge costs taken by the airport operator in addition to the interest cost incurred by the debt instrument. The Authority has hence considered the cost of debt at actuals at 9.28% p.a. towards true up of WACC for the Second Control Period.

- 3.3.12 The Authority has also noted that there have been additions/adjustments in deposits raised from real estate activities during the Second Control Period. Authority has proposed to consider return on RSD as equivalent to the cost of debt for the Second Control Period, in line with the proposal mentioned in

this Consultation Paper regarding true up of WACC for the First Control Period, based on the recommendations of the independent study whose summary can be seen in [Annexure 6](#). The details of RSD YoY are as shown in Table 29.

3.3.13 The Authority has noted the additions /adjustments in Reserves and Surplus for the years FY 2017, FY 2018 and FY 2019 and has proceeded to consider the same based on actuals.

3.3.14 The Authority has commissioned an independent study to determine the return on equity from the Third Control Period and as already decided during the tariff determination for the Second Control Period and as explained during the true up for the First Control Period in this consultation paper, the Authority doesn't see any merit in revising the cost of equity from the already considered 16%. The Authority has hence proposed to consider the cost of equity as 16% for the purpose of true up of WACC for the Second Control Period.

3.3.15 Based on the above, WACC for Second Control Period has been determined at 11.10% for the Second Control Period as part of the tariff determination for the current Control Period against 9.97% in the Tariff Order for the Second Control Period as shown in the table below;

Table 29: WACC proposed to be considered by the Authority for Second Control Period

FY ending March 31	2015	2016	2017	2018	2019
Cost of Equity	16.00%	16.00%	16.00%	16.00%	16.00%
Cost of RSD	9.28%	9.28%	9.28%	9.28%	9.28%
Effective cost of debt	9.28%	9.28%	9.28%	9.28%	9.28%
Paid Up Capital	2,450.00	2,450.00	2,450.00	2,450.00	2,450.00
Reserves and Surplus (if positive)	-	-	218.44	53.30	145.00
Equity	2,450.00	2,450.00	2,668.44	2,503.30	2,595.00
RSD	1,471.51	1,471.51	1,566.00	1,373.11	1,732.54
Debt	5,290.63	5,254.68	5,272.80	5,272.80	5,272.80
Means of Finance Proportion					
Equity Proportion			27.16%		
RSD Proportion			16.32%		
Debt Proportion			56.52%		
WACC			11.10%		

3.4 True up of Aeronautical Depreciation

DIAL's submission regarding True up of Aeronautical Depreciation for the Second Control Period

3.4.1 DIAL has submitted the actual depreciation related to aeronautical assets for the Second Control Period to be considered for truing up. The following table summarises the actual depreciation as submitted by DIAL for the Second Control Period;

Table 30: Actual Depreciation submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Depreciation for the Second Control Period	541.54	542.94	551.40	557.57	559.44	2,752.89

Decisions taken by the Authority regarding Aeronautical Depreciation as per Tariff Order for the Second Control Period

3.4.2 The Authority had considered depreciation rates as mentioned in the table below for the assets in the Second Control Period;

Table 31: Rates of Depreciation Considered by the Authority as per Tariff Order for Second Control Period

Asset Classes	Rate of Depreciation (SLM)	Rate of Depreciation (WDV)
Building	3.3%	10.0%
Railway, Taxiway & Apron	3.3%	10.0%
Plant & Machinery	6.7%	15.0%
Computer (Software shown as intangible in financial)	16.7%	60.0%
Furniture & Fixtures	10.0%	10.0%
Office Equipment	20.0%	15.0%
Vehicles	12.5%	15.0%
Land	0.0%	0.0%
Intangibles	1.7%	10.0%

3.4.3 Authority had also made the following adjustments while calculating depreciation;

- Depreciation on assets disallowed as per Order no 28/2011-12 in the matter of levy of development fee by DIAL at IGI Airport, New Delhi needs to be removed.
- Depreciation on foreign exchange fluctuations capitalized by DIAL needs to be removed.
- Depreciation on Assets funded out of DF needs to be removed.
- Depreciation on Intangible Assets (such as interest on account of DF securitization, VRS payments to AAI, Upfront Fee, etc.) either disallowed or expensed out by the Authority vide its Tariff Order for the First Control Period needs to be removed.

3.4.4 The depreciation values (including depreciation associated with Hypothetical RAB) as considered by the Authority at the time of tariff determination for the Second Control Period are as shown in the table below;

Table 32: Aeronautical Depreciation considered by Authority as per the Tariff Order for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Aeronautical Depreciation	539.31	510.89	515.23	521.07	525.56	2,612.06

Authority's Examination and Proposals regarding issues pertaining to Aeronautical Depreciation for the Second Control Period as part of the tariff determination exercise for the current Control Period

3.4.5 Authority has looked at DIAL's submission regarding the Depreciation and has also perused the relevant clauses in the financial statements of DIAL along with auditor's certificates which have mentioned that the depreciation rates considered are aligned with the depreciation rates as per the Authority's Order no. 35/2017-18 dated January 12,2018 along with its Amendment to Order no. 35/2017-18 dated April 9, 2018. Authority has recalculated the depreciation values based on the reclassification of assets as suggested by the independent study because of which there has been adjustment in Gross Block of aeronautical assets to the extent of Rs. 23.58 Cr (Table 23).

The depreciation associated with the Baggage Screening Assets has also been adjusted to ensure that these assets are depreciated within the useful life of the assets as determined by AERA as per the

Order No 35/2017-18 along with its amendment i.e. depreciation for this asset commences only from FY 2019 and is accelerated within the balance residual useful life from FY 2019, even though the assets were commissioned in FY 2010-11.

3.4.6 The depreciation YoY for the Second Control Period as recalculated by the Authority is as shown in the table below;

Table 33: Depreciation proposed to be considered by Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Depreciation as submitted by DIAL (as per Table 30)	541.54	542.94	551.40	557.57	559.44	2,752.89
Adjustment pertaining to Baggage Screening Assets	(8.75)	(8.75)	(8.75)	(8.75)	(2.27)*	(37.27)
Adjustment pertaining to re-segregation of assets by the independent study	(0.57)	(0.93)	(1.45)	(2.09)	(3.25)	(8.29)
Depreciation as proposed to be considered by the Authority	532.22	533.26	541.20	546.73	553.93	2,707.32

*The adjustment amount is lesser in FY 2019 on account of commencement of accelerated depreciation associated with Baggage Screening Related Assets from the last 4 months in FY 2019.

The depreciation as considered above includes the depreciation associated with hypothetical RAB which has been depreciated at the same effective depreciation rate as the aeronautical assets.

3.5 True up of Operating Expenses

DIAL's submission regarding True up of Operating Expense for the Second Control Period

3.5.1 DIAL has made the following submissions with regards to operating expense for trueing up in the Second Control Period;

- Aeronautical portion of forex losses has been considered as part of administrative expenses in the Second Control Period. The details of the forex loss that has been considered in the Second Control Period is as shown in the table below;

Table 34: Foreign Exchange Losses submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Aeronautical Portion of Forex Loss	471.61	12.41	73.02	(0.42)	19.67	576.29
Non-Aeronautical Portion of Forex Loss	57.40	1.51	8.89	(0.05)	2.39	70.14
Total	529.02	13.93	81.91	(0.47)	22.06	646.44

- Refinancing cost incurred in the form of prepayment charges, upfront fee, break cost and processing fee, etc. towards refinancing the foreign currency loan through long term bonds has also been allocated among aeronautical and non-aeronautical expenses. The details of such costs as submitted by DIAL in the Second Control Period is as shown in the table below;

Table 35: Refinancing Cost and Bank charges submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
IRS break cost	91.83	-	8.17	-	-
ECB Break cost	9.22	-	11.38	-	-
Prepayment Charges	-	-	29.42	-	-
Upfront & processing fee	27.15	14.17	38.10	8.83	9.02
Bank Charges	4.65	2.42	3.91	2.87	2.36

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Total	132.85	16.59	90.99	11.70	11.38
Aeronautical portion	118.43	14.79	81.11	10.43	10.15

- Expense allocation among aeronautical and non-aeronautical is based on the following principles;
 - All expenditures directly attributable to aeronautical or non-aeronautical have been classified accordingly.
 - Expenditure classification is based on the nature of cost centre and respective expenditure incurred in the cost centre.
 - Remaining costs which cannot be directly measured, relevant drivers are used to bifurcate such costs.
- Property taxes paid to municipalities in Delhi based on actual payment basis has been considered.
- Airport Operator Fee as per the contractual agreement is 3% of gross revenues of DIAL and accordingly 3% of aeronautical revenues have been considered for the purpose of tariff determination.
- VRS Payment made to AAI has been considered on actual payment basis.

3.5.2 The aeronautical operating expense for the Second Control Period considering the above mentioned submissions are as shown in the table below;

Table 36: Operating Expenses submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Airport Operator Fee	80.15	84.56	97.97	113.33	51.16	427.17
Manpower cost	118.63	112.54	117.25	147.67	167.70	663.79
Operating expense	253.56	252.61	261.63	314.92	341.93	1,424.66
Administrative expense	259.73	150.68	245.16	215.15	216.93	1,087.65
Property tax	20.35	5.30	28.82	6.47	7.09	68.04
Utility cost	112.32	121.66	106.54	113.20	103.35	557.07
Payment to AAI for VRS	16.81	16.40	15.81	15.33	14.80	79.14
Forex Losses	474.61	12.41	73.02	(0.42)	19.67	576.29
Total	1,333.15	756.17	946.21	925.65	922.63	4,883.80

Decisions taken by the Authority regarding Operating Expense as per Tariff Order for the Second Control Period

3.5.3 The Authority had decided to allocate operating expenses similar to the allocation mix considered at the time of true up for the First Control Period. The property taxes paid by DIAL shall be considered at actuals. Authority had also decided to commission an independent study to ascertain the efficient costs regarding operating expenses for the Second Control Period. The outcome of the independent study would be taken into consideration at the time of tariff determination for the Third Control Period towards true up of efficient operating costs for the Second Control Period.

3.5.4 Authority had decided to commission an independent study to examine the issue of allocation of assets, services, revenues and expenses generated in the IT JV into aeronautical and non-aeronautical more closely.

3.5.5 Authority had adopted the following growth rates for certain key items considering the actual costs for FY 2013-14 as the base;

Table 37: Growth Rates considered by the Authority as per Tariff order for Second Control Period

Name of the Category	Growth Rate considered
Manpower Costs	7%
Repairs and Maintenance	9%
Other O&M Costs	7% (including real growth of 1.9%)

3.5.6 Authority had decided to project the airport operator fee as 3% of the previous year's aeronautical revenues.

3.5.7 The Authority had also decided to commission an independent study to assess the efficient operating costs for the Second Control Period and to true up the same based on the outcome of the independent study at the time of tariff determination for the Third Control Period.

Authority's Examination and proposal regarding issues pertaining to Operating Expenses for the Second Control Period as per the tariff determination exercise for the current Control Period

Costs associated with IT JV structure

3.5.8 As per the decisions taken by the Authority in the tariff order for the Second Control Period, the Authority has commissioned an independent study on allocation of costs for the IT JV.

The independent study developed a basis of segregation and categorized all the major assets held by the IT JV concessionaire WAISL. The summary of the independent study can be seen in [Annexure 2](#). The independent study is attached as an appendix (**Appendix 1**) to this consultation paper. The recommendations of the independent study regarding adjustments to the allocation of costs of IT JV are as follows;

Table 38: Adjustments to the IT JV Funding Expenses amongst aeronautical and non-aeronautical as per the independent study

Particulars (Rs. Cr)	FY15	FY16	FY17	FY18	FY19	Total
IT JV Payment	53.00	18.14	2.75	-	-	73.89
% Split by DIAL	89.27%	89.20%	89.08%	89.04%	89.04%	
Aeronautical IT Expenses	47.31	16.18	2.45	-	-	65.94
Revised % on assets	78.15%	78.15%	78.15%	78.15%	78.15%	
Revised Aero IT Expenses	41.42	14.18	2.15	-	-	57.74
Differential to Non-Aero	5.89	2.00	0.30	-	-	8.20

The concession fee (Receivables>Subsistence Level) received by DIAL is entirely segregated as Non-Aeronautical revenue which has happened in the years FY 2018 and FY 2019, since the total revenue earned by the concessionaire are from CUTE and CUSS services. The total IT cost is subsidized through the total IT revenue with the excess revenue over cost being passed on to passengers in the form of 30% subsidization of non-aeronautical revenue from IT. These services are classified non-aeronautical as per OMDA and hence the same would prevail.

The premium payable (Receivables<Subsistence Level) by DIAL is treated as Common Expense which has happened in the years FY 2015, FY 2016 and FY 2017 as mentioned in the Table 38.

The costs incurred by the concessionaire are for the upkeep and maintenance of the entire IT infrastructure at the Airport which includes both Aeronautical Assets and Non-Aeronautical Assets. The IT cost is subsidized through the total IT revenue with the excess cost over revenue added to tariff computation cost of passengers and airlines. The cost incurred by DIAL towards the support payment made for funding the excess of cost incurred over the revenue earned is segregated into aeronautical and non-aeronautical costs, based on the segregation proportion of the information technology assets.

Unlike in the case wherein concession fee received by DIAL is treated as non-aeronautical, as per the independent study, the excess of costs arising against the revenue cannot be treated as costs related to CUTE and CUSS services, as these costs are for the upkeep and maintenance of the entire IT infrastructure at the Airport which includes both aeronautical assets like FIDS, TMRS, AOCC, etc. and Non-Aeronautical Assets like EPOS, CUTE and CUSS.

As can be seen from the above table, the independent study has proposed adjustments to DIAL's submissions which results in an amount of Rs. 8.20 Cr being re-classified from aeronautical expense to non-aeronautical expense in the Second Control Period. The adjustment in aeronautical expenses of the IT JV shall be considered while determining Efficient Operation and Maintenance costs for the Second Control Period.

The independent study also analyzed the implication of the IT JV funding structure on the cost incurred by DIAL and assessed that as per the current structure with JV, only the excess costs over the revenue are passed on to the passengers and airlines. The costs passed on to the passengers are lower than costs that would have been passed on for tariff determination in the alternate structure without JV. The independent study concluded that the current structure established by DIAL is efficient.

The Authority has proposed to adopt the recommendations of the independent study for true up of Operating Expenses for Second Control Period.

Efficient Costs for O&M

- 3.5.9 As per the decisions taken to study the allocation of efficient costs with regards to operating and maintenance expenses for the Second Control Period, AERA has commissioned an independent study to determine the Efficient Operation and Maintenance Costs.

The independent study has reviewed the various cost centers and developed a basis for segregation into Aeronautical and Non-Aeronautical activities. The independent study had also determined the appropriate proportion of Common Cost Centre that may be included in Aeronautical activity, in order to determine the total aeronautical cost.

The details of the various adjustments proposed are as shown in the table below;

Table 39: Efficient O&M Cost adjustment as per the independent study for Second Control Period

S.No	Details of Expense	Observation	Amount of adjustment
1	IT Systems Maintenance costs for T1 & T2	Segregation by DIAL: 100% Aeronautical Observation: These are common facilities used for both Aero and Non-Aero services. So, the total IT expense of Rs. 8.22 Cr are classified to "Common" and segregated in the proportion of the Adjusted Gross Fixed Assets ratio of 88.92%:11.08%	Rs. 2.26 Cr
2	Landscaping costs	Segregation by DIAL: 100% Aeronautical Observation: It includes costs for entire Terminal, approach roads to Terminals and the admin office serving both Aero and Non-Aero facilities. Hence this expense is segregated as "Common" and segregated in the proportion of the weighted average terminal space i.e. 84.10%:15.90%	Rs. 4.42 Cr
3	Quality Management costs	Segregation by DIAL: 100% Aeronautical Observation: Quality Management Team, work for overall improvement of Airport operations and aren't specific to Aeronautical operations. Hence the costs are classified as "Common" and segregated in proportion of Adjusted Gross Fixed Asset Ratio of 88.92%: 11.08%.	Rs. 1.60 Cr
4	Common Costs within Terminal	Segregation by DIAL: Proportion to Floor area measurement segregated into Aeronautical and Non-Aeronautical Space in the ratio of 82%:18%. Observation: The floor area measurement was as per Jacobs' Report dated 14 th June 2011. However, Order No 28 of AERA dated 14 th November 2011 directed elimination of 8652 sq.m from gross area calculation. Considering this impact, the proportion of aeronautical space was increased from 82% to 84.10%.	Addition of Rs. 8.11 Cr
5	Support Function and Senior Management Costs	Segregation by DIAL: Costs related to office of Senior Management, allocated costs from group companies and support functions were segregated in proportion of Gross Fixed Asset Base of the Company. Observation: As per change in segregation logic for assets related to Senior Management's office, the Aeronautical proportion was reduced from 89.27% to 89%.	Rs. 2.05 Cr
4	Chartering costs	Segregation by DIAL: Flying charges of charter used by the Business and Group Chairperson of DIAL have been currently segregated in proportion to the Gross Fixed Asset Base of the company of 89:11. Observation: Since the purpose of these chartering services cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the chartering services are used by the senior management in a 50:50 proportion for Aeronautical and Non-Aeronautical services.	Rs.10.61 Cr
5	Transit house expense	Segregation by DIAL: Segregation of expenses is based on Gross Fixed Asset Ratio. Observation: Since the purpose of use of these guest houses cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the guest house is used	Rs. 17.91 Cr

S.No	Details of Expense	Observation	Amount of adjustment
		in a 50:50 proportion for Aeronautical and Non-Aeronautical services.	
6	Charities and Donations	These expenses are not related to passenger or airline services, these costs are segregated as 100% Non-Aeronautical.	Rs. 7.27 Cr
8	Legal costs	Segregation by DIAL: Segregation based on Gross Adjusted Fixed Asset Ratio. Observation: Review of legal cases for Second Control Period upto FY17-18, showed that 19% of the total legal cases were Non-Aeronautical in nature, while the remaining were either Aeronautical or Common in nature. Considering the above fact, the segregation costs were revised from 89% proportion of Gross Fixed Asset to 74.84% proportion of Aeronautical cases to Total cases.	Rs. 7.71 Cr
9	Common HR/ Manpower costs	Segregation of DIAL: Segregated based on manpower count per department into Aeronautical and Non-Aeronautical costs. Observation: As the segregation based on the manpower count per department isn't representative to the proportion of the associated cost of the department, the segregation logic has been revisited as the segregation was revised in the proportion of Aeronautical Gross Fixed Asset to the Total Gross Fixed Assets.	Rs. 5.97 Cr- Manpower costs. Rs. 2.51 Cr - Other HR related costs
10	Property Tax	Segregation of DIAL: Segregated based on proportion of the asset base. Observation: Due to changes in segregation logic for the assets held outside the terminal, the segregation of the assets was revisited resulting in adjustment of aeronautical costs pertaining to Property Tax.	Rs. 1.1 Cr
11	Payment to AAI for VRS	Segregation of DIAL: Segregated based on manpower count per department into Aeronautical and Non-Aeronautical costs. Observation: As the segregation based on the manpower count per department isn't representative to the proportion of the associated cost of the department, the segregation logic has been revisited as the segregation was revised in the proportion of Adjusted Gross Fixed Asset Ratio (88.92%)	Rs. 0.72 Cr
12	Finance Charges	Segregation of DIAL: Segregated on the basis of Gross Fixed Asset Ratio into Aeronautical and Non-Aeronautical costs. Observation: Due to changes in segregation logic for the assets held outside the terminal, the segregation of the assets was revisited resulting in adjustment of aeronautical costs pertaining to Finance Charges.	Rs. 0.57 Cr
13	Reclassification of IT –JV expenses	As mentioned under Table 38, the reclassification of IT JV expenses of Rs 8.20 Cr from aeronautical to non-aeronautical has been considered. The details have been discussed under para3.5.8.	Rs. 8.20 Cr
Total O&M Cost Adjustment			Rs. 64.79 Cr

The summary of the independent study can be seen in [Annexure 3](#). The independent study is attached as an appendix (**Appendix 2**) to this consultation paper. Based on the adjustment proposed in Table 39, the Efficient Operation and Maintenance costs has been restated as follows;

Table 40: Efficient O&M Costs as per the independent study for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Manpower cost (salaries, wages and manpower)	117.48	111.45	116.11	146.26	166.53	657.83
Operating expense	248.15	250.77	261.42	313.76	332.68	1,406.78
Administrative expense (Admin and General expense)	135.14	128.45	153.38	193.22	200.65	810.84
Property tax (including additional property tax)	20.09	5.18	28.36	6.35	6.93	66.91
Utility cost	112.31	121.66	106.54	113.20	103.35	557.06
Payment to AAI for VRS	16.65	16.24	15.66	15.18	14.70	78.43
Finance Charges	118.13	14.75	80.90	10.40	10.16	234.34
Total	767.95	648.50	762.37	798.37	835.00	3,812.19

The Authority proposes to consider the above as Efficient Operating Costs towards true up for the Second Control Period. Based on the suggested changes, Authority has reworked the segregation ratio for these operating expenses which shall be considered towards segregation of the O&M Costs in the future i.e. Third Control Period.

The revised segregation ratios are as shown in the table below;

Table 41: Revised Segregation Logic for O&M Costs proposed to be considered by the Authority for Second Control Period

Operating Expenses	Cost allocation % as considered by Authority in the First Control Period	Cost allocation % proposed to be considered by Authority in the Second Control Period as per the Independent Study commissioned by the Authority	Justification for the revised segregation
Staff Cost	89.79%	88.98%	Based on Gross Fixed Asset Ratio (weighted average considering 88.92% for the first 4 years of Second Control Period and 89.16% for the last year of the Second Control Period).
AAI- VRS Payment	89.79%	88.98%	On similar lines as staff cost.
Administrative and General Expenses	70.28%	86.57%	Based on Gross Fixed Asset Ratio for most of the items and specific segregation percentage for certain items.
Electricity and Water Charges	100%	100%	In line with AERA's past segregation logic.
Operating Expenses	91.89%	87.76%	Certain Operating Expenses are considered as 100% Aeronautical. Certain Expenses including IT JV costs are segregated in proportion to the respective terminal space.
Property Tax	87.54%	88.19%	Overall Expense Ratio has been considered

The Authority has reserved treatment of Refinancing Costs, CSR, Airport Operator Fee and Forex Losses separately based on separate examination which has been discussed in the below sections.

Treatment of Refinancing Cost and Forex Losses

3.5.10 Authority has looked at the DIAL’s submission regarding the refinancing cost and has noted that the cost of debt has decreased from the First Control Period to the Second Control Period primarily on account of the refinancing exercises carried out by DIAL and has hence proposed to allow the costs incurred in refinancing by DIAL as part of operating expense. Authority has proceeded to use the segregation ratio as per the outcome of the independent study i.e. 88.98% to segregate the refinancing cost into aeronautical and balance as non-aeronautical.

3.5.11 Authority has looked at DIAL’s submission regarding the forex losses for the Second Control Period. The Authority has noticed that the total forex losses as claimed by DIAL over the Second Control Period under efficient costs is Rs. 575.81 Cr. Considering the above and the refinancing cost incurred by DIAL, the effective cost of debt increases to 12.28% as can be seen in the table below;

Table 42: Effective Cost of Debt including Refinancing Cost and Forex Losses for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Interest as claimed by DIAL	488.58	486.54	467.26	492.80	567.38
Average Debt	5,395.47	5,418.91	5,396.03	5,311.91	5,456.13
Effective Cost of Debt as submitted by DIAL	9.28%				
Aeronautical Portion of Forex losses as submitted by DIAL	471.61	12.41	73.02	(0.42)	19.67
Aeronautical portion of Refinancing Cost as per the Independent Study	118.13	14.75	80.90	10.40	10.12
Total aeronautical Forex Losses and Refinancing Cost	589.74	27.17	153.93	9.98	29.79
Interest including refinancing cost and Forex losses	1,078.32	513.71	621.19	502.78	597.17
Effective cost of debt considering the above	12.28%				

3.5.12 The Authority is of the view that while refinancing cost incurred by DIAL can be considered as part of efficient costs, as the same would incentivize the operator to look at cheaper sources of funding which would eventually lead to lower cost of debt and reduction in tariffs, considering forex losses also would defeat the entire purpose of efficient costs being allowed through tariff as these items would lead to a cost of debt much higher than the originally considered cost of debt. The Authority has noted that the weighted average cost of debt considered at the time of tariff determination for the Second Control Period was 10.19% (Table 28) and the cost of debt for Rupee Term Loan is 11.38%.

The Authority is of the view that the Airport Operator’s effective cost of debt shouldn’t exceed at the least the cost of the borrowing in the local currency which was determined as 11.38% as per the tariff order for the Second Control Period. The Authority hence proposes to allow only forex losses to the extent the effective cost, including the allowed forex losses, don’t exceed 11.38%. Authority is of the view that only to this extent the forex losses incurred by the operator can be considered as Efficient Costs.

The forex losses proposed to be considered by the Authority for the Second Control Period is as shown in the table below;

Table 43: Forex Losses proposed to be considered by the Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Average Debt	5,395.47	5,418.91	5,396.03	5,311.91	5,456.13
Interest as claimed by DIAL (A)	488.58	486.54	467.26	492.80	567.38
Aeronautical portion of Refinancing Cost as per the Independent Study (B)	118.13	14.75	80.90	10.40	10.12
Cost of debt considered as efficient	11.38%				
Total Cost outgo that could be considered as pertaining to the Efficient Cost of Debt on a weighted average basis (C)	879.44	508.47	590.40	502.96	588.88
Cost Outgo pertaining to interest and aeronautical portion of Refinancing Cost (D=A+B)	606.71	501.29	548.17	503.20	577.50
Forex Losses proposed to be considered by the Authority for the Second Control Period (E=C-D)	272.74	7.18	42.23	(0.24)	11.37

3.5.13 Authority proposes to consider the asset segregation ratio of 89% on this cost item arrived at under Table 43 to arrive at the aeronautical forex losses for the Second Control Period. The mentioned segregation ratio has been suggested by the Independent Study for the segregation of Refinancing Cost/Financing Charges. Considering this asset segregation ratio, the revised aeronautical forex losses proposed to be considered by the Authority for the Second Control Period is as shown in the table below;

Table 44: Forex Losses proposed to be considered under Aeronautical Operating Costs by the Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Forex Losses proposed to be allowed by the Authority as Efficient Costs for the Second Control Period	242.52	6.38	37.55	(0.22)	10.11

Treatment of CSR expenses

3.5.14 Authority has examined DIAL's submission regarding CSR expenses under admin & general expenses. Authority has the following points regarding CSR;

Section 135 of the Companies Act 2013 states that CSR is calculated at atleast 2% of the average net profits made by the company during the three immediately preceding financial years.

Provisions of Section 37 of the Income Tax Act state that deduction for any expenditure which is not mentioned specifically in Section 30 to Section 36 of the Income Tax act shall be allowed if the same is incurred wholly and exclusively for purposes of carrying out business or profession. CSR doesn't form part of Sections 30 to 36 of the Income Tax Act and as CSR is not incurred for business or operational purposes, it cannot be allowed under the provisions of Section 37 of Income Tax Act. As such, CSR cannot be accounted as part of O&M expenses.

The Authority is of the firm opinion that CSR is an appropriation out of profits and thereby it does not consider CSR as part of operating expenses. Authority has hence proposed not to consider CSR as part of operating expense for the Second Control Period.

Airport Operator Fee

3.5.15 Authority, in consonance with the decision taken with regards to true up for the First Control Period, has proposed to continue with determination of Airport Operator Fee every year as 3% of the aeronautical revenues actually collected during the previous year. The Authority is of the view that there is no necessity to change the principles as any over recovery which happened at the time of Second Control Period due to delayed implementation of the Tariff order would be trued up along with the carrying cost in future years.

Authority has hence proposed to continue with the same principles of determining Airport Operator Fee as 3% of the previous year's aeronautical revenues. The details are as shown in the table below

Table 45: Airport Operator Fee proposed to be considered as part of Efficient O&M for the Second Control Period

FY ending March 31 (Rs Cr)	2014	2015	2016	2017	2018	Total
Aeronautical Revenues collected by the Airport Operator	2,806.35	2,950.92	3,407.58	3,931.53	1,705.47	14,801.85
FY ending March 31 (Rs Cr)	2015	2016	2017	2018	2019	
Airport Operator Fee considered as 3% of Aeronautical Revenues in the previous year	84.19	88.53	102.23	117.95	51.16	444.06

3.5.16 The details of the operating expenses proposed to be considered by the Authority for the Second Control Period is as shown in the table below;

Table 46: Efficient Operating Costs proposed to be considered by the Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Manpower cost (salaries, wages and manpower)	117.48	111.45	116.11	146.26	166.53	657.83
Operating expense	248.15	250.77	261.42	313.76	332.68	1,406.78
Admin and General expense	135.14	128.45	153.38	193.22	200.65	810.85
Property tax (including additional property tax)	20.09	5.18	28.36	6.35	6.93	66.91
Utility cost	112.32	121.66	106.54	113.20	103.35	557.07
Payment to AAI for VRS	16.65	16.24	15.66	15.18	14.70	78.43
Bank Charges	118.13	14.75	80.91	10.41	10.12	234.32
Forex	242.52	6.38	37.55	(0.22)	10.11	296.35
Airport Operator Fee	84.19	88.53	102.23	117.95	51.16	444.06
Total	1,094.67	743.41	902.16	916.11	896.24	4,552.59

3.6 True up of Aeronautical Taxes

DIAL's submission regarding True up of Aeronautical Taxes for the Second Control Period

3.6.1 DIAL has considered the following with regards to aeronautical taxes for the Second Control Period;

- DIAL has considered aeronautical revenues including the S Factor while arriving at aeronautical taxes. This matter has been discussed in the TDSAT order which has remanded the matter back to AERA for consideration.
- Aeronautical Taxes have been allocated in the ratio of aero PBT and non-aero PBT.

3.6.2 The aeronautical taxes as arrived at by DIAL for the years pertaining to the Second Control Period are as shown in the table below;

Table 47: Aeronautical Taxes submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Aero Revenue (A)	2,818.74	3,265.73	3,777.67	1,528.70	987.79
Cross subsidy- non-aero (B)	167.43	194.96	210.88	247.11	283.35
Total Aero Revenue (C = A+B)	2,986.17	3,460.69	3,988.56	1,775.81	1,271.14
Annual Fee (AF = 45.99% * A)	1,296.34	1,501.91	1,737.35	703.05	454.28
Aero Expense (AE)	1,333.15	756.17	946.21	925.65	922.63
EBIDTA (E = C – AF – AE)	356.68	1,202.61	1,304.99	147.11	(105.77)
Interest (I)	359.39	333.75	310.75	286.43	263.85
Depreciation (D)	541.54	542.94	551.40	557.57	559.44
Aero PBT (PBT = E – I – D)	(544.26)	325.93	442.84	(696.89)	(929.07)
Non-Aero PBT (NPBT)	69.77	187.09	244.75	343.85	351.24
Aero to Non-Aero PBT Ratio (R = PBT/(PBT+NPBT)	0%	64%	64%	0%	0%
Tax as per Financials (T)	-	129.07	236.81	-	-
Aeronautical Taxes (AT = R * T)	-	82.00	152.51	-	-

Decisions taken by the Authority regarding Aeronautical Taxes as per Tariff Order for the Second Control Period

3.6.3 The Authority, at the time of tariff determination for the Second Control Period, had decided that the actual corporate tax paid out that could be ascribed to aeronautical earnings shall be reckoned for the purpose of determining the target revenue which shall be trued up at the time of determination of the tariff for the Third Control Period. Authority, at the time of tariff determination for the Second Control Period, had estimated the aeronautical taxes to be nil.

Table 48: Aeronautical Taxes considered by Authority as per Tariff Order of Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Aeronautical Tax	-	-	-	-	-	-

Authority's Examination and Proposals regarding issues pertaining to Aeronautical Taxes for the Second Control Period as part of the Tariff Determination exercise for the current Control Period

- 3.6.4 Authority has taken cognizance of TDSAT direction to consider a consultative process to consider S factor as part of revenue for providing aeronautical taxes as a benefit as part of tariff determination process and has proposed to carry out the consultation process for determination of aeronautical taxes from the Third Control Period prospectively.
- 3.6.5 Authority has assessed DIAL's submission and has understood that DIAL has paid taxes for FY 2016 and FY 2017. The Authority has assessed the effective tax rate as 19.32% and 24.18% respectively in these two years by dividing the taxes paid in the year by the Profit Before Taxes for the respective year.
- 3.6.6 Authority as part of this consultation paper has excluded S Factor as part of aeronautical revenue to calculate Aeronautical Tax for the Second Control Period. The aeronautical tax is arrived at by considering the effective tax rate on the aeronautical PBT as can be seen in the table below;

Table 49: Aeronautical Taxes assessed without considering S Factor as part of revenues

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Aero Revenue (A)	2,950.92	3,407.58	3,931.53	1,705.47	987.79
Cross subsidy- non-aero - S Factor (B)	-	-	-	-	-
Total Aero Revenue (C = A+B)	2,950.92	3,407.58	3,931.53	1,705.47	987.79
Annual Fee (AF = 45.99% * A)	1,357.13	1,567.15	1,808.11	784.35	454.28
Aero Expense (AE)	1,094.67	743.41	902.16	916.11	896.24
EBIDTA (E = C – AF – AE)	499.13	1,097.02	1,221.26	5.02	(362.74)
Interest (I)	354.81	329.34	306.65	282.65	262.37
Depreciation (D)	532.22	533.26	541.20	546.73	553.93
Aero PBT (PBT = E – I – D)	(387.90)	234.43	373.42	(824.35)	(1,179.03)
Effective Tax Rate (T)	0.00%	19.32%	24.18%	0.00%	0.00%
Aeronautical Taxes (AT = PBT * T)	-	45.29	90.28	-	-

- 3.6.7 The aeronautical taxes proposed to be considered by the Authority for the purpose of determination of target revenue for the Second Control Period against the submission of DIAL as per MYTP is as shown in the table below;

Table 50: Aeronautical Taxes proposed to be considered by the Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Aeronautical Taxes as submitted by DIAL as part of MYTP	-	82.00	152.51	-	-	234.51
Aeronautical Taxes proposed to be considered by Authority for the Second Control Period	-	45.29	90.28	-	-	135.57

3.7 **True up of Revenue from Revenue Share Assets**

DIAL's submission regarding Revenue from Revenue Share Assets for the Second Control Period

- 3.7.1 DIAL has indicated that Other Income is not generated from the services mentioned in Schedule 6 of the SSA nor from aeronautical related assets and is part of the Airport operator cash management process and hence the same has to be excluded under consideration of Revenue from Revenue Share Assets. DIAL has also added that interest income relates to investment of interim surplus funds and the retention of the share-holders' funds in the business till the same are paid out as dividends. DIAL's contention is that this income does not form part of either aeronautical or non-aeronautical revenues and hence the same should be outside regulatory purview.
- 3.7.2 DIAL has also requested that the cross subsidy from Revenue Share Assets would include Fuel Throughput Income and exclude revenue from AAI/Existing Assets/disallowed area. Further, as detailed earlier in their submission regarding True up for the First Control Period, DIAL has submitted that the S Factor should be considered post Annual Fee payable to AAI. DIAL has accordingly considered the S Factor post adjustment pertaining to Annual Fee for calculation of target revenue for the Second Control Period. The details are as per the table below;

Table 51: Revenue from Revenue Share Assets submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Non-Aero Revenues	1,362.95	1,656.14	1,846.41	2,207.67	2,795.51	9,868.68
<i>Less Adjustment towards Other Income</i>	<i>71.63</i>	<i>154.14</i>	<i>201.02</i>	<i>284.65</i>	<i>591.19</i>	<i>1,302.62</i>
<i>Less Revenue from Existing Assets</i>	<i>242.71</i>	<i>281.83</i>	<i>324.10</i>	<i>374.22</i>	<i>431.13</i>	<i>1,653.99</i>
<i>Less Revenue from Disallowed Area</i>	<i>15.31</i>	<i>16.96</i>	<i>19.79</i>	<i>23.73</i>	<i>24.44</i>	<i>100.23</i>
Non-Aero revenue prior to adjustment for revenue share	1,033.31	1,203.21	1,301.50	1,525.08	1,748.75	6,811.85
<i>Less adjustment for revenue share payable to AAI</i>	<i>475.72</i>	<i>553.38</i>	<i>598.56</i>	<i>715.59</i>	<i>829.60</i>	<i>3726.15</i>
Non-Aero revenue on which 30% cross subsidization has been applied	558.09	649.86	702.94	823.69	944.50	3,679.08
30% towards cross subsidisation considered in the tariff submission of DIAL	167.43	194.96	210.88	247.11	283.35	1,103.72

Decisions taken by the Authority regarding Revenue from Revenue Share Assets as per Tariff Order for Second Control Period

- 3.7.3 Authority at the time of tariff determination for the Second Control Period had decided for the time being that the revenues from the Commercial Property Development during the First Control Period and the projected revenue during the Second Control Period shall not be considered towards tariff determination for the Second Control Period.
- 3.7.4 The Authority had decided to consider non-aeronautical revenues as submitted by DIAL for the Second Control Period for all contract linked revenues. In the case of all the other non-aeronautical revenues a CPI inflation rate was applied by the Authority.

- 3.7.5 The Authority in line with its decisions at the time of true up of the First Control Period had decided to consider Fuel Into Plane services as part of aeronautical revenues along with Fuel Throughput Charges.
- 3.7.6 The Authority had decided to consider revenue from cargo screening also as non-aeronautical in addition to revenue from cargo related services, while revenue from ground handling has been treated as non-aeronautical in the Second Control Period.
- 3.7.7 The Authority had decided to consider revenue realised by DIAL under Other Income as non-aeronautical in nature (except Income from dividend only), and had also decided that all components of Other Income should be accounted into either aeronautical or non-aeronautical categories in the future. The Authority had projected Other Income as nil for the Second Control Period as it considered these items to be intermittent in nature with no consistent drivers on which they can be projected.
- 3.7.8 The Authority had also decided to true up all non-aeronautical revenues based on actuals for the Second Control Period at the time of tariff determination for the Third Control Period.
- 3.7.9 The non-aeronautical revenue considered by the Authority as per the tariff order of Second Control Period can be seen in the table below;

Table 52: Non-Aeronautical Revenue considered by Authority as per Tariff Order of Second Control Period

FY Ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Air Traffic Related revenues	72.07	87.44	92.68	98.23	119.33
Passenger Traffic Related revenues	537.50	622.25	727.22	850.32	994.69
Contract linked revenues	376.25	401.78	429.39	448.81	485.10
Cargo revenues	140.34	146.90	158.77	170.29	185.98
Total Non-Aeronautical Revenues	1,126.16	1,258.37	1,408.06	1,567.65	1,785.09

Authority's Examination and Proposal regarding issues pertaining to Revenue from Revenue Share Assets for the Second Control Period as part of the Tariff Determination Exercise for the current Control Period

- 3.7.10 Authority has looked at DIAL's submission with regards to revenue from Revenue Share Assets. The details regarding Authority's examination can be seen in the paras below.

Fuel Throughput Charges

- 3.7.11 Authority at the time of tariff determination for the Second Control Period had taken a decision to consider revenue from Fuel Throughput Charges along with revenue from Fuel into Plane services as part of aeronautical revenues and not as Revenue from Revenue Share Assets. Authority has also considered the same as part of aeronautical charges while trueing up the Target Revenue for the First Control Period in this consultation paper based on detailed reasoning as mentioned in 2.6.15. The Authority is of the view that there is no basis for revising the same and in line with the justifications already mentioned in the second chapter concerning true up for the First Control Period in this consultation paper, has proposed to consider Fuel Throughput Charges as part of aeronautical revenues for the Second Control Period.

Other Income

- 3.7.12 The Authority at the time of tariff determination for the Second Control Period had considered Other Income as nil based on the projections submitted by DIAL for the Second Control Period. The

Authority had also mentioned that Other Income shall be trued up based on actuals at the time of tariff determination for the Third Control Period. The Other Income as actually earned by DIAL during the Second Control Period as per their submission as part of the petition is as shown in the table below;

Table 53: Other Income submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Other Income					
Sale of scrap	-	0.16	0.81	-	0.84
Profit on sale of assets/non-current investments	0.28	0.05	0.00	-	-
Management Fee	11.55	-	-	-	-
Tender cost recovery	-	-	-	-	-
Misc. Income	1.24	0.06	0.01	-	1.92
Interest on delayed payment	-	43.14	8.92	13.49	210.49
Interest income	30.76	27.43	43.29	47.47	102.94
Income from investment	20.47	47.99	97.43	125.03	159.06
Dividend income	19.31	35.52	51.38	67.76	63.59
SEIS valuation income				30.27	55.11
Exchange difference	0.81	-	-	0.63	-
Total Other Income	84.42	154.35	201.84	284.65	593.95

Authority in line with its decisions taken at the time of the tariff order for the Second Control Period has only excluded Dividend Income as part of Revenue from Revenue Share Assets to be considered for the cross subsidization purposes as can be seen in the table below;

Table 54: Other Income proposed to be considered by the Authority as part of Revenue from Revenue Share Assets for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Total Other Income	84.42	154.35	201.84	284.65	593.95
Less: Dividend Income	19.31	35.52	51.38	67.76	63.59
Other Income proposed to be considered under Revenue from Revenue Share Assets	65.11	118.83	150.46	216.89	530.36

Treatment of Revenue from Existing Assets

3.7.13 Authority has looked at DIAL's submission with regards to revenue from Existing Assets. The details of the same for the Second Control Period are as shown in the table below;

Table 55: Revenue from Existing Assets submitted by DIAL for Second Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Revenues from Existing Assets					
Land License Fee	127.89	152.91	185.72	209.62	234.76
Hangar	17.32	29.63	30.13	31.88	33.94
Inflight Kitchen Fee	18.51	22.46	26.16	28.24	33.06
Retail- Duty Free	-	-	-	-	-
Ground Handling Related Revenue	-	-	-	-	-
Car Parking	-	-	-	-	-
Radio Taxi	5.65	5.05	4.60	4.43	5.05

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Advertisement	-	-	-	-	-
Bank ATM	0.68	0.72	0.50	0.95	1.15
Food and Beverages	3.07	3.11	2.81	5.19	14.49
Forex	-	-	-	-	-
Lounges	-	-	-	-	1.40
Other Travel Services	0.68	0.68	1.04	1.06	0.98
Retail Duty Paid	1.33	1.02	2.49	5.00	12.98
Telecom	0.61	0.62	0.53	-	-
Misc Others	-	-	-	-	-
Total (A)	175.74	216.2	253.98	286.37	337.82
Cargo Revenue (Self Handled) (B)	-	-	-	-	-
Cargo Revenue (as demised premises) (C)	66.97	65.64	70.12	88.35	94.12
Reduction on T2 Assets deployed by DIAL (D)	-	-	-	-0.75	-0.81
Total revenue from demised premises (A+B+C+D)	242.71	281.84	324.10	373.97	431.13

The Authority has noticed that the summation of the income claimed by DIAL to be excluded from Revenue from Revenue Share Assets is Rs. 1653.99 Cr over the five year period in the Second Control Period. The Authority at the time of true up for the First Control Period in this consultation paper has proposed not to consider such revenues for exclusion from Revenue from Revenue Share Assets in the First Control Period as mentioned in 2.6.17.

To reiterate, the Authority is of the view that Existing Assets don't share a mutually exclusive relation with aeronautical or non-aeronautical assets and the term Existing Assets has been defined as such to demarcate and identify those assets already existing prior to the execution of OMDA.

The definition of non-aeronautical assets doesn't exclude Existing Assets. In fact the definition of Non-Aeronautical Assets specifically states;

“all assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part II of Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity), to the extent such assets

(a) are located within or form part of any terminal building;

(b) are conjoined to any other Aeronautical Assets, assets included in paragraph (i) above and such assets are incapable of independent access and independent existence; or

(c) are predominantly servicing/ catering any terminal complex/ cargo complex”.

As these Existing Assets are forming part of the terminal building, are conjoined to other aeronautical assets, are incapable of independent access and independent existence, and are predominantly servicing/catering terminal complex/cargo complex, exclusion of the revenue from Existing Assets is not justified. Authority is of the view that as long as the non-aeronautical revenues accrue to the Concessionaire from Existing Assets, the same has to be considered for cross subsidization.

The Authority feels no merit in excluding such revenue from Existing Assets in the Second Control Period and hence proposes not to exclude such revenue from Existing Assets under Revenue from Revenue Share Assets.

Treatment of Revenue from Disallowed Area

3.7.14 Authority has looked at DIAL’s submission with regards to revenue from the disallowed area and has proposed not to exclude such revenues from Revenue Share Assets based on the justification already provided in the past tariff orders and the justification already provided under true up for the First Control Period in this Consultation Paper under 2.6.16.

Treatment of Annual Fee pertaining to Revenue from Revenue Share Assets

3.7.15 The Authority has looked at DIAL’s submission regarding exclusion of Annual Fee pertaining to revenue from Revenue Share Assets, while arriving at the S Factor i.e. the revenue considered for 30% cross subsidization shall be post deduction of the Annual Fee pertaining to the revenue from Revenue Share Assets. The Authority, as already mentioned in its analysis, while truing up the revenues for the First Control Period noted that the proposal of DIAL to exclude revenue share of 45.99% pertaining to the Revenue from Revenue Share Assets tantamount to allowing pass-through of the Annual Fee paid with regards to Revenue Share Assets which is against the tariff setting principles enshrined in the OMDA and the SSA. The detailed analysis and reasoning of the same could be seen in 2.6.18. Therefore, Authority in line with its proposal towards true up for the First Control Period has proposed not to exclude the Annual Fee from the Revenue from Revenue Share Assets while arriving at the S Factor for the Second Control Period.

3.7.16 The Authority at the time of tariff determination for the Second Control Period had decided to project non-aeronautical revenues based on nominal growth rates linked to inflation except for contract linked revenues for which the submission made by DIAL has been considered. The Authority had noted that while the inflation rates have tapered during these years, the non-aeronautical revenues as actually earned by DIAL have shown remarkable growth. The non-aeronautical revenues as actually earned by DIAL in the Second Control Period as per their submission vis a vis the non-aeronautical revenue as considered by the Authority for the Second Control Period is as shown in the table below;

Table 56: Revenue from Revenue Share Assets as per actuals against the projections as per Order no 40/2015-16

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Non-Aeronautical Revenues as projected as per Order No 40/2015-16	1,126.16	1,258.37	1,408.06	1,567.65	1,785.09	7,135.33
Non-Aero Revenues as submitted by DIAL for the Second Control Period	1,362.95	1,656.14	1,846.41	2,207.67	2,795.51	9,868.68
Non-Aeronautical Revenues (excluding Fuel Farm Revenues)	1,230.77	1,514.30	1,692.55	2,030.90	2,626.65	9,095.16

The Authority at the time of tariff determination for the Second Control Period had indicated that non-aeronautical revenues shall be trued up based on actuals and hence the Authority proposes to true up the revenues from Revenue Share Assets based on actuals.

3.7.17 Based on the above the revenue from Revenue Share Assets as considered by the Authority for cross subsidization in the Second Control Period is as shown in the table below;

Table 57: Revenue from Revenue Share Assets proposed to be considered by the Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Non-Aero Revenues as submitted by DIAL for the Second Control Period	1,362.95	1,656.14	1,846.41	2,207.67	2,795.51	9,868.68
<i>Less Fuel Farm Revenue as earned by DIAL during the Second Control</i>	<i>132.18</i>	<i>141.85</i>	<i>153.86</i>	<i>176.77</i>	<i>168.86</i>	<i>773.52</i>

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
<i>Period</i>						
Non-Aeronautical revenues (excluding Fuel Farm Revenues) as proposed to be considered by AERA	1,230.77	1,514.30	1,692.55	2,030.90	2,626.65	9,095.16
<i>Less Adjustment towards portions of Other Income not considered as mentioned in Table 54</i>	<i>19.31</i>	<i>35.52</i>	<i>51.38</i>	<i>67.76</i>	<i>63.59</i>	<i>237.56</i>
Non-Aero revenue proposed to be considered for Cross Subsidization	1,211.46	1,478.77	1,641.17	1,963.14	2,563.06	8,857.60
30% to be considered for cross subsidization	363.44	443.63	492.35	588.94	768.92	2,657.28

3.8 Treatment of Base Airport Charges

DIAL’s submission regarding Treatment of Base Airport Charges for the Second Control Period

3.8.1 DIAL has mentioned in their submission that as per their interpretation of the SSA they shall be eligible to recover Base Airport Charges plus 10% from the date of issue of tariff order wherein the charges calculated are lesser than Base Airport Charges plus 10%. DIAL has mentioned that their eligibility to charge BAC shall be till the time they have been actually allowed to charge BAC plus 10%. AERA has allowed DIAL to charge Base Airport Charges as per the interim tariff order issued by AERA on November 19, 2018, effective from December 1, 2018 and hence DIAL has calculated the BAC eligibility starting from January 1, 2016 and ending at December 1, 2018.

To calculate the amount they are eligible to recover, DIAL has calculated the BAC revenue that would accrue based on the traffic assumed in the tariff order for the Second Control Period and have compared the same with the revenue approved in the tariff order for the Second Control Period for the corresponding period. If the former is lesser, then DIAL has calculated the revenues accrued based on actual traffic on which BAC plus 10% is assumed to be levied as the tariff during the eligibility period. The cumulative amount during the BAC eligibility period adjusted by WACC has been considered for true up at the end of the Second Control Period.

The relevant extract from the DIAL tariff proposal is as shown below;

“In terms of Clause 3.2 of the SSA, it has been mandated that the Aeronautical Charges which DIAL is entitled to collect, are to be calculated in terms of Schedule 6 of the SSA. Relevant portion is reproduced herein under:

“3.1.2 The Aeronautical Charges for any year during the Term shall be calculated in accordance with Schedule 6 appended hereto. For abundant caution, it is expressly clarified that the Aeronautical Charges as set forth in Schedule 6 will not be negotiated post bid after the selection of the Successful Bidder and will not be altered by the JVC under any circumstances.”

....

“Schedule 6

Aeronautical Charges, for the purposes of this Agreement, shall be determined in the manner as set out hereunder:

1. The existing AAI airport charges (as set out in Schedule 8 appended hereto) (“Base Airport Charges”) will continue for a period of two (2) years from the Effective Date and in the event the

JVC duly completes and commissions the Mandatory Capital Projects required to be completed during the first two (2) years from the Effective Date, a nominal increase of ten (10) percent over the Base Airport Charges shall be allowed for the purposes of calculating Aeronautical Charges for the duration of the third (3rd) Year after the Effective Date (“Incentive”). It is hereby expressly clarified that in the event JVC does not complete and commission, by the end of the second (2nd) year from the Effective Date, the Mandatory Capital Projects required to be completed and commissioned, the Incentive shall not be available to the JVC for purposes of calculating Aeronautical Charges for the third (3rd) year after the Effective Date.

2. *From the commencement of the fourth (4th) year after the Effective Date and for every year thereafter for the remainder of the Term, Economic Regulatory Authority/ GOI (as the case may be) will set the Aeronautical Charges in accordance with Clause 3.1.1 read with Schedule 1 appended to the Agreement, subject always to the condition that, at the least, a permitted nominal increase of ten (10) percent of the Base Airport Charges will be available to the JVC for the purpose of calculating Aeronautical Charges in any year after the commencement of the fourth year and for the remainder of the Term.*

..”

On an analysis of Clause 2 of Schedule 6 of the SSA it can be seen that Clause 2 of Schedule 6 of the SSA provides that ‘ the Authority/ GOI (as the case may be) will set the Aeronautical Charges in accordance with Clause 3.1.1 read with Schedule 1 appended to this agreement, subject always to the condition that, at the least, a permitted nominal increase of ten (10) percent of the Base Airport Charges will be available to the JVC for the purposes of calculating Aeronautical Charges in any year after the commencement of the fourth year and for the remainder of the Term. ’

As such, your good office is required to evaluate the Aeronautical Charges calculated in accordance with Schedule 1 of the SSA in comparison to the Aeronautical Charges calculated in accordance with Schedule 6, at the time of setting of the Aeronautical Charges, i.e., at the beginning of a control period.

Further, Clause 2 of Schedule 6 of the SSA expressly states that the ‘permitted nominal increase’ as assured by the SSA is available to DIAL for the purpose of calculation of Aeronautical Charges. Therefore, from the foregoing it can be inferred that in terms of the SSA, the date of levy of Base Airport Charges should coincide with the date on which the aeronautical tariff calculated under Schedule 1 of the SSA is calculated.

In view of the above, it is pertinent to examine the contents of the Second Tariff Order to determine the date as on which the calculation of Aeronautical Charges under Schedule 1 has been done by your good office for the Second Control Period. The relevant portion of the Second Tariff Order is as under:

“25.16 The Authority would like to mention that the X-factor of +96.08% is based on the date of implementation of new tariffs on 01.01.2016 that is, almost one year and nine months into the Second Control Period...

...

Decision No. 22: Regarding the Tariff Structure/Rate Card to be considered for the Second Control Period, based on the material before it and its analysis, the Authority has decided:

22.a To determine an X-factor of +96.08% (with date of implementation of tariff as 01.01.2016) based on its decisions in respect of regulatory building blocks towards determination of aeronautical tariffs for the Second Control Period (01.04.2014 – 31.03.2019) for the IGI Airport, New Delhi.

...

Order

28.1 In exercise of power conferred by Section 13(1)(a) of the AERA Act, 2008 and based on the above decisions, the Authority hereby determines the aeronautical tariffs to be levied at IGI Airport, New Delhi for the Second Control Period (2014-15 to 2018-19), effective from 01.01.2016 and the rate card so arrived at as of 01.01.2016 upto 31.03.2019 has been attached as Annexure I to the Order. ...”

In terms of the Second Tariff Order, it is evident that the Aeronautical Charges for the Second Control Period were calculated keeping in mind the implementation date of 01.01.2016. Since, in terms of the above, the date of implementation of the Aeronautical Charges as calculated under Schedule 1 of the SSA should coincide with the date of implementation of Base Airport Charges when the former is lower than the latter, the date of implementation of Base Airport Charges should also be 01.01.2016 for the Second Control Period.

Since the X-factor and the Aeronautical Charges for the Second Control Period have been calculated taking the date of 01.01.2016 as the benchmark implementation date and it is these Aeronautical Charges which have been compared with the Base Airport Charges to determine whether the Base Airport Charges would be applicable or not. It is evident that the Base Airport Charges would be implemented on the same date as on which the Aeronautical Charges would have been implemented had the same been found to be higher in comparison to the Base Airport Charges. As such, while deciding whether the Aeronautical Charges as calculated under Schedule 1 of the SSA would apply or Base Airport Charges are to apply, the date of implementation would have to be kept constant which in the scenario of the Second Control Period is 01.01.2016. In view of the foregoing, it is submitted that the date of applicability of the Base Airport Charges for the Second Control Period should be 01.01.2016 and the true up for the same has been considered.

In order to substantiate the above claim the following table indicates that the aeronautical tariff as approved under tariff order no.40 /2015-16 had fallen below BAC +10% of BAC from 01.01.2016.”

3.8.2 As a result DIAL has made the following submission on the applicability of such BAC plus 10% from January 1, 2016;

Table 58: Eligibility of BAC submitted by DIAL for Second Control Period as per MYTP

Year ending March 31 (Rs. Cr)	2015	Apr-Dec'15	Jan-Mar'16	2017	2018	2019
Revenue Approved in Order No. 40	2,989.85	2,390.35	110.02	488.02	539.50	596.62
BAC Revenue with Traffic in Order No. 40	689.33	554.27	184.08	790.94	847.36	907.88
BAC Eligibility	NO	NO	YES	YES	YES	YES
BAC Revenue from Actual Data/traffic	-	-	739.35	836.06	930.79	698.00 [#]

Year ending March 31 (Rs. Cr)	2015	Apr-Dec'15	Jan-Mar'16	2017	2018	2019
BAC Revenue to be trued-up	-	-	184.33*	836.06	930.79	698.00
Adjustment Factor based on WACC for Second Control	-	-	1.48	1.30	1.14	1.00
BAC Revenue to be trued-up	-	-	273.54	1,087.72	1,061.68	698.00

*adjusted for the eligibility period

till December 1, 2018

3.8.3 Based on the above table, DIAL has requested for a true up with regards to the Base Airport Charges amounting to Rs. 3,120 Cr which is arrived at by summation of the BAC revenue to be trued up over the period from January 2016 till December 2018.

Decisions taken by the Authority regarding Base Airport Charges as per Order No 30/2018-19 regarding Base Airport Charges

3.8.4 The Authority had not passed any decision with regards to the issue of Base Airport Charges at the time of tariff determination for the Second Control Period.

3.8.5 However during the Second Control Period, DIAL had approached the Authority with the contention that the aeronautical tariffs determined by the Authority have fallen below the Base Airport Charges stipulated in the SSA. As per Clause 2 of Schedule 6 in SSA, DIAL is entitled to collect Base Airport Charges + 10% if the aeronautical charges determined by AERA fall below BAC in any year during the period of concession. DIAL requested the Authority to allow them to levy Base Airport Charges from 7th July 2017, the date when tariff order for Second Control Period was given effect as per the orders of the Hon'ble Supreme Court.

3.8.6 The Authority examined DIAL's submission and stated that the aeronautical charges calculated at BAC + 10% are greater than the charges levied by DIAL as per the tariff order for the Second Control Period. The Authority had also mentioned that DIAL has recovered more than what was due to it in the First and Second Control Periods upto July 2017, to the order of Rs. 5200 Cr taking into consideration the net present values.

3.8.7 The Authority, after examining DIAL's submissions, issued Consultation Paper No. 6/2018-19 on May 29, 2018 concerning determination of aeronautical tariffs with respect to Base Airport Charges and the final order regarding this was issued in November 19, 2018 based on which BAC plus 10% was to be effected from December 1, 2018. The Authority also proposed that the excess amount recovered by DIAL during the Second Control Period will be calculated separately and adjusted during tariff determination of Third Control Period.

Authority's Examination and Proposals regarding issues pertaining to Base Airport Charges in Second Control Period as part of the tariff determination exercise for the current Control Period

Major Points as per DIAL's submission with regards to treatment of BAC:

Authority has looked at DIAL's submission regarding the Base Airport Charges Eligibility and the request for truing up the eligible BAC to the extent of Rs. 3120 Cr and has noted the following points based on which DIAL has made the above claim;

- DIAL's interpretation of Clause 2 of the Schedule 6 of the SSA governing Base Airport Charges is that the date of levy of BAC should coincide with the date on which the

aeronautical tariff under Schedule 1 of the SSA is calculated. If the aeronautical charges calculated as per Schedule 1 of the SSA are lower than the Base Airport Charges, the date of implementation of Base Airport Charges has to be the same date when the determined Aeronautical charges are found to be lower, irrespective of whether such determined Aeronautical charges are levied or not.

- DIAL has compared the aeronautical revenue as approved under the Second Control Period Tariff Order with the revenues calculated as per Base Airport Charges for the same traffic considered in the tariff order and has inferred that BAC is applicable from January 1, 2016, the date of implementation of the tariff order for the Second Control Period. Under the assumption that BAC should be effective, DIAL has submitted that the revenues that would have accrued as per BAC plus 10% from the period starting from January 2016 till December 2018 (when the BAC was actually implemented), should be provided to DIAL on an NPV basis which has been calculated as Rs. 3120 Cr.

Clauses as per the SSA and its interpretation:

Authority has reviewed the relevant clauses of the SSA under Schedule 6 which is as below;

*“2. From the commencement of the fourth (4th) year after the Effective Date and for every year thereafter for the remainder of the Term, Economic Regulatory Authority / GOI (as the case may be) will set the Aeronautical Charges in accordance with Clause 3.1.1 read with Schedule 1 appended to this Agreement, subject always to the condition that, **at the least**, a permitted nominal increase of ten (10) percent of the Base Airport Charges will be available to the JVC for the purposes of calculating Aeronautical Charges in any year after the commencement of the fourth year and for the remainder of the Term.”*

The SSA clearly states that **“at the least”** a permitted nominal increase of 10 percent of the Base Airport Charges will be available to the JVC for the purpose of calculating Aeronautical Charges in any year after the commencement of the fourth year. The Authority would like to bring to attention, the usage of the underlined words which clearly indicate that the permitted nominal increase of 10% over BAC is the floor and if the aeronautical charges determined as per Schedule 1 of the SSA are lower than this floor then tariff as per BAC plus 10% will be applicable, so that the operator earns at the least BAC plus 10%. The same is a measure incorporated in the OMDA/SSA to ensure that the airport operator is assured of a minimal revenue corresponding to BAC plus 10% in the event that the tariff determined as per the Schedule 1 principles of the SSA falls below the BAC plus 10%.

Authority’s analysis on the Major Points submitted by DIAL

DIAL in their submission has requested for provision of BAC from January 1, 2016 till December 1, 2018 over and above the True up for the Second Control Period as per the tariff determination principles mentioned under Schedule 1 of the SSA. The Authority is of the view that such a claim is devoid of merit on account of the following reasons;

- The tariff order was not implemented from January 1, 2016 till July 7, 2017 which is roughly three and quarter years of the Second Control Period during which the aeronautical charges levied by DIAL were much higher than the tariff applicable as per BAC plus 10%. However DIAL **has not only collected these high aeronautical charges** but also **claimed compensation to the tune of the revenues that would have accrued as per BAC** and has asked for the same to be true up **additionally**. As per the SSA, BAC plus 10% is the floor revenue to protect the tariffs from falling below such Base Airport Charges and it is not an added revenue stream for true up when the actual aeronautical charges collected by DIAL are much higher than BAC plus 10%.

- DIAL claiming the **BAC for the period from July 7, 2017 till December 1, 2018 along with the revenues collected as per the tariff order for the Second Control Period** also lacks merit as the BAC is a revenue floor and not an added revenue stream. DIAL had **continued to collect revenues as per the tariff order for the Second Control Period** in this intervening period. DIAL's eligibility has to be the difference between the revenues as per BAC plus 10% and the Aggregate Revenue Requirement (ARR) provided to the airport operator, provided such ARR that has been assessed for the relevant period is lower than the revenues collected as per Base Airport Charges. *(Actual aeronautical revenues may not be considered for comparison with BAC for the lapsed control periods as the Authority considers only ARR on an NPV basis when the tariff is determined for the next cycle as part of true up exercise).*

Authority's Treatment of BAC

Authority at the time of issuing Tariff Order for the Second Control Period has estimated the Target Revenue for DIAL and has compared the same with the aeronautical revenues projected to be collected assuming the implementation of tariff from January 1, 2016. The details are as shown in the table below;

Table 59: Net Target Revenue and Projected Revenue as per Tariff order for the Second Control Period

S. No	FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
1	Net Target Revenue (NTR)	1,674.76	1,587.34	1,547.06	1,464.59	1,435.86
2	NPV Target Revenue	1,977.67	1,704.57	1,510.75	1,300.6	1,159.53
3	Total NPV Target Revenue					7,653.12
4	Net Projected Revenue	2,989.85	2,500.37	488.02	539.5	596.62
5	NPV Projected Revenue	3,530.62	2,685.03	476.57	479.09	481.80
6	Total NPV Projected Revenue					7,653.12

As noted under Rows 3 and 5 in the table above, against the cumulative NPV of Target Revenue projected for the Second Control Period which is Rs. 7653.12 Cr, the airport operator had collected roughly Rs. 6215.65 Cr in the first two years of the Second Control Period itself (approx. 81% of the cumulative NPV of Target Revenue). The above had contributed to the drastic reduction in tariff for the balance years as explained in detail under the tariff order for the Second Control Period. However it is to be noted that the cumulative NPV of the Target Revenue for the Second Control Period is matched with the NPV of the Projected Revenue at the time of tariff determination and only on account of over recovery in the initial 2 years, reduction in tariff was effected.

Authority at the time of issuing the order for BAC dated November 19, 2018 has gone by the principles of Schedule 6 of the SSA which says that the airport operator should get at the least BAC plus 10% as aeronautical revenues. As the revenues that would have accrued to DIAL based on the tariff card approved as per the Tariff Order for the Second Control Period would have been lesser than the aeronautical revenues that would have been collected as per BAC plus 10%, the airport operator was given the right to charge BAC plus 10% from December 1, 2018.

Authority now as part of tariff determination exercise for the Third Control Period has recalculated the Target ARR for the Second Control Period as part of true up exercise. These figures pertaining to Target ARR YoY have been compared with the revenues that would have accrued based on actual traffic at BAC plus 10% and the actual aeronautical revenues that were collected by the airport operator in the Second Control Period which is as shown in the table below;

Table 60: Comparison of recalculated Target ARR, Revenues as per BAC plus 10%, Actual Aeronautical Revenues collected by the Airport Operator to arrive at BAC eligibility

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019
Target ARR for the Second Control Period as calculated by the Authority as per its tariff determination exercise under the current Control Period	2,014.78	1,575.71	1,690.63	1,472.41	1,236.83
Revenues calculated based on actual traffic at BAC plus 10%	689.33	739.35	836.06	930.79	993.28
Actual Aeronautical Revenues collected by the Airport Operator during the Second Control Period	2,950.92	3,407.58	3,931.53	1,705.47	987.79
Need for any adjustment in ARR with regards to BAC	No	No	No	No	No

As can be seen from the above table, the **Target ARR proposed to be considered** by the Authority for true up for each of the years in the Second Control Period is **considerably higher YoY than the revenues that would have accrued as per BAC plus 10%** on the actual traffic.

The Target ARR as mentioned above gets compared with the actual aeronautical revenue collection for any true up pertaining to over recovery or under recovery. DIAL shall hence be able to recover the Target ARR (which is anyways higher than the revenue potential as per BAC plus 10%) under the normal course of tariff determination exercise as part of true up. The same meets the stipulation as per the Schedule 6 of the SSA.

Had the Target ARR been lesser than revenues that would have accrued as per BAC plus 10%, then the Target ARR should be reinstated to the revenues as per BAC plus 10% (which is the minimum revenue DIAL is eligible for as per SSA **at the least**) and trued up for the next Control Period. However, the same is not the case currently as the recalculated Target ARR is well above the revenues that would have accrued as per BAC plus 10%.

Hence Authority proposes no adjustment with regards to BAC True up as claimed by DIAL for the Second Control Period. Authority shall consider recalculated Target ARR for its true up exercise pertaining to the Second Control Period as part of tariff determination for the Third Control Period.

3.9 Traffic Details for the Second Control Period

DIAL's submission regarding Traffic Projections for the Second Control Period

3.9.1 DIAL has submitted the traffic at actuals for the Second Control Period which can be seen in the table below;

Table 61: Actual Traffic achieved by IGIA for Second Control Period

FY ending March 31	2015	2016	2017	2018	2019
Passenger Traffic (Mn)					
Domestic	27.45	34.27	42.20	48.30	50.52
International	13.53	14.15	15.49	17.38	18.70
Total	40.98	48.42	57.70	65.69	69.23
Air Traffic Movement ('000s)					
Domestic	237.64	276.62	316.97	350.34	362.01
International	85.81	89.07	100.34	108.89	114.70
Total	323.45	365.69	417.31	459.24	476.72

Decisions taken by the Authority regarding Traffic Projections as per Tariff Order of Second Control Period

3.9.2 The Authority at the time of tariff determination for the Second Control Period had projected traffic based on the CAGR of 7%.

The traffic projections considered by the Authority at the time of tariff determination for the Second Control Period is as shown in the table below;

Table 62: Traffic Considered by the Authority as per Tariff Order for Second Control Period

FY ending March 31	2015	2016	2017	2018	2019
Passenger Traffic (Mn)					
Domestic Arrivals (A)	10.77	11.53	12.34	13.2	14.12
International Arrivals (B)	5.07	5.43	5.81	6.21	6.55
Domestic Departures (C)	10.8	11.6	12.4	13.3	14.2
International Departures (D)	5.2	5.5	5.9	6.3	6.8
Total Passenger Traffic	31.84	34.06	36.45	39.01	41.67
Air Traffic Movement ('000 units)					
Domestic	205.55	217.87	2,30.92	244.75	259.41
International	83.12	88.10	93.37	98.97	104.89
Total Air Traffic Movement	288.67	305.96	324.29	343.73	364.30

The Authority had also decided to true up the above projected traffic based on actuals at the time of tariff determination for the Third Control Period.

Authority's Examination regarding Traffic achieved for the Second Control Period

3.9.3 The Authority, based on the actual traffic achieved by DIAL, observed that the actual passenger traffic and the air traffic movement realized by DIAL is much higher than the projected traffic in the Second Control Period and has proceeded to consider the traffic at actuals for the true up exercise.

3.10 Revised True up for the Second Control Period

DIAL's submission regarding True up for the Second Control Period

3.10.1 The revised true up as submitted by DIAL for the Second Control Period is as shown in the table below;

Table 63: True up submitted by DIAL for Second Control Period as per MYTP

Year ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Regulatory Asset Base	6,854.92	6,365.81	5,927.18	5,463.33	5,032.55	29,643.79
WACC	14.06%	14.06%	14.06%	14.06%	14.06%	
Return on RAB	963.92	895.15	833.47	768.24	707.67	4,168.44
Expense	1,333.15	756.17	946.21	925.65	922.63	4,883.80
Depreciation	541.54	542.94	551.40	557.57	559.44	2,752.89
Taxes	-	82.00	152.51	-	-	234.52
Target Revenue	2,838.62	2,276.25	2,483.59	2,251.45	2,189.74	12,039.66
Cross subsidy - Revenue from Revenue Share Asset	167.43	194.96	210.88	247.11	283.35	1,103.72
Net Target Revenue	2,671.20	2,081.29	2,272.71	2,004.35	1,906.39	10,935.93

Year ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Actual Aeronautical Revenue	2,818.74	3,265.73	3,777.67	1,528.70	568.18	11,959.03
Difference	(147.55)	(1,184.44)	(1,504.96)	475.65	1,338.21	(1,023.09)
True up of CP1	3,760.15					
PV Factor (based on WACC)	1.69	1.48	1.30	1.14	1.00	
True up as on 1 st April'2019	6,114.78	(1,757.66)	(1,957.97)	542.53	1,338.21	4,279.90
BAC True up	0.00	273.54	1,087.72	1,061.68	698.00	3,120.93
Total True up to be carried forward to the Third Control Period						7,400.83

Authority's estimate of Target Revenue as per Tariff Order of the Second Control Period

3.10.2 The Authority had estimated the target revenue for the Second Control Period in the Tariff Order of Second Control Period as can be seen in the table below;

Table 64: Target Revenue determined by the Authority as per Tariff Order for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Regulatory Asset Base (RAB)	6896.21	6502.51	6158.5	5811.08	5471.22	30839.52
WACC	9.97%	9.97%	9.97%	9.97%	9.97%	
Return on RAB (A= RAB X WACC)	687.27	648.04	613.75	579.13	545.26	3073.45
Expense (E)	749.69	805.92	840.49	834.68	900.57	4131.35
Depreciation (D)	539.31	510.89	515.23	521.07	525.56	2612.06
Taxes (T)	-	-	-	-	-	-
Gross Target Revenue (GTR=A+E+D+T)	1976.28	1964.85	1969.48	1934.88	1971.39	9816.88
Non-Aeronautical Revenues	1126.16	1258.37	1408.06	1567.65	1785.09	7145.33
Less: Cross Subsidy from NAR (NAR)	337.85	377.51	422.42	470.29	535.53	2143.6
True up (TRU)	36.33					36.33
Net Target Revenue (NTR=GTR-NAR+TRU)	1,674.76	1,587.34	1,547.06	1,464.59	1,435.86	7709.61
Discount Rate	1.18	1.07	0.98	0.89	0.81	
NPV Target Revenue	1,977.67	1,704.57	1,510.75	1,300.6	1,159.53	7653.12
Total NPV Target Revenue (as on January 1, 2016)						7653.12
Net Projected Revenue	2,989.85	2,500.37	488.02	539.5	596.62	7114.36
Discount Rate	1.18	1.07	0.98	0.89	0.81	
NPV Projected Revenue	3,530.62	2,685.03	476.57	479.09	481.8	7653.12
Total NPV Projected Revenue (as on January 1, 2016)						7653.12

Based on the above, the Authority had projected a decrease in aeronautical tariffs by 96.08% as per the tariff order for the Second Control Period.

3.10.3 The Authority based on submissions from various stakeholders regarding the viability of IGI Airport, had decided on an interim measure to help DIAL meet its estimated cash deficit of Rs. 404.88 Cr, and had decided to allow the X Factor of 89.40% to DIAL and based on the same, tariff card was prepared for the Second Control Period and was applicable from 1st January 2016. The ARR granted, as on 1st January 2016, based on the above revision in X Factor was Rs. 691.50 Cr.

Authority's Examination and Proposals regarding Target Revenue for the Second Control Period as part of the tariff determination exercise for the current Control Period

3.10.4 Authority based on the examination of various building blocks based on actuals, has determined the target revenue for the Second Control Period. As the granted ARR of Rs 691.50 Cr as per the tariff order for the Second Control Period shall be recovered as part of the true up exercise carried out, there is no need for specific adjustment towards the same.

3.10.5 Considering the various proposals as mentioned with regards to the issues raised by DIAL concerning Second Control Period, the true up for the Second Control Period is as given in the table below;

Table 65: True up proposed to be considered by Authority for Second Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Regulatory Asset Base (RAB)	6,767.53	6,281.63	5,848.87	5,391.11	5,004.30	29,293.43
WACC	11.10%	11.10%	11.10%	11.10%	11.10%	
Return on RAB (A= RAB X WACC)	751.33	697.39	649.34	598.52	555.58	3,252.17
Expense (E)	1,094.67	743.41	902.16	916.11	896.24	4,552.59
Depreciation (D)	532.22	533.26	541.20	546.73	553.93	2,707.32
Taxes (T)	-	45.29	90.28	-	-	135.57
Gross Target Revenue (GTR=A+E+D+T)	2,378.22	2,019.34	2,182.98	2,061.35	2,005.75	10,647.65
Less: Cross Subsidy from Revenue Share Assets (NAR)	363.44	443.63	492.35	588.94	768.92	2,657.28
Net Target Revenue (NTR = GTR-NAR)	2,014.78	1,575.71	1,690.63	1,472.41	1,236.83	7,990.37
Revenues calculated based on actual traffic at BAC plus 10% (BAC)	689.33	739.35	836.06	930.79	993.28	4,188.80
Actual Aero Revenue Realised (including Fuel Farm) (AR)	2,950.92	3,407.58	3,931.53	1,705.47	987.79	12,983.30
True Up (Higher of (NTR or BAC) less AR)	(936.14)	(1,831.87)	(2,240.90)	(233.06)	249.04	(4,992.93)
Add True up for FCP	641.68					641.68
True up for Second Control Period	(294.46)	(1,831.87)	(2,240.90)	(233.06)	249.04	(4,351.25)
WACC for CP2	11.10%					
True up on a Present Value Basis as on 1 st April'2019	(448.66)	(2,512.24)	(2,766.09)	(258.93)	249.04	(5,736.88)
Total true up for CP2						(5,736.88)

3.10.6 The summary of the major adjustments carried out by the Authority as part of the true up for the Second Control Period as part of the tariff determination process for the current Control Period against the regulatory building blocks considered by the Authority towards assessment of Target Revenue as per the tariff order for the Second Control Period is as below;

- ✓ Regulatory Asset Base has been worked out based on actual aeronautical asset additions as suggested by the independent study and based on pro rata adjustment as submitted by DIAL including the costs associated with ATC Tower. Costs associated with Baggage Screening Related Assets have also been considered from FY 2019 on a pro rata basis. Depreciation on account of these adjustments has also been effected.
- ✓ WACC has been true up considering the actual cost of debt, return on RSD equivalent to the cost of debt while considering the adjustments in RSD and Equity Value during the Second Control Period and also considering the upfront fee as part of equity.
- ✓ Efficient Operating Expenses have been considered based on the recommendations of the independent study carried out by the Authority while the costs associated with debt refinancing and forex losses have been considered subject to the same being efficient. Airport

Operator Fee has been considered as 3% of the actual aeronautical revenues earned in the previous year.

- ✓ Revenue from Revenue Share Assets has been considered at actuals including all portions of Other Income excluding Dividend Income alone.
- ✓ True up for the First Control Period has been revised as Rs. 641.68 Cr and considered as part of the Target Revenue for the first year in the Second Control Period.

3.10.7 The total amount to be trued up based on over recovery by DIAL till the Second Control Period has been determined by the Authority as Rs. 5,737 Cr which is proposed to be recovered from the airport operator in the Third Control Period subject to the applicability of Schedule 6 of the SSA with regards to Base Airport Charges.

3.11 Authority's Proposals regarding True up for the Second Control Period

Based on the material before it and based on its analysis, Authority proposes the following regarding true up for the Second Control Period.

- 3.11.1 Authority proposes to true up Aeronautical RAB considering the actual additions on a pro rata basis and as per the asset segregation ratios as suggested by the independent study (Para 3.2.14). The adjustment towards ATC Tower capitalization and Baggage Screening Related Assets shall also be carried out on a pro rata basis for FY 2019 with the balance carried forward to FY 2020.
- 3.11.2 Authority proposes to reclassify an amount of Rs. 23.58 Cr from Aeronautical assets to Non-Aeronautical assets in the Second Control Period, as part of additions to RAB for the Second Control Period based on the independent study (Para 3.2.15). The revised allocation ratio for FY 2019 has been considered as 89.16%:10.84%.
- 3.11.3 Authority proposes to consider the upfront fee of Rs. 150 Cr as part of equity base and true up WACC based on the cost of equity of 16%, cost of debt at actuals i.e. 9.28% and cost of RSD at the cost of debt i.e. 9.28% (Paras 3.3.10, 3.3.11, 3.3.12 and 3.3.14). The proposed recalculated WACC for the Second Control Period is 11.10% (Para 3.3.15).
- 3.11.4 Authority proposes to recalculate Airport Operator Fee for the Second Control Period as 3% of the Aeronautical Revenues for the previous year (Para 3.5.15).
- 3.11.5 Authority proposes to consider refinancing cost based on actuals as part of Admin and General Expenses with the segregation ratio based on aeronautical asset allocation utilized to calculate the efficient refinancing costs (Para 3.5.12).
- 3.11.6 Authority proposes to consider forex losses based on actuals to the extent the effective weighted average cost of debt doesn't exceed the cost of RTL considered at the time of tariff determination for the Second Control Period as per Order No 40/2015-16, which has been then segregated as per the aeronautical asset segregation ratio similar to refinancing charges (Para 3.5.13).
- 3.11.7 Authority proposes to reclassify IT JV expenses to the extent of Rs. 8.20 Cr classified as aeronautical by DIAL over a period from FY 2015 till FY 2017 as non-aeronautical as suggested by the independent study based on revised segregation ratio for IT JV assets.
- 3.11.8 Authority proposes to consider Efficient O&M Costs based on the adjustment as suggested by the independent study tasked with studying the O&M Cost segregation as submitted by DIAL (Para 3.5.9).
- 3.11.9 Authority proposes not to consider any adjustment in revenue from Revenue Share Assets towards revenue from existing assets, disallowed area, payment to AAI as part of 45.99% revenue share (Paras 3.7.13, 3.7.14 and 3.7.15) and also to consider Fuel Throughput Charges as part of aeronautical revenue (Para 3.7.11).
- 3.11.10 Authority proposes not to consider any adjustment with regards to BAC True up as submitted by DIAL on the Target Revenue assessed for the Second Control Period.
- 3.11.11 Authority proposes to true up Rs. 5,737 Cr which is proposed to be recovered from the airport operator in the Third Control Period subject to the applicability of Schedule 6 of the SSA with regards to Base Airport Charges.

4 REGULATORY ASSET BASE (RAB) AND DEPRECIATION FOR THIRD CONTROL PERIOD

4.1 DIAL's Submissions regarding RAB and Depreciation for the Third Control Period

Capex Plan for the Third Control Period

- 4.1.1 DIAL in consultation with AECOM and NACO has prepared Major Development Plan which has been submitted to AERA for its consideration. DIAL has submitted that as part of prudent process, they had approached AERA for in principle approval of capex based on preliminary designs and estimates. DIAL has informed as per the tariff submission that the existing terminals had reached its sweat capacity and there was dire need for next level of expansion.
- 4.1.2 DIAL has conducted consultation with various stakeholders and submitted capex plan to relevant authorities including AERA. AERA had appointed KITCO to independently review the capex plan submitted by DIAL. KITCO has reviewed DIAL's submission and reported its recommendations to AERA which is discussed in the latter half of this chapter.
- 4.1.3 DIAL has informed that the development works at IGI Airport under Phase 3A Expansion primarily can be classified under the 5 packages:
- i. Package 1: Expansion of Terminal 1 and associated facilities with the post expansion capacity of T1 increased from 20 million to 40 million passengers per annum.
 - ii. Package 2: Airfield works including development of 4th Runway
 - iii. Package 3: Landside/Connectivity works
 - iv. Package 4: Eastern Parallel Cross Taxiways
 - v. Package 5: Modifications to Terminal 3 and associated facilities to enable T3 have improved facilities for transfer passengers and improved levels of service for International and Domestic passengers.

Details of Phase 3 A Expansion

Package 1

- 4.1.4 Terminal 1 (T1) of IGI Airport, New Delhi handles the domestic traffic of Low Cost Carriers (LCC). DIAL has mentioned that T1 is operating beyond its capacity, and has hence proposed to undertake the expansion of terminal building (T1D and T1C), the airside and city side. The departure terminal (T1D) and arriving terminal (T1C) will be merged and expanded to accommodate 40 million passengers per annum. The work would involve;
- a) Expansion of departures/arrival buildings with a new architectural façade on the city side, integrating with existing terminal buildings, demolition of some of the existing facilities to facilitate expansion of the terminal footprint and airside asset to meet passenger requirement as per the master plan forecast. The above expansion will increase the terminal area from the current 63,000 sq.m. to 1,93,000 sq.m. Various additional features will be added to the expanded terminal like;
 - o Increase of entry gates from 8 to 13.
 - o Hand baggage processing capacity (currently 160-180 bags per hour) to increase to 250-300 bags per hour.
 - o Arrival Baggage carousels to increase from 8 to 10 with claim length increased to 70 M.

- Construction of node building & pier with 22 Passenger Boarding Bridges (PBB) connected to departure and arrival halls.
- b) All the additional features needed to be integrated with the existing systems. DIAL has mentioned that Apron area for Terminal 1 needs to be reconstructed and realigned. This includes the construction of 82 aircraft parking stands, strengthening of the stands, provision of stand support facilities, AGL, floodlighting and drainage of areas. The overall detailed design for the airside shall incorporate fuel hydrant for all stands. Hydrant fuel design is to be provided by another agency (fuel concessionaires), but the EPC contractor is required to coordinate and interface to ensure that the entire work is carried out as per plan.
- c) Revamping of existing grading and redesign of the existing drainage facility (including the main drainage system on the northern side which collects all the water from various drains within the airport area and channelizes the water outside the airport boundary) for both landside and airside areas falling on the northern part of the IGI airport to provide quick and efficient removal of the surface water taking into consideration the future expansion that may occur in the development of the surrounding areas. This drainage facility would also take into consideration all the future developments envisaged in the master plan including the increase in the surface water run-off due to construction of Eastern Cross Taxiway.
- d) New landside facilities including landscaping works – the associated works at the landside including utility buildings, road network for connectivity to the terminals, security check points, landside drainage, water system, rain water harvesting, landscaping and revamping of the existing above systems.
- e) Various electrical, mechanical and plumbing works including HVAC, lighting, sanitary, fire detection & prevention; and other facilities in the terminal & pier building – this includes new utilities / buildings and up-gradation of existing substations & other systems including complete re-design of MEP systems to meet the requirement of the new terminal building and its associated facilities which require 100% DG backup, UPS, SCADA, exterior illumination, fire detection / fire fighting, etc.
- f) Special airport systems e.g. baggage handling system, X-ray security screening for passengers and baggage as per Bureau of Civil Aviation Security guidelines, passenger boarding bridges, VHT systems, visual docking system, flight information display system, public address system, etc.
- g) All utility enhancements required due to expansion of the airport capacity.

Package 2

4.1.5 The proposed developments on Airfield would cover;

- a) Construction of 4th runway & associated rapid exit taxiways – parallel to RWY 11/29, of the size 4375 m X 60 m plus 7.5 m wide shoulders, suitable for operation of A-380 /other equivalent Code F aircraft, in compliance with ICAO Standards & recommend practices / DGCA Civil aviation requirements, pavement designs based on LEDFAA design program and existing soil characteristics, RWY geometry / RET and other taxi links as per aircraft mix as defined in the Master Plan of IGI Airport.
- b) The Runway will be designed with Cat 3B AGL & navigational aids at both ends. The Runway strip will be graded as per ICAO standards. Its drainage designs will be developed so as to integrate with the over-all drainage system of the airport, leading to the eventual outfall of the

airport. This new Runway will be supported by an additional Aircraft Rescue and Fire Fighting (ARFF) station suitable for Cat 10 requirements as per ICAO standards as per Master Plan.

- c) Construction of north parallel taxiway and related Rapid Exit Taxiways (RETs) (at north of runway 10-28) (approx. 4000m) with other taxi links equipped with CAT 3B Aeronautical Ground Lighting (AGL).
- d) Complete rehabilitation of old runway 9/27 to extend its life.
- e) All utility enhancements required due to expansion of the airfield systems.

Package 3

4.1.6 Landside/Connectivity works shall include;

- a) T1 kerb widening
- b) Widen northern access road to 5+5 lanes
- c) Central spine road widening to 6+6 lanes
- d) New access road (parallel to central spine) connecting to NH8
- e) Underpasses for Radisson road

Package 4

4.1.7 The Eastern Parallel Cross Taxiways Package shall include;

- a) New eastern parallel cross taxiways (A 2.4-km code F taxiway, which at certain locations will go above the airport approach roads with vehicular traffic underneath).
- b) New taxiway in between TWY Y and TWY Z7 isolation bay; new TWY connection in between TWY P and RWY 28 end.
- c) RETs on RWY 11L-29R.
- d) Other taxiways associated with RWY 11L-29R.

Package 5

4.1.8 In order to accommodate increasing international transfer passenger through Terminal 3 (T3) and to further improve facilities at IGI Airport, DIAL is proposing to undertake following works in Terminal 3;

- a) Construction of additional transfer area for I-I (international to international) in Terminal 3. The floor plate at the arrival of pier A & B junction area will be increased for I-I transfer to the tune of 3000 sq.m. area;
- b) Installation of the 7th check-in island along with its baggage handling & screening systems, additional arrival baggage carousels (2 Nos), increase in the number of emigration and immigration counters and other related IT & MEP works; installation of baggage carousals at the arrival with necessary IT & MEP works; creation of swing corridors to handle I-D & D-I passengers along with its related equipment & IT/MEP Systems.

Addition to RAB

4.1.9 DIAL had submitted the necessary details to AERA regarding Phase 3 A Expansion Plan post which AERA had appointed M/s. KITCO to analyse the reasonableness of capex plan of DIAL and its recommendation of the capital cost. KITCO reviewed the Project Cost with all design and construction plan and submitted its recommendations to AERA.

4.1.10 DIAL as part of the initial submission of the tariff proposal has considered the capex as recommended by KITCO for the purpose of determination of tariff which has been revised to Rs.

9,782.15 Cr based on the contracts awarded through competitive bidding. The cost doesn't include Rs. 12 Cr pertaining to preliminary and relocation work which has already been capitalized as part of the asset additions in the Second Control Period. The segregation of the cost among the various packages is as shown in the table below;

Table 66: Capex Estimates submitted by DIAL for Phase 3 A Project as per MYTP

Capex for Expansion (Rs. Cr)	Categorization	Cost estimate as per Price Discovery
Package 1		
Terminal 1C	Common	352.60
Pier, Node & Balance Part	Common	2,781.65
Apron Phase 1	Aero	486.47
Apron Phase 2	Aero	310.34
Apron Phase 3	Aero	218.36
Package 2		
Runway 11L/29R	Aero	456.38
North side - Parallel Taxiways	Aero	150.90
North side - Echo-2 Taxiways	Aero	187.40
North side - Runway- 09	Aero	276.23
Other Taxiways & airside Works	Aero	2,228.46
Package 3		
Landside work	Aero	817.82
Package 4		
Eastern cross taxiway	Aero	1,364.23
Package 5		
Terminal 3 works	Common	151.32
Total		9,782.15

4.1.11 DIAL has submitted that of the revised estimated cost of Rs. 9,782.15 Cr, Rs. 62.79 Cr has already been incurred in FY 2019 and is considered under CWIP in FY 2019.

4.1.12 The phasing of the capex as submitted by DIAL is as shown in the table below;

Table 67: Capex Phasing submitted by DIAL for Phase 3 A Project as per MYTP

FY ending March 31 (Rs. Cr)	2019	2020	2021	2022	2023	Total
Aero - (a)	60.50	2,271.60	4,067.99	2,725.19	300.35	9,425.64
Non-Aero - (b)	2.29	93.40	155.18	105.64	-	356.51
Total (C) = (a) + (b)	62.79	2,365.00	4,223.17	2,830.83	300.35	9,782.15
Add: Financing allowance	3.45	136.98	419.76	575.88	289.65	1,425.73
<i>Aeronautical asset (d)</i>	<i>3.33</i>	<i>131.57</i>	<i>404.34</i>	<i>554.39</i>	<i>278.84</i>	<i>1,372.47</i>
<i>Non-Aeronautical Asset (e)</i>	<i>0.13</i>	<i>5.41</i>	<i>15.42</i>	<i>21.49</i>	<i>10.81</i>	<i>53.26</i>
Total (including Financing Allowance)	66.24	2,501.99	4,642.93	3,406.71	590.00	11,207.80
Total addition to aeronautical RAB (a+d)	63.83	2,403.18	4,472.33	3,279.58	579.19	10,798.10

4.1.13 DIAL in their tariff proposal has submitted that the expansion project is a highly capital intensive project and the Airport Operator has to invest its capital from the start of the project. Funding of such project cost has to be done via debt and equity/internal accruals. Debt carries interest and the equity

/internal accruals has its own opportunity cost. DIAL has mentioned that such cost is being capitalized in the asset and accordingly has requested that the same should be allowed as part of RAB. DIAL has also mentioned that this concept is also being captured under tariff guidelines issued for airport operator as financing allowance. DIAL for the purpose of tariff determination has considered financing allowance in RAB and the cost considered for arriving at such financing allowance is the proposed cost of debt for Rupee Term Loan considered to fund the expansion capex i.e. 11%.

4.1.14 The segregation among aero and non-aero for the capital expenditure is as per the following principles;

- Under all the packages, the heads classified as Aeronautical assets has been allocated 100% into aero i.e. cost associated with runway, taxiways, aprons and landside works.
- Under all the packages, the items classified as Common Assets, has been allocated among Aeronautical assets and Non-Aeronautical Assets in the ratio of 89.15%:10.85%.
- Considering the above, of the total capex of Rs. 9,782.15 Cr, aeronautical asset constitutes 96.36% of the total capex with the balance 3.64% constituted by non-aero.

Details of General Capex

4.1.15 DIAL had completed the construction of the new airport and associated works in FY 2010. DIAL has referred that the Terminal 3 building is now nine years old and hence requires high maintenance and major repairs. The highlights of the key works as submitted by DIAL are as follows;

a) Civil Works:

- Water proofing for terminal and node building: The water proofing to the terminal building and node building terrace was done during project implementation and it is getting damaged due to ageing factor. Generally the life of water proofing will be around 8 to 10 years. Hence, there is a need for water proofing. The estimated cost of the project is Rs. 50 Cr.
- Refurbishment of BBA and BMA flooring
- Strengthening of pump house at T2
- Refurbishment for creating security hold area for T2
- Refurbishment of staff and VIP toilets at T2

b) Electrical:

- LED Installation as part of energy conservation - As part of energy conservation LED fittings at Terminal-3 have been proposed at an estimated cost of Rs. 20 Cr.
- Installation of UPS at terminal and replacement of battery at an estimated cost of Rs. 10 Cr.

c) Mechanical:

- Additional chiller/cooling tower/pumps/replacement of AHU coils/fans/pipe/insulation in a phased manner.
- Replacement of smoke detector, cooling tower/chiller/pumps/piping/AHU coils/fans/split units in a phased manner.

d) Airport System

- Automated EBS is planned to manage peak volumes and optimize resources considerably.
- Improvement of BHS efficiency at Terminal 2.
- Integration of X-ray machines with BHS SCADA and matrix server for seamless transaction.

e) Airside

- LED type fixtures for the taxiways as part of operational efficiency improvements.
- ASDs are to be provided to monitor consecutive / adjacent lamp failures, for complying with regulatory requirements.
- CMS operating logics are to be upgraded as per the prevailing operational procedures for ensuring appropriate lighting and control of the systems.
- Additional VOR sign boards, replacement of old signs and new signs are to be provided as per the operational requirements.

f) Security related expense (PSF)

- Due to various security compliances, PSF has to incur capital expenditure during Third Control Period.

4.1.16 DIAL has mentioned that the General Capex also includes the following items which have been added based on directive from BCAS/DGCA and other regulatory bodies.

- BCAS has directed all civil airports in India to install body scanners. As per this directive, DIAL has estimated 123 body scanners to be installed at the Airport. The capex pertaining to this requirement is Rs. 154 Cr.
- DGCA has asked DIAL to procure aircraft recovery kit to meet exigencies at the airport. Expected cost of the kit is Rs. 19 Cr.
- To improve connectivity to the airport, NHAI has proposed an underpass at Shiv Murthy NH-8. MoCA has advised DIAL to contribute 50% of the total cost of this project amounting to Rs. 300 Cr i.e. Rs. 150 Cr.

4.1.17 The details of the above mentioned expenses and the phasing are as shown in the table below;

Table 68: General Capex submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024	Total
General Capex	624.03	486.12	138.39	103.16	299.98	1,651.68
Aeronautical Capex	572.59	452.17	123.37	91.97	267.43	1,507.54
Non-Aeronautical Capex	51.44	33.95	15.02	11.19	32.55	144.15

4.1.18 The allocation of general capex has been considered in the asset ratio for FY 2018-19 i.e. 89.15% except for the capital expenditures considered under 4.1.16 which have been considered as 100% aeronautical.

4.1.19 The total aeronautical RAB addition proposed by DIAL in the Third Control Period is **Rs. 12,305.64 Cr** comprising of Rs. 10,798.10 Cr pertaining to Phase 3 A Expansion Capex as mentioned in Table 67 and the aeronautical portion of General Capex which has been estimated as Rs. 1507.54 Cr as mentioned in Table 68.

Means of Finance

4.1.20 DIAL has as part of the submission considered the following as the means of finance for funding the Project Cost including the general capex;

Table 69: Project Cost and Means of Finance submitted by DIAL for Third Control Period as per MYTP

Particulars	Rs. Cr
Project Cost	
Phase 3 A expansion Capex	9782
Financing Allowance	1426
Total Expansion Capex	11208
General Capex	1652
Total Capex	12860*
Means of Finance	
Cash accruals	3424
Debt- RTL Proposed	5866
Foreign Currency Bond-USD	2424
RSD	1078
Total Means of Finance	12793

*includes Rs. 62.69 Cr already incurred in the Second Control Period and shown as CWIP which has been funded out of cash accruals. Further financing allowance pertaining to this is also captured under the Total Capex which brings the Total Capex already incurred in the Second Control Period shown as CWIP by DIAL to Rs 66.24 Cr.

4.1.21 DIAL had also mentioned that the cash accruals have already been accumulated as on FY 2019 and the RSD envisaged as part of the means of finance shall be collected by FY 2020.

Depreciation

4.1.22 DIAL has considered the depreciation for the assets based on the useful life of the assets as per the Companies Act or the concession period whichever is lower. DIAL had also submitted that the same is consistent with Authority's Order No. 35/2017-18 dated 12th January 2018 and amendment to Order No 35/2017-18 dated 9th April'2018.

4.1.23 The projected depreciation for the existing assets has been confirmed through auditor certificates submitted by DIAL.

4.1.24 In the case of expansion assets the average rate of depreciation for FY 2019 i.e. 5.92% has been considered.

Table 70: Depreciation submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Depreciation on existing Assets	489.42	436.67	382.77	367.83	349.33
Expansion Asset	16.90	94.22	251.91	529.92	718.57
Total	506.33	530.35	634.68	897.76	1,067.90
Depreciation on Hypo RAB	24.48	22.60	21.73	22.85	23.15
Total (including Hypo RAB)	520.78	543.48	646.39	910.58	1,081.44

Regulatory Asset Base for Third Control Period

4.1.25 Considering the above, the Regulatory Asset Base for the Third Control Period as considered by DIAL is as shown in the table below;

Table 71: RAB and Depreciation submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Opening RAB	4,782.11	5,016.25	6,532.32	9,192.75	14,418.53
Addition - Considered on Pro Rata basis	972.51	2,046.97	3,295.12	6,123.53	267.43
Pro Rata DF adjustment on account of ATC capitalisation	232.05	-	-	-	-
Depreciation	506.33	530.90	634.68	897.76	1,067.90
Closing RAB	5,016.25	6,532.32	9,192.75	14,418.53	13,618.07
HRAB					
Opening HRAB	218.61	194.13	171.53	149.79	126.94
Depreciation	24.48	22.60	21.73	22.85	23.15
Closing HRAB	194.13	171.53	149.79	126.94	103.80
Total Aeronautical RAB	5,210.38	6,703.84	9,342.55	14,545.47	13,721.86
Aero RAB considered for Tariff	5,089.54	5,911.95	7,988.06	11,918.90	14,118.37
Depreciation Considered for Tariff determination	520.78	543.48	646.39	910.58	1,081.44

4.2 Authority’s Examination regarding RAB and Depreciation for the Third Control Period

4.2.1 The Authority has analysed DIAL’s submissions and has commissioned a separate independent study towards capital expenditure proposed by DIAL for Phase 3 A expansion of IGIA.

4.2.2 The independent study has analysed the submissions by DIAL including the need for the proposed Project and its capacity including assessment of cost effective alternatives, examination of whether the building standards and designs are in line with IMG/IATA norms and analysis of the reasonableness of the proposed cost with reference to the tentative ceiling as decided by the Authority. The summary of the independent study is given in [Annexure 4](#). The study is attached as an appendix (**Appendix 3**) to this consultation paper. The recommended cost as per the independent study regarding Expansion Capex pertaining to Phase 3 A Project of DIAL is as follows;

Table 72: Phase 3A Expansion cost as recommended by the Independent study

Package	Capex for Expansion (Rs. Cr)	Recommended cost based on independent study
1	Expansion of Terminal 1	2,431.00
1,2&4	Airfield works including 4 th Runway, Aprons & eastern parallel cross taxiways	4,318.45
3	Landside/connectivity works	366.17
5	Modification of Terminal 3	166.98
	Total	7,282.60
	Others	686.00
	Grand Total	7,968.60

As can be seen in the above table, the independent study has recommended a cost of Rs. 7,968.80 Cr for Phase 3A expansion. The independent study has also commented that DIAL’s proposal for

construction of new runway, parallel taxiway, cross taxiway and associated connection taxiways is justified.

4.2.3 The segregation of the cost submitted by DIAL among the various packages viz a viz the cost as assessed based on independent study is as shown in the table below;

Table 73: Comparison of Capex Estimates between Independent Study and DIAL's submission

Capex for Expansion (Rs. Cr)	Categorization	Cost estimate as per Independent Study [^]	Cost estimate as submitted by DIAL
Package 1			
Terminal 1C	Common	299.25	352.60
Pier, Node & Balance Part	Common	2,360.74	2,781.65
Apron Phase 1	Aero	385.67	486.47
Apron Phase 2	Aero	246.03	310.34
Apron Phase 3	Aero	173.11	218.36
Package 2			
Runway 11L/29R	Aero	279.08	456.38
North side - Parallel Taxiways	Aero	150.84	150.90
North side - Echo-2 Taxiways	Aero	330.84	187.40
North side - Runway- 09	Aero	92.44	276.23
Other Taxiways & airside Works	Aero	1,938.02	2,228.46
Package 3			
Landside work	Aero	400.66	817.82
Package 4			
Eastern cross taxiway	Aero	1,129.20	1,364.23
Package 5			
Terminal 3 works	Common	182.71	151.32
Total		7,968.60	9,782.15*

*doesn't include the Rs 12 Cr already capitalised as part of asset additions in the Second Control Period pertaining to preliminary and relocation work.

[^] for the purpose of comparison with the cost estimate as submitted by DIAL, the Others Item of Rs 686 Cr as shown under Table 72 has been proportionately allocated to all the individual items under the above table.

4.2.4 Authority is of the view that the cost as per the independent study is reflective of the efficient costs associated with the activities mentioned under Phase 3 A Expansion and has hence requested DIAL to submit reasons for the escalation in price at the time of bidding out the EPC works. DIAL's response is as follows;

The original estimates submitted to AERA/KITCO were based on preliminary BoQ and estimated per unit cost. The contract for Phase 3A expansion work was awarded on lump sum EPC (Engineering, Procurement and Construction) contract basis post international competitive bidding. The successful bidder i.e. L&T had estimated package wise payment mechanism for the decided lump sum cost.

The revised cost of the project, basis the works awarded till date is INR 9,794 Cr with an assumption of GST credit of Rs 450 Cr. The revised project cost include INR 9821 Cr EPC contract awarded to L&T which if we consider the expected GST credit of INR 450 Cr then it comes to INR 9371 Cr. In addition to which INR 423 Cr work awarded to others like design, PMC, preliminaries and insurance.

Accordingly we hereby submit the project cost now arrived is a result of price discovery done through international tendering process:

- DIAL has followed an exhaustive International tendering process wherein reputed International Contractors with experience in similar projects had been shortlisted for tendering.
- The exhaustive process of tendering, evaluation, discussions and negotiations followed by DIAL has resulted in the discovery of the EPC cost for the Phase 3A works. The final prices were arrived after rigorous negotiations with the lowest bidder i.e. L&T which had almost quoted 6% lower price than the highest bidder initially.

The estimate submitted by DIAL or as approved by KITCO for the costing cannot be compared to the final outcome of the bidding process. However, in order to understand the variations between the estimates submitted earlier and the actual amount the following points could have formed the reason for variation:

1. **Shift in the date of construction:** The construction work could be commenced only in March 2019 (with certain preliminary works starting immediately after the award of works on February 07, 2019) instead of January 2018 leading to an additional probable inflation of one year on the estimates submitted to KITCO. The inflation impact was calculated on the basis of CPWD building cost index considered at the time of KITCO estimates versus April'2019. The impact of inflation in percentage terms comes to 6.31% which translates into INR. 586 Crores.
2. **Impact of GST:** In DIAL's submission to AERA in Sept'2017, impact of GST on civil works was around 5% to 7% and on some of the items we had not considered GST. Accordingly, if we consider additional 7% on the items which were based on Delhi Schedule Rate (DSR) as the VAT was already included in DSR and 18% GST for the items on which GST was not considered then the total additional impact estimated to be INR 1062 Crore out of which the expected GST credit is INR 407 Crore. The net impact on account of GST estimated to be INR 655 Cr.
3. **Construction risk factors:** The remaining difference is largely due to construction risks perceived by the tenderers which were not envisaged in the submission made to KITCO. Some of the factors can be summarized as under:
 - Evolving NGT guidelines and the restriction on construction activities in Delhi NCR.
 - Availability of construction material like aggregate and sand as far as 350 KMs
 - Requirement of Minimum impact on airport operations and maintenance of service levels during construction
 - Security restrictions leading to stoppage and delays due to various VIP movements.

4.2.5 Authority has examined DIAL's submission concerning the reasons for cost escalation and has proposed to consider the inflationary impact associated with the shift in the date of construction and the impact of GST for arriving at the additions to RAB for the Third Control Period.

4.2.6 The Authority had considered the inflationary impact of 6.31% which is arrived at by considering the change in CPWD Rates during the time period between the initial cost estimates and the commencement of capex. The same works out to an inflationary impact of Rs. 502.81 Cr on the KITCO cost estimate of Rs. 7968.60 Cr.

4.2.7 The Authority has proposed to consider the cost for Phase 3 A expansion considering the inflationary impact due to shift in start date of construction along with impact of GST post net off from GST credit which has been estimated by DIAL as Rs. 655 Cr.

4.2.8 The Authority proposes to consider the above two items as part of the costs in addition to efficient costs as proposed by the independent study as shown in the table below;

Table 74: Impact of Inflation and GST on Project Cost of Phase 3 A Expansion proposed to be considered by the Authority

Capex for Expansion	(Rs. Cr)
Cost for Phase 3 A Expansion as per independent study	7,968.60
Inflation Impact (6.31%)	502.81
Impact of GST	655.00
Revised Project Cost for Phase 3 A Expansion	9,126.42

4.2.9 The Authority is of the view that the cost thus assessed could be considered as the efficient cost for the Phase 3 A Expansion. **Stakeholders are invited to comment on the recommendations and adoption thereof before final decision in the Tariff order.** Any increase in cost beyond this level shall be considered at the time of tariff determination for the Fourth Control Period if the reasons for such escalation in cost are found justifiable with sufficient satisfactory evidence.

The details of the individual items in the cost considered for Phase 3 A expansion is as shown in the table below;

Table 75: Phase 3 A Cost Comparisons amongst cost as per independent study, cost as per DIAL submission, cost proposed to be considered by AERA

Phase 3 A Expansion Cost (Rs Cr)	Cost estimated as per Independent Study	Cost estimated as per DIAL submission	Cost proposed to be considered by AERA*
Package 1			
Terminal 1C	299.25	352.60	342.73
Pier, Node & Balance Part	2,360.74	2,781.65	2,703.75
Apron Phase 1	385.67	486.47	441.70
Apron Phase 2	246.03	310.34	281.78
Apron Phase 3	173.11	218.36	198.27
Package 2			
Runway 11L/29R	279.08	456.38	319.63
North side - Parallel Taxiways	150.84	150.90	172.75
North side - Echo-2 Taxiways	330.84	187.40	378.90
North side - Runway- 09	92.44	276.23	105.87
Other Taxiways & airside Works	1,938.02	2,228.46	2,219.61
Package 3			
Landside work	400.66	817.82	458.88
Package 4			
Eastern cross taxiway	1,129.20	1,364.23	1,293.27
Package 5			
Terminal 3 works	182.71	151.32	209.26
Total	7,968.60	9,782.15	9,126.42

*has been arrived at by proportionately allocating the Inflationary Impact and the Impact of GST on the Cost estimated by the Independent Study

General Capex

4.2.10 Authority has looked at the submission made by DIAL with regards to the general capex and has looked at the supporting documents shared by DIAL with regards to the need and necessity for each of the general capex items. Authority broadly feels that most of the capex proposed by DIAL is mandated due to regulatory and operational necessity and shall consider the same subject to true up based on actuals. Authority has also noted that among the general capex, the capex associated with the New Office Building under Special Projects may not be mandatory and has thus revised the General Capex incurred during FY 2020 downwards by Rs. 200 Cr (estimated cost of the new office building).

4.2.11 Authority has also noted that DIAL has estimated a capex of Rs. 19 Cr towards procurement of aircraft recovery kit. Authority has considered the recent policy of MoCA mandating the airport operators in Delhi, Mumbai, Bangalore, Kolkata, Chennai and Guwahati to procure aircraft recovery kit by March 31, 2020. Authority has realized the necessity of such recovery kits and has proposed to consider the same as part of General Capex.

Authority also has noted any services provided towards safety of the airport is considered as aeronautical services as per Schedule 5 of the OMDA and has hence suggested DIAL to recover the cost from the airlines which make use of the aircraft recovery kit.

4.2.12 In the case of the cost pertaining to the underpass at Shiv Murthy NH 8 wherein DIAL is expected to incur a capex of Rs. 150 Cr, Authority has proposed to consider this cost as an enabling cost for Phase 3 A expansion and has proposed to capitalize the expenditure as part of general capex.

The General Capex considered by Authority for addition to RAB for the Third Control Period is as shown in the table below;

Table 76: General Capex proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024	Total
General Capex	424.03	486.12	138.39	103.16	299.98	1,451.68
Aeronautical Capex	394.33	452.21	123.39	91.98	267.47	1,329.38
Non-Aeronautical Capex	29.70	33.91	15.00	11.18	32.51	122.31

4.2.13 The allocation ratio amongst General Capex has been considered as 89.16% based on the independent study carried out by the Authority regarding cost allocation for the Second Control Period, except in the case of the capex pertaining to the following items which have been considered as 100% aeronautical.

- Capex pertaining to Body Scanners mandated by BCAS which is estimated as Rs. 154 Cr.
- Capex pertaining to procurement of aircraft recovery kit to meet exigencies at the airport whose estimated cost is Rs. 19 Cr.
- 50% of the cost pertaining to the proposed underpass at Shiv Murthy NH-8 amounting to Rs. 300 Cr i.e. Rs. 150 Cr.

4.2.14 The Authority also proposes to true up the asset addition including General Capex based on the actual date of capitalization at the time of tariff determination for the Fourth Control Period.

Financing Allowance

4.2.15 Authority has looked at DIAL’s submission regarding consideration of financing allowance as part of the RAB and has the following observations.

The financing allowance has been calculated by DIAL considering a return equivalent to cost of debt during the gestation period of the assets which are still under CWIP irrespective of whether the same is funded by debt or equity.

Authority in the past has only considered Interest During Construction (IDC) as part of the aeronautical RAB in the case of airport operators whose tariff determination methodology is prescribed as per the SSA. The SSA defines the RAB as below;

“RB = regulatory base pertaining to Aeronautical Assets and any investments made for the performance of Reserved Activities, etc. which are owned by the JVC, after incorporating efficient capital expenditure but does not include capital work in progress to the extent not capitalized in fixed assets.”

As per the SSA, DIAL should be given a return to the extent of efficient capital expenditure that has been capitalized. The Financing Allowance as per the understanding is a notional allowance and is different from the actual investment incurred by DIAL which could include only the Interest during Construction amongst other costs. Authority hence proposes that only the IDC that gets capitalized is considered as part of RAB.

Authority has hence proceeded to calculate the IDC that would be incurred by DIAL based on prudent means of financing the capex, wherein the internal accruals accumulated and the RSD raised shall be first utilized to fund the capex post which debt instruments shall be drawn. Amongst the debt instruments, the Bond Instrument already raised by DIAL shall be utilized before additional RTL drawdown. The Interest during Construction (IDC) proposed to be considered by the Authority can be seen in the table below;

Table 77: IDC proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2021	2022	2023	Total
Total debt drawn towards funding Phase 3 A Capex	1,750.39	2,927.49	632.96	5,310.84
Cumulative debt drawn towards funding Phase 3 A Capex	1,750.39	4,677.88	5,310.84	
Cumulative Debt utilised towards capitalised assets	372.82	1,833.62	5,310.84	
Cumulative Balance debt utilised towards CWIP	1,377.57	2,844.26	-	
Interest Rate	9.92%	9.99%	10.00%	
IDC pertaining to assets capitalised in the year	18.49	72.99	316.07	407.56
IDC pertaining to CWIP	68.33	210.95	-	279.27
Total IDC	86.82	283.94	316.07	686.83

4.2.16 Authority also has noted that DIAL has not considered any financing allowance for the capex proposed to be incurred under General Capex and has hence proposed to calculate IDC only towards Phase 3 A Expansion Capex. The IDC proposed to be considered shall be trued up based on actuals at the time of true up for the Fourth Control Period.

4.2.17 Authority has considered the cost of debt towards RTL for calculation of IDC as 10% p.a. while the cost of debt for the bond instrument has been considered as 9.92% in line with the submission of DIAL.

The proposed cost of debt for RTL is consistent with the cost of debt raised by DIAL in the past and given the current movement in benchmark rates amongst banks/FIs, the proposed cost of debt could be considered reasonable as the proposed interest rate provides adequate spread vis a vis the benchmark rates.

The cost of debt shall be tried up based on actuals subject to an upper cap in spread of 50 bps.

4.2.18 Authority has considered the allocation ratio of 100% aeronautical for assets categorized as aeronautical and an allocation ratio of 89.16% for assets categorized as common assets. The allocation ratio for common assets is in line with the outcome of the independent study carried out by the Authority towards asset segregation for the Second Control Period.

Project Cost and Means of Finance

4.2.19 Based on the above the proposed project cost and means of finance considered by the Authority year wise is as shown in the table below;

Table 78: Proposed Capex and Means of Finance proposed to be considered by Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2019	2020	2021	2022	2023	2024	Total
Project Cost							
Expansion Capex	62.79	2,164.33	3,938.86	2,643.55	316.89	-	9,126.42
IDC*	-	-	86.82	283.94	316.07	-	686.83
General Capex	-	424.03	486.12	138.39	103.16	299.98	1,451.68
Total Project Cost	62.79	2,588.36	4,511.81	3,065.87	736.12	299.98	11,264.94
Means of finance							-
Cash accruals	62.79	2,164.33	1,197.02	-	-	-	3,424.14
Refundable Security Deposit	-	-	1,078.27	-	-	-	1,078.27
<u>Debt Drawdown</u>							
Rupee Term Loan towards Phase 3 A Expansion	-	-	-	2,677.46	632.96	-	3,310.42
Bond towards Phase 3 A Expansion	-	-	1,750.39	250.03	-	-	2,000.42
Rupee Term Loan towards General Capex	-	-	486.12	138.39	103.16	299.98	1,027.65
Bond towards General Capex	-	424.03	-	-	-	-	424.03
Total Means of Finance	62.79	2,588.36	4,511.81	3,065.87	736.12	299.98	11,264.94

*IDC has not been calculated for general capex as DIAL has not claimed any financing allowance/IDC towards the same. Hence IDC has been calculated only on Rupee Term Loan and Bond towards Phase 3 A Expansion which has been accumulated to Rs 5310.84 Cr as also arrived at as per Table 77.

4.2.20 Authority has also noted based on independent study that the time period as estimated by DIAL for implementation of Phase 3 A Project as 42 months to be reasonable and justified. Authority has hence considered the phasing as submitted by DIAL which has been adjusted for the Phase 3 A Cost proposed to be considered by Authority for the Third Control Period.

4.2.21 Authority has assumed that the General Capex proposed to be incurred in the first year of the Third Control Period shall be funded by the Bond Instrument which has already been raised by DIAL while the balance General Capex in the balance years shall be funded by the RTL. The proposed addition to RAB from the proposed capex towards Phase 3 A Expansion shall be as per the table below;

Table 79: Addition to RAB proposed to be considered by Authority with regards to Phase 3 A Project and General Capex

FY ending March 31 (Rs. Cr)	2019	2020	2021	2022	2023	2024	Total
Aero - (a)	60.50	2,071.68	3,783.48	2,541.00	316.89	-	8,773.55
Non-Aero - (b)	2.29	92.66	155.39	102.55	-	-	352.88
Total (C) = (a) + (b)	62.79	2,164.33	3,938.86	2,643.55	316.89	-	9,126.42
Add: IDC based on prudent means of finance	-	-	86.82	283.94	316.07	-	686.83
<i>Aeronautical asset (d)*</i>	-	-	83.39	272.92	303.81	-	660.13
<i>Non-Aeronautical Asset (e)</i>	-	-	3.42	11.01	12.26	-	26.70
Total (including IDC)	62.79	2,164.33	4,025.68	2,927.49	632.96	-	9,813.25
Total addition to aeronautical assets from Phase 3 A Expansion (a+d)	60.50	2,071.68	3,866.87	2,813.93	620.70	-	9,433.68
Additions to aeronautical assets from General Capex	-	394.33	452.21	123.39	91.98	267.47	1,329.38
Total additions to aeronautical assets	60.50	2,466.00	4,319.08	2,937.31	712.68	267.47	10,763.05
Total additions to aeronautical RAB (capitalized aeronautical assets)	-	394.33	1,800.02	2,424.20	5,877.04	267.47	10,763.05

**IDC has been apportioned towards aeronautical and non-aeronautical in the same proportion as aeronautical CWIP for the relevant year*

4.2.22 The Authority proposes to true up the RAB based on actual additions subject to the assessment of justifications submitted by DIAL in the event the cost actually incurred exceeds the cost as proposed by the Authority in this consultation paper.

4.2.23 The Authority has also noticed that the cumulative additions to RAB proposed by it for the Third Control Period is Rs. 10,763.05 Cr against the requirement of Rs. 12,305.64 Cr requested by DIAL which primarily comprises of the capex associated with Phase 3 A Project.

Authority noting the quantum of the capex and its associated impact on the tariff to be levied on the passengers proposes that a penalty of 1% on the Phase 3A Project Cost shall be levied at the time of true up for the Fourth Control Period if the proposed Phase 3 A Project has not been completed and made available for the passengers before March 31, 2023. The penalty amount (if applicable) shall be deducted from the RAB at the time of tariff determination for the Fourth Control Period.

Depreciation

4.2.24 Authority has looked at DIAL's submission with regards to depreciation amounts considered YoY for the Third Control Period. Authority has considered the depreciation amount for the existing assets as per the auditor's certificate shared by DIAL which has been adjusted considering the change in asset segregation ratios and consideration of accelerated depreciation associated with Baggage Screening Related Assets starting from FY 2019. The depreciation for Baggage Screening Related Assets is accelerated to ensure that the Baggage Screening Related Assets get depreciated within their residual life available.

Authority has also noted the statement of the statutory auditors of DIAL in their annual report wherein they have stated that the depreciation rates have been aligned with the relevant AERA orders on depreciation.

4.2.25 Authority has also noted in the tariff submission that the depreciation rates considered by DIAL for the capex expansion is 5.90% which as per DIAL's submission is the weighted average depreciation rate for the assets existing as on FY 2019.

The Authority is of the view that the capex expansion is primarily towards expansion of terminal and construction of runways/taxiways and aprons. Authority has considered depreciation for expansion assets by considering a weighted average of the depreciation rates for building and plant & machinery at a proportion of 65:35 respectively.

The weighted average depreciation rate determined by the Authority for the expansion assets works out to 4.51% which shall be trued up based on actual asset additions and depreciation.

The depreciation amounts for the Third Control Period have hence been revised against DIAL's submissions as per the table below;

Table 80: Depreciation proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024	Total
Depreciation for existing assets as submitted by DIAL	479.40	426.65	372.75	357.81	339.72	1976.33
Depreciation for existing assets as considered by AERA*	486.40	434.68	381.10	366.87	348.52	2,017.57
Depreciation on Hypo RAB as submitted by DIAL	24.48	22.60	21.73	22.85	23.15	114.81
Depreciation on Hypo RAB as considered by Authority	24.24	21.64	19.58	19.55	19.35	104.36
Depreciation as submitted by DIAL for Expansion Capex	16.90	94.22	251.91	529.92	718.57	1,611.51
Depreciation as considered by Authority for Expansion Capex#	8.89	58.37	153.61	340.79	479.33	1,040.99
Total Depreciation as submitted by DIAL	520.78	543.48	646.39	910.58	1,081.44	3,702.67
Total Depreciation as considered by Authority	519.53	514.68	554.30	727.21	847.20	3,162.91

* Depreciation for existing assets are higher than the ones submitted by DIAL on account of accelerated depreciation of Baggage Screening Related Assets which commenced only from FY 2019.

Depreciation for Expansion Capex is considerably lower on account of adjustment in Expansion Capex estimate submitted by DIAL along with expected depreciation rates for the Expansion Capex

4.2.26 The Authority proposes to true up the depreciation considered based on actuals at the time of tariff determination for the Fourth Control Period subject to the same corresponding to the efficient capex considered by the Authority for the Third Control Period.

4.2.27 Based on the above, the revised aeronautical RAB proposed to be considered for tariff determination is as shown in the table below;

Table 81: Aeronautical RAB proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Opening RAB (A)	4,771.83	4,832.14	6,139.11	8,028.60	13,197.97
Addition Considered on Pro Rata basis (B)	787.65*	1,800.02	2,424.20	5,877.04	267.47
DF adjustment on pro rata basis on account of ATC capitalisation (C)	232.05*	-	-	-	-
Depreciation (D)	495.29	493.04	534.72	707.66	827.85
Closing RAB (E=A+B-C-D)	4,832.14	6,139.11	8,028.60	13,197.97	12,637.60
Average RAB (ARAB= (A+E)/2)	4,801.98	5,485.63	7,083.86	10,613.29	12,917.78
HRAB					
Opening HRAB	218.84	194.61	172.97	153.39	133.84
Depreciation HRAB (DHRAB)	24.24	21.64	19.58	19.55	19.35
Closing HRAB	194.61	172.97	153.39	133.84	114.49
Average HRAB (AHRAB)	206.72	183.79	163.18	143.61	124.16
Total RAB Considered for Tariff (ARAB+AHRAB)	5,008.71	5,669.41	7,247.04	10,756.90	13,041.95

*includes balance adjustment from FY 2019 on pro rata basis considering Rs. 393.2 Cr balance left out of asset addition and Rs 232.05 Cr left out of DF adjustment as mentioned in the footnote of Table 26.

The figure of Rs. 787.65 Cr has been arrived at by considering the pro rate balance of Rs 393.2 Cr and the addition of Rs 394.33 Cr mentioned under Table 79 for FY 2020.

4.3 **Authority's Proposals regarding RAB and Depreciation for the Third Control Period**

Based on the material before it and based on its analysis, the Authority proposes the following with regards to Regulatory Asset Base for the Third Control Period;

- 4.3.1 Authority proposes to consider the cost for Phase 3 A expansion as Rs. 9126.42 Cr against the cost submitted by DIAL and shall consider any further escalation if submitted with reasons deemed justifiable at the time of tariff determination for the Fourth Control Period.
- 4.3.2 Authority proposes to consider only IDC incurred by DIAL on account of financing capex during Third Control Period based on prudent means of finance for funding the capex (Para 4.2.16).
- 4.3.3 Authority proposes to consider the cost of debt for the Rupee Term Loan at 10.00% p.a. towards calculation of IDC while the cost of debt with regards to the Bond raised towards Phase 3 A Expansion is considered at 9.92% in line with the submissions made by DIAL (Para 4.2.17). The cost of the debt shall be trued up subject to an upper cap of 50 bps.
- 4.3.4 Authority proposes to consider General Capex as submitted by DIAL excluding the cost related to the new administrative block amounting to Rs. 200 Cr in FY 2020.
- 4.3.5 Authority proposes to consider asset allocation ratio of 89.16% as aero for common assets and General Capex except for the capex associated with body scanner, aircraft recovery kit and cost associated with underpass which are considered as 100% aeronautical.
- 4.3.6 Authority proposes to consider depreciation rate tentatively for Expansion Capex as 4.51% against 5.90% as considered by DIAL which shall be trued up based on actual depreciation.
- 4.3.7 Authority proposes to true up the RAB and depreciation based on actuals subject to the reasonable justifications for any escalation in cost beyond the efficient cost as considered by AERA for Phase 3 A expansion project and disallowances considered under General Capex.
- 4.3.8 Authority proposes to levy a penalty of 1% on the Phase 3A Project Cost at the time of tariff determination for the Fourth Control Period if the proposed Phase 3 A Project has not been completed and made available for the passengers before March 31, 2023.

5 WEIGHTED AVERAGE COST OF CAPITAL (WACC)

5.1 DIAL's Submissions regarding WACC for the Third Control Period

Cost of Equity

- 5.1.1 DIAL has submitted that the equity investment of Rs. 2,450 Cr towards the initial project cost shall continue and there are no plans of any additional equity investment from the promoters into DIAL.
- 5.1.2 DIAL has submitted that in consonance with the requests under the First Control Period and the Second Control Period, cost of equity of 22.8% to be provided by grossing up a tax rate of 30% on the cost of equity of 16%.
- 5.1.3 DIAL has indicated that the equity portion for the project cost associated with expansion activities shall be met through internal accruals and hence there will not be any increase in the external equity investment. DIAL had accumulated internal accruals to the extent of Rs. 3,424 Cr till FY 2019 which shall be used to fund the expansion capex.
- 5.1.4 DIAL as part of the tariff submission for the Third Control Period has projected the equity base including the expected reserves and surplus as shown in the table below;

Table 82: Equity Base submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Book Value of Equity	2,450.0	2,450.0	2,450.0	2,450.0	2,450.0
Reserves and Surplus if positive	1,907.6	3,698.9	5,520.6	7,084.4	8,592.1
Total Equity	4,357.6	6,148.9	7,970.6	9,534.4	11,042.1

Cost of RSD

- 5.1.5 DIAL had raised RSD to the extent of Rs. 1,371.11 Cr as part of Phase I in which they have monetized 45 acres and have invested the money raised through non-transfer assets into the airport expansion project. DIAL has mentioned that these assets are outside the regulatory till and it was not mandated for DIAL to use this funding for financing the project cost. Given the fact that these funds have been utilized for financing the project, DIAL has insisted that they should be provided a fair return on these funds which have opportunity cost. DIAL has also mentioned that these funds are quasi-equity by nature given their super long tenor and are being culled out from a bottom-line impacting revenue stream. The relevant portion of the tariff proposal is reproduced below;

“AERA in order no 3/2011-12 for first control period had allowed zero return over the money invested via RSD. DIAL had filed an appeal against the AERA order for first control period. The Appellate tribunal TDSAT on 23rd April’2018 has upheld that the RSD is eligible for return. The relevant extract of the para 106 of the order dated 23.04.2018 relating to the return on RSD is reproduced below:

“Clearly, in our opinion, this money has wrongly been treated as debt at zero cost. The well accepted commercial practices and norms need to be respected by the Authority and therefore, return on RSD amount should be re-determined by it for the reasons indicated above. Instead of interfering with the impugned tariff determination we direct that the amount due to DIAL under this head should be worked out and made available to DIAL through appropriate fiscal exercises which should be

undertaken when the exercise of redetermination of tariff for IGI Airport, Delhi is next undertaken in due course.

Appellate tribunal has not quantified the quantum of return to be allowed on RSD.”

5.1.6 DIAL has requested, based on the rationales as mentioned in the earlier chapters as part of the true up for the First and Second Control Periods, a return of 16% on the RSD portion utilized to fund the Project. DIAL has also indicated that an additional RSD of Rs. 1,078 Cr has been raised in FY 2020 which shall be utilised to fund the Expansion Capex. The details of RSD portion considered by DIAL as part of the tariff proposal is as shown in the table below;

Table 83: RSD submitted by DIAL towards calculation of WACC for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Opening RSD	1,732.54	2,810.81	2,810.81	2,810.81	2,810.81
Additions/(Deletions) to RSD	1,078.27	-	-	-	-
Closing RSD	2,810.81	2,810.81	2,810.81	2,810.81	2,810.81

Cost of Debt

5.1.7 DIAL has indicated that the existing bond of USD 288.75 mn shall be repaid in FY 2022. The bond instrument has been hedged through call spread options and the effective cost including the cost of hedge comes to 10.15%. DIAL had taken call spread options for USD 80 mn at the rate of Rs. 68.00 in Jan'2017 and balance USD 208.75 Mn was hedged at the rate of Rs. 63.80 per USD in Jan'2018. The call spread option covers hedge risk upto Rs. 85.00 per USD till maturity of the bond any risk beyond this level has to be borne by DIAL.

5.1.8 DIAL has claimed that they have minimized the foreign exchange risk against the principal outstanding however risk towards the unhedged currency portion still remain i.e. exchange rate at which the loan is hedged versus the rate at which the loan had been drawn. DIAL had indicated that the repayment of this bond is due in FY'22 and accordingly there will be expected forex loss to DIAL to the extent of unhedged currency portion.

5.1.9 The existing Bond instrument of USD 522.60 Mn shall continue to be outstanding through the Third Control Period. The effective cost of this instrument including the cost of hedging comes to 10.02%.

5.1.10 Further, DIAL has considered 11% as the cost of debt for a Rupee Term Loan amount of Rs. 5,866.46 Cr proposed to fund the expansion capex. DIAL has also submitted that they have raised a foreign currency bond of USD 350 Mn (Rupee equivalent of Rs. 2,424 Cr) of which the entire amount has been drawn as on June 2019. DIAL also indicated that this instrument has been hedged towards both principal and interest payments and the effective cost of debt including the cost of hedging is 9.92% p.a. The details of the debt outstanding along with the cost of debt as submitted by DIAL is as shown in the table below;

Table 84: Details of Debt Outstanding along with Cost of Debt submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Long Term Debt	5,746.74	6,520.99	7,231.99	11,485.02	11,198.36
Interest	760.92	878.13	1,112.67	1,174.49	1,197.19
Average Debt	6,823.11	8,699.44	10,137.67	11,258.38	11,461.63
Cost of Debt	10.59%	10.59%	10.59%	10.59%	10.59%

Weighted Average Cost of Capital

5.1.11 Considering the above DIAL has arrived at a WACC of 16.42%, the details of which can be seen in the following table.

Table 85: WACC submitted by DIAL for Third Control Period as per MYTP

FY ending March 31	2020	2021	2022	2023	2024
Cost of funds					
Cost of Equity	22.86%	22.86%	22.86%	22.86%	22.86%
Cost of RSD	16.00%	16.00%	16.00%	16.00%	16.00%
Effective cost of debt	10.59%	10.59%	10.59%	10.59%	10.59%
Gearing					
Equity Gearing	40.98%	40.98%	40.98%	40.98%	40.98%
RSD Gearing	14.75%	14.75%	14.75%	14.75%	14.75%
Debt Gearing	44.27%	44.27%	44.27%	44.27%	44.27%
WACC for CP III	16.42%	16.42%	16.42%	16.42%	16.42%

5.2 Authority's Examination regarding WACC for the Third Control Period

Cost of Equity

5.2.1 As per TDSAT order dated April 23, 2018 in the matter of issues raised by DIAL with regards to decisions taken by AERA in the First Control Period, AERA has commissioned a separate independent study for evaluation of cost of capital for DIAL for the Third Control Period and the study was entrusted to IIM Bangalore.

The independent study has drawn from the international experience of airports having comparability to IGIA in terms of revenue till, ownership structure and scale of operations and has also studied the regulatory framework of other regulators for the study. The summary of the independent study is given at [Annexure 5](#). The independent study is attached as an appendix (**Appendix 4**) to this consultation paper. The independent study has recommended the Cost of Equity of 15.41% which is arrived at as shown in the table below;

Table 86: Computation of Cost of Equity as per the Independent Study

Variables	Gearing based on Target Gearing ratio
Asset Beta	0.591199
Gearing Ratio (D/E)	0.9231
Gearing Ratio (D/D+E)	48.00%
Equity Beta	0.9732
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.41%

The independent study has computed the Cost of Equity at 15.41% by using Capital Asset Pricing Model and using a notional Debt : Equity ratio of 48%:52%. While the study has used a nominal debt rate of 9.97% for illustrative purpose to arrive at the Weighted Average Cost of Capital, Authority proposes to use the actual cost of debt for the purpose of calculation of WACC for tariff determination.

Authority proposes to adopt the recommendations of the independent study in the tariff determination for the Third Control Period.

Cost of Debt

5.2.2 Authority has looked at the submission made by DIAL with regards to Cost of Debt. Authority has reworked the weighted average cost of debt considering the cost of debt for the proposed RTL facility at 10% as already discussed (Para 4.2.17) and considering the cost of the Bond Instrument that has been raised at 9.92% (Effective Cost including cost of hedge as already submitted by DIAL) along with the bond instruments already outstanding at the beginning of the Third Control Period along with their respective costs as submitted by DIAL. The Cost of Debt is calculated as shown in the table below;

Table 87: Effective Cost of Debt proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Rupee Interest Payment	-	24.31	189.40	367.00	397.12
Bond Interest Payment	760.92	805.08	771.59	600.30	600.65
Interest	760.92	829.39	960.99	967.30	997.76
Rupee Term Loan					
Opening Balance	-	-	486.12	3,301.97	4,038.09
Closing Balance	-	486.12	3,301.97	4,038.09	3,904.27
Average Outstanding for the year	-	243.06	1,894.05	3,670.03	3,971.18
Bond					
Opening Balance	5,610.89	8,035.34	8,035.34	6,038.49	6,038.49
Closing Balance	8,035.34	8,035.34	6,038.49	6,038.49	6,038.49
Average Outstanding for the year*	7,631.26	8,035.34	7,702.53	6,038.49	6,038.49
Average Debt	7,631.26	8,278.40	9,596.58	9,708.52	10,009.67
Effective Cost of Debt	9.99%				

*includes adjustment based on the months outstanding for the Bond Instrument of USD 350 Mn (Rs. 2424.45 Cr) raised in June 2019 and adjustment towards the Bond Instrument of USD 288.75 Mn (Rs. 1778.70 Cr) proposed to be repaid in Feb 2022.

5.2.3 The Authority is of the view that the above cost of debt is efficient and achievable given the market scenario and the MCLR of major PSU banks. Further DIAL's cost of debt from foreign sources of funding including the hedged cost comes to 9.92% which is consistent with the cost of debt proposed to be considered by the Authority for the Third Control Period. The Authority proposes to true up the above cost of debt for the RTL based on actuals subject to a ceiling of 50 bps.

5.2.4 The Authority has proposed to consider WACC as 12.81% for the Third Control Period based on the above mentioned cost of debt and cost of equity of 15.41% as suggested by the independent study and considering a notional gearing ratio of 48%: 52% as suggested by the independent study.

Treatment Proposed for RSD

5.2.5 Authority has adopted the notional gearing ratio for calculating the WACC and the cost of debt is applied across the total debt irrespective of the source, whether debt funds or RSD. Thus no separate treatment of RSD is required effective from Third Control Period. Authority also understands that some stakeholders have taken the matter regarding decision of TDSAT on treatment of RSD to higher courts for adjudication and any decision taken by the Authority with regards to RSD in the tariff order shall be subject to the final outcome of such adjudication.

5.3 Authority's Proposals regarding WACC for the Third Control Period

Based on the material before it and based on its analysis, the Authority has the following proposals regarding Weighted Average Cost of Capital;

- 5.3.1 Authority proposes to consider cost of equity as 15.41% as per the outcome of the independent study commissioned (Table 86).
- 5.3.2 Authority proposes to consider cost of debt as 9.99% based on its assessment of the cost of Rupee Term Loan and the effective cost of the bonds already raised by DIAL, which shall be trued up subject to a ceiling of 50 bps (Table 87).
- 5.3.3 Authority proposes to consider a notional debt equity ratio of 48%:52% as suggested by the independent study.
- 5.3.4 Authority proposes to consider the Weighted Average Cost of Capital as 12.81% for the Third Control Period based on the above mentioned cost of equity and cost of debt and considering the notional gearing ratio of debt to equity ratio as suggested by the Independent Study.
- 5.3.5 Authority proposes to consider the treatment of RSD as part of the notional debt to arrive at WACC which shall be subject to the final outcome of the adjudication in higher courts.

6 OPERATING EXPENSES

6.1 DIAL's Submissions regarding Operating Expenses for the Third Control Period

Operating Expenses Considerations by DIAL for the Third Control Period

6.1.1 DIAL has submitted that in accordance with the principles laid down as per the SSA, Efficient O&M Costs have been considered and submitted as part of the tariff proposal for the Third Control Period. DIAL has submitted that the following points have been considered for estimation of efficient operating expenses;

- Upcoming expansion at IGI Airport: As IGIA Airport is going ahead with the expansion of Terminal 1, the overall Terminal area shall increase by 1,28,845 sq.m. This translates to an increase of 19.26% in area. Accordingly there will be corresponding increase in cost to service area such as repair and maintenance of building and P&M, housekeeping, etc. Also due to increase in Terminal capacity there will be increase in related costs such as administrative cost, manpower related cost and IT maintenance, etc. Due to expansion the terminal capacity will increase by 27% i.e. 86 MPPA from current capacity of 66 MPPA.
- Increase in minimum wages: Historically there was normal increase of 5% p.a. in minimum wages; however, recently on 1st Jan'2017 the minimum wages has been increased by 40% and another 6% increase has been provided w.e.f 1st April'2017 which effectively resulted in more than 46% increase in minimum wages against 5%-6% normal increase. This has resulted in an increase in all manpower related cost such as manpower hire charges, security, maintenance, etc.
- Inflationary increase: DIAL has considered inflationary increase towards expenses. The CPI inflation rate of 4.5% for Third Control Period is considered based on the results of 52nd round of professional forecasters on macroeconomic indicators by RBI.
- Real increase: Considering the past trend, current economic scenario and upcoming expansion, DIAL has considered 10% real increase.
- Base Year: In order to form a basis of forecasting expense for Third Control Period, DIAL has considered FY'18 as base year and applied growth percentage over it.
- Asset life: The assets that have been created by DIAL post-handover of the airport on execution of OMDA are almost ten years old which requires additional upkeep and repair & maintenance.
- Service level: In order to maintain service level and ASQ level DIAL has to maintain certain standards of service which also results into additional operating expense and the same is necessary to be incurred.

Details of Head wise Operating Costs as submitted by DIAL

6.1.2 Manpower Costs: DIAL has indicated that there is high attrition due to new upcoming airports and expansion works. Accordingly in order to retain talent, upcoming expansion and passenger growth, DIAL has considered real increase of 10% in manpower cost with an inflationary increase of CPI of 4.5%. Additionally, DIAL has also considered an increase on account of expansion in line with the capacity enhancement towards additional runway as well as passenger terminal building and associated facilities.

6.1.3 Administrative and General Expense: Administrative and General Expense as submitted by DIAL consist of various expenses of which the key expenses include professional and consultancy, travelling and conveyance, advertising and sale promotion and head office cost. These expenses are

expected to grow by real increase of 10%, with an inflationary increase of CPI at 4.5%. DIAL has submitted that in order to cater to the increased requirement due to the expansion at the terminal, the expense would be considered to increase in proportion to the additional area / capacity. Accordingly, DIAL has considered a one time increase in admin. & general expenses in the year the expanded terminal is made operational. The increase in FY 22 & FY 23 is considered in line with the increased area.

- 6.1.4 DIAL has submitted that the power demand at Delhi Airport is expected to rise due to increase of passengers, and expansion. DIAL has projected expected demand in next control period based on the internal estimates due to expansion and other factors. DIAL estimates the consumption from grid to increase from 247 Million Units in FY 2019 to 372 Million Units in FY 2024.
- 6.1.5 DIAL during the tariff filling of First as well as Second Control Period had submitted to consider the forex loss as per AS-11 with adjustment to RAB. DIAL stated that in terms of repayment and interest payment it has incurred actual foreign exchange losses which should be reimbursed in tariff. DIAL has considered the actual cash outgo relating to foreign exchange variation in the repayment and interest payment for loans in foreign currency as an expense.

An expected forex loss in Third Control Period is on account of repayment of USD 288.75 Mn in FY'22. The bond refinancing of USD 288.75 Mn was done on 3rd Feb'2015 when prevailing exchange rate was Rs. 61.60 per USD. Further as part of hedge strategy DIAL had purchased call options for USD 80 mn at the rate of Rs. 67.21 in Jan'2017 and balance USD 208.75 Mn was at the rate of Rs. 63.72 per USD in Jan'2018. Accordingly, DIAL has mentioned that it still carries risk to the extent of difference between the exchange rate at the time of repayment of loan and the original exchange rate at the time of borrowing i.e. Rs. 61.60 per USD. Such difference can be minimized by the call option purchased by DIAL appropriately.

Currently for the proposed projection DIAL has considered exchange rate as on 30th Sept'2018 i.e. Rs. 72.49 per USD. Since the expected exchange rate in FY'22 i.e. year of repayment is expected to be higher than the call option, DIAL will exercise its call option. However, DIAL will still have a forex loss to the extent of call option rate and actual borrowing rate. DIAL hence requests Authority to consider the same for tariff determination purpose.

- 6.1.6 Operating Expense: The key assets of DIAL are almost ten years old which requires heavy maintenance cost. Also due to increased labour and material cost, the estimation tends to increase. Repair & Maintenance towards Building, and Plant & Machinery has been escalated with real growth, inflation and area expansion. Maintenance cost related to IT and others have been escalated on account of real growth, inflation and passenger handling capacity.
- 6.1.7 Increase in minimum wages has significantly increased the housekeeping cost in FY 2018. Also, since the existing terminals are getting older, the upkeep and maintenance cost of the terminal is expected to increase. Going forward, DIAL has considered growth in housekeeping expense by real growth of 10% and inflation. Also, due to induction of new Terminal 1 the housekeeping expense will grow in consonance with increase in terminal area.
- 6.1.8 The cost towards insurance premium has seen a decline for past five years however, same trend won't continue for future as it has tested the bottom levels. In line with market trend the insurance premium for future is expected to cover at least the inflation and will definitely increase in proportion to capacity expansion. Accordingly, DIAL has considered growth equivalent to inflation and passenger handling capacity of the Airport.

- 6.1.9 DIAL expects Consumables to grow by inflation and passenger handling capacity of the Airport.
- 6.1.10 Manpower hire charges and security expenses are expected to grow in line with the manpower cost plus inflation and passenger handling capacity.
- 6.1.11 Airport Operator Fee: In line with the Authority' decision no. 15.c of the order no, 40/2015-16 dtd. 8th Dec'2015, DIAL has considered 3% fee on aeronautical revenue as an aeronautical expense to be treated in the Target Revenue.
- 6.1.12 Property Tax: DIAL's forecasts towards property tax can be seen in the table below;

Table 88: Property Tax submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Aeronautical Tax	7.12	7.11	7.12	8.49	8.48
Non-Aeronautical Tax	0.73	0.73	0.73	0.86	0.87
Total	7.84	7.84	7.84	9.35	9.35

- 6.1.13 AAI VRS has been capitalized in DIAL books as an intangible asset. The Authority, vide decision no. 7.a of order 03/2012-13, decided to expense out VRS based on actual payment made by DIAL. During the Third Control Period, DIAL has made Rs. 1.22 Cr payment as per pre-decided payment plan.
- 6.1.14 Based on the above, DIAL has projected the Efficient Operating Costs for the Third Control Period. DIAL has considered the allocation among aeronautical and non-aeronautical based on the allocation as per FY 2019.

Table 89: Operating Expense submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Manpower Costs	192.77	221.58	267.45	390.44	448.81
Admin & General Expense	241.15	281.43	347.23	496.53	561.76
Utility Expense	142.98	162.06	213.80	281.13	304.71
Operating Expense	391.11	447.22	522.56	733.19	839.72
Airport Operator Fee	29.63	144.27	158.40	173.30	188.86
Property Tax	7.12	7.11	7.12	8.49	8.48
AAI VRS	1.22	-	-	-	-
Forex	19.54	19.54	104.16	6.94	6.94
Total Aeronautical Expense	1,025.52	1,283.22	1,620.70	2,090.02	2,359.28

6.2 Authority's Examination regarding Operating Expenses for the Third Control Period

The Authority has carefully examined DIAL's submissions regarding Operating Expenses for the Third Control Period and has the following observations;

Manpower Expenses:

- 6.2.1 The Authority has assessed that the effective CAGR considered by DIAL for projecting manpower expenses for the Third Control Period is 21.76% which includes real increase of 10%, CPI Inflation of 4.5% and also increase on account of expansion in line with the capacity enhancement towards additional runway as well as passenger terminal building and associated facilities. Authority has looked at the reasons enumerated by DIAL including retention of talent and passenger growth in DIAL. Authority has looked at the passenger growth rate in DIAL for the Second Control Period

including both domestic and international traffic which has grown at a CAGR of around 13.42% while the projected passenger traffic growth rate as shown by DIAL in the Third Control Period is only around 6%. Authority is of the view that if passenger traffic growth and employee retention are the reasons for the expected growth in manpower costs then the same should have resulted in manpower cost growth in the past five years in which the passenger traffic growth rate clocked 13.42%.

Authority has noted the past five year CAGR under the heads related to manpower expenses (including salaries, wages and bonuses) for DIAL is 9.06% while the past five year CAGR for manpower expenses concerning staff welfare funds is 0.61%. Authority has hence proposed to consider the past five year CAGR going forward for the Third Control Period for the manpower costs. The growth rate for the total manpower expenses including the salaries, wages, bonuses and staff welfare funds have been considered at 9% consistent with the past five year CAGR for the manpower expense heads which shall be trued up at actuals.

Admin and General Expenses:

6.2.2 The Authority has looked at the growth rate submitted by DIAL regarding Admin and General Expenses and is of the view that the same is very aggressive as majority of the items have been projected to grow at a CAGR of 21.76% over the five year period. Authority has looked at each of the individual heads under Admin and General Expenses and has the following examinations considering the past five year trend for each of these items;

- The Authority is of the view that in the case of items such as rents, Rates and Taxes, Professional and consultancy expenses and other stationery costs in which no specific trend can be seen as there has been fluctuations in these expenses over the years, the past five year average of these items can be considered constantly over the next five years in the Third Control Period. Accordingly the past five year average of these items have been calculated and projected as a constant expense in the five years of the Third Control Period. The same shall be trued up based on actuals at the time of tariff determination for the Fourth Control Period. The details are as shown in the table below;

Table 90: Authority’s Proposal with regards to Rents, Rates & Taxes, Professional and Consultancy Expenses and Printing and Stationery for the Third Control Period

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Past 5 year average	Proposed to be considered YoY for the Third Control Period
Rent	7.41	9.68	9.44	10.10	7.58	8.84	8.84
Rates & Taxes	2.37	2.45	1.25	1.10	1.23	1.68	1.68
Professional and Consultancy Expenses	50.27	48.76	47.19	73.06	57.02	55.26	55.26
Printing and Stationery	1.19	1.33	0.98	1.51	2.38	1.48	1.48

- The Authority is of the view that in the case of expenses such as travelling and conveyance, communication, advertising, costs allocated towards corporate overheads, other admin and general expenses, there is a clear trend in the past and hence the past five year CAGR which varies from 4.30% in the case of communication expense to 22.27% in the case of advertising and sales promotions is proposed to be considered. The growth rates proposed for each of these items has been given under Table 91.

Table 91: Growth Rates proposed to be considered by Authority for Travelling and Conveyance, Communication, Advertising and Sales Promotion, Corporate Cost Allocation and Other Admin and General Expenses during Third Control Period

Admin & General Expense	Growth Rate considered by the Authority
Travelling and Conveyance	12.49%
Communication	4.30%
Advertising and Sales Promotion	22.27%
Corporate Cost Allocation	21.18%
Other Admin & General Expenses	13.81%

- The Authority has noted that Bank Charges have been projected by DIAL, cumulatively to be Rs. 47.73 Cr over the next five years in the Third Control Period. The Authority is of the view that given the adjustments in the Project Cost as proposed by the Authority with regards to efficient cost requirement, similar adjustment has to be considered for the Bank Charges as the Debt requirement to fund the efficient cost reduces proportionately. Hence Authority proposes to recalculate the Bank Charges for the Third Control Period as shown in table below by a reduction factor of 0.82 (arrived by considering the Proposed debt of Rs. 6762 Cr as assessed by Authority to fund the Efficient Capex against the debt of Rs. 8290 Cr considered by DIAL to fund the capex estimate submitted in its MYTP). The details are as shown in the table below;

Table 92: Bank Charges proposed to be considered by the Authority for the Third Control Period

FY ending March 31 (Rs Cr)	2020	2021	2022	2023	2024	Total
Bank Charges as submitted by DIAL	12.23	12.23	11.27	6.00	6.00	47.73
Bank Charges proposed to be considered by Authority	9.98	9.98	9.19	4.89	4.89	38.93

The Bank Charges as considered above shall be true up subject to the same meeting the test of efficiency as determined by the Authority at the time of tariff determination for the Fourth Control Period.

- The Authority has also excluded CSR expenses from the head under Admin and General Expenses as the same cannot be treated as an Operating Expense in line with the detailed justifications mentioned under the true up for the Second Control Period in this consultation paper (Para 3.5.14).
- The Authority is of the view that as the effective cost of debt including hedge costs has already been considered in the cost of debt, there is no requirement to provide for forex losses for the Third Control Period. The Authority shall assess the cost efficiency of the funding means finally utilized by the operator towards funding the capex activities in the Third Control Period at the time of true up and based on the same shall consider admitting certain forex losses incurred at actuals provided that the effective cost of debt doesn't exceed the cost of debt considered as per the tariff order for the Third Control Period.

The Admin and General Expenses have been segregated as Efficient based on the Efficient Cost allocation percentage pertaining to Admin and General Expenses (86.57%) as mentioned under the Independent Study for Efficient O&M Cost segregation for the Second Control Period as shown in Table 41 in this Consultation Paper. The details of the various heads under the Efficient Admin and General Expenses considered by the Authority are as shown in the table below;

Table 93: Efficient Admin and General Expenses proposed to be considered by the Authority for the Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Admin and General Expenses					
Rent	7.66	7.66	7.66	7.66	7.66
Rates & Taxes	1.45	1.45	1.45	1.45	1.45
Professional and Consultancy Expenses	47.84	47.84	47.84	47.84	47.84
Printing and Stationery	1.28	1.28	1.28	1.28	1.28
Travelling and Conveyance	24.74	27.83	31.31	35.22	39.62
Communication Costs	2.14	2.23	2.33	2.43	2.53
Advertising and Sales Promotion	14.69	17.96	21.96	26.85	32.83
Corporate cost allocation	95.96	116.29	140.92	170.78	206.95
CSR	-	-	-	-	-
Bank Charges	8.64	8.64	7.96	4.24	4.24
Other Admin Expenses	17.19	19.57	22.27	25.34	28.84
Foreign exchange rate variation	-	-	-	-	-
Total Admin and General Expenses	221.60	250.75	284.98	323.08	373.24

Utility Expenses:

6.2.3 Authority has looked at the submission made by DIAL with regards to the utility expenses. Authority feels there is merit in the argument put forward by DIAL that increase in floor area for the first time post completion of the initial project in FY 2011 (which was during the First Control Period) should result in increase in utility related expenses. Authority has also noted as part of DIAL submission that solar panels have been installed by the cargo service provider and also DIAL has initiated power saving measures including installation of LED lights phase-wise. Authority hence has considered the submission made by DIAL with regards to utility expenses of which 100% has been considered as part of Efficient Cost towards tariff determination. Authority also proposes to true up the same based on actuals.

Operating Expenses:

6.2.4 The Authority has examined the submissions made by DIAL with regards to Operating Expenses and has the following observations;

- Authority is of the view that the growth rate of 21.76% over the projected five year period is very aggressive given the fact that DIAL is also incurring/ projected to incur General Capex towards upkeep of the assets.
- Authority is of the view that the Operating Expenses should follow the past trend and has hence considered the past five year CAGR while projecting the head wise expenses for the Third Control Period. Exceptions have been made for certain expense heads such as R&M for Building and Insurance wherein a linear trend could not be established. In such a case average of the past five year expense has been projected as a constant expense in the Third Control Period. In certain cases such as R&M for Other Assets and Consumables, Authority has proposed to consider the growth rate as projected by DIAL.

The growth rates considered by the Authority for expense heads under Operating Expenses can be seen in the table below;

Table 94: Growth Rates proposed to be considered by Authority for Operating Expenses during Third Control Period

Operating Expenses	Growth Rates considered by the Authority
Repair & Maintenance	
Plant & Machinery	12.34%
IT	19.02%
Others	21.76%
Housekeeping Expense	13.79%
Manpower Hire Charges	8.54%
Consumables	10.69%
Security	20.52%

The total Operating Expenses as considered by the Authority for the Third Control Period is as shown in Table 96 which shall be trued up based on actuals at the time of tariff determination for the Fourth Control Period.

Airport Operator Fee

6.2.5 The Authority in line with its proposal to calculate Airport Operator Fee as 3% of the Aeronautical Revenues of the previous year for the past control periods has proceeded to calculate Airport Operator Fee as 3% of the Projected Aeronautical Revenues for the previous year. The same shall be trued up based on actuals at the time of tariff determination for the Fourth Control Period.

Property Tax

6.2.6 The Authority has examined DIAL’s submissions regarding Property Tax and has proceeded to consider the same which shall be trued up based on actuals at the time of tariff determination for the Fourth Control Period.

VRS Payment

6.2.7 The Authority has noted that DIAL has expensed out VRS in FY 2020 on the basis of AERA’s decision no. 7.a of Order 03/2012-13 (Tariff Order for the First Control Period) and the same has been considered.

Efficient Cost Segregation

The Authority has also proceeded to consider the cost segregation ratios determined based on the adjustment carried out by the independent study towards efficient operating expenses for the Second Control Period which is as shown in the table below;

Table 95: Operating Cost segregation percentages proposed to be considered by the Authority for Third Control Period

Operating Expenses	Cost allocation % as considered by Authority in the Third Control Period
Staff Cost	88.98%
AAI- VRS Payment	88.98%
Administrative and General Expenses	86.57%
Electricity and Water Charges	100%
Operating Expenses	87.76%
Property Tax	88.19%

6.2.8 Considering the above, Authority has revised the submission made by DIAL and considered the revised estimates for the Third Control Period as shown in the table below which shall be trued up based on actuals.

Table 96: Efficient Operating Expenses proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Manpower Cost	180.87	196.89	214.35	233.39	254.16
Admin & General Expense	221.60	250.75	284.98	323.08	373.24
Utility expense	142.98	162.06	213.80	281.13	304.71
Operating Expense	382.52	430.09	486.77	563.04	636.82
Airport Operator Fee	29.63	31.69	33.73	35.75	37.74
Property tax	7.01	7.01	7.03	8.41	8.40
AAI VRS	1.21	-	-	-	-
Total Aeronautical Expense	965.83	1,078.49	1,240.65	1,444.81	1,615.07

6.3 Authority's Proposals regarding Operating Expenses for the Third Control Period

Based on the material before it and based on its analysis the Authority proposes the following regarding Operating Expenses for the Third Control Period.

- 6.3.1 Authority proposes to project manpower related expenses at a growth rate of 9.00% in the Third Control Period which shall be trued up based on actuals (Para 6.2.1).
- 6.3.2 Authority proposes to consider past five year CAGR for certain items under Admin and General expenses such as travelling and conveyance, communication, advertising, costs allocated towards corporate overheads, other admin and general expenses (Table 91) while the past five year average has been considered for items such as rents, Rates and Taxes, Professional and consultancy expenses and other stationery costs (Table 90). These expenses shall be trued up based on actuals.
- 6.3.3 Authority proposes to consider Bank Charges which have been adjusted against DIAL's submissions based on the debt proposed to fund the efficient Project Cost considered by the Authority against the debt considered by DIAL to fund its estimated Project Cost (Table 92).
- 6.3.4 Authority proposes not to consider CSR expenses for the Third Control Period (Para 6.2.2).
- 6.3.5 Authority proposes not to consider forex losses as the cost of debt considered includes hedge costs while forex losses incurred based on actuals shall be considered subject to assessment of cost efficiency at the time of true up while determining tariff for the Fourth Control Period (Para 6.2.2).
- 6.3.6 Authority proposes to consider utility expenses as submitted by DIAL for the Third Control Period (Para 6.2.3).
- 6.3.7 Authority proposes to consider past five year CAGR for various heads under operating expenses excluding R&M for Building, Other assets, Consumables and Insurance (Table 94). In the case of R&M for Building and Insurance, past five year average has been considered as a constant expense in the Third Control Period while in the case of R&M for Other Assets and Consumables, the same has been considered as per the submission of DIAL.
- 6.3.8 Authority proposes to consider Property Taxes and VRS payments as submitted by DIAL (Paras 6.2.6 and 6.2.7).
- 6.3.9 Authority proposes to consider 3% of the projected Aeronautical Revenue for the previous year as Airport Operator Fee (Para 6.2.5).
- 6.3.10 Authority proposes to consider cost segregation ratios based on the segregation carried out by the independent study for the Second Control Period.
- 6.3.11 Authority proposes to true up the operating expenses based on actuals at the time of tariff determination for the Fourth Control Period subject to the efficiency tests for certain items such as Bank Charges and Forex losses.

7 REVENUE FROM REVENUE SHARE ASSETS

7.1 DIAL's Submissions regarding Revenue from Revenue Share Assets for the Third Control Period

7.1.1 DIAL has submitted that due to expansion works, part of its Terminal 1 operation has to be shifted to Terminal 2 which shall lead to decline in non-aero revenue for the airport as the area utilised by non-aero activities will be reduced. The split in traffic, lower commercial area at Terminal 2, and reduction in commercial area at Terminal 1 shall contribute to the estimated decline.

Air Traffic Related Revenue

7.1.2 DIAL has informed that DGCA vide notification SI. No. 10/2018 dated 25th Oct'2018 has modified ground handling policy and the relevant extract is as shown below;

"(a) All domestic scheduled airline operators and scheduled helicopter operators will be free to carry out self-handling at all airports including Civil Enclaves.

(b) A foreign airline may undertake self-handling in respect of passenger and baggage handling activities excluding security functions listed out in para 1 of AVSEC Order 03/2009 at the airport terminals restricted to the passenger check-in at pre security hold area, at all the airports except Civil Enclaves or Joint User Defence Airfields."

DIAL is of the view that the above policy change shall impact Third Party Ground Handling revenues as it will be cost efficient for airlines to do self-handling and accordingly most of the airlines may start self-handling, which will result in reduction of revenue share income to DIAL from such third party ground handler. DIAL has hence adjusted the revenues from Third Party Ground Handling accordingly. DIAL has projected other ground handling revenue in line with the overall ATM growth. Similarly BME revenue is expected to grow in line with the ATM growth.

Passenger Traffic Related Revenue

7.1.3 DIAL has projected Revenue from Flight Kitchen to grow in line with the overall pax. growth which is in the range of 5% to 7%. Flight Kitchen revenue majorly comes from Full Service Carriers (FSC) however the passenger growth is mainly expected towards Low Cost Carriers (LCC) hence the growth towards this stream is expected to be subdued. DIAL has mentioned that as per the FY'18 statistic, it can be inferred that almost 58% of the passengers, including domestic FSC and international FSC, contribute almost 86% of Flight Kitchen revenue and only 14% revenue comes from LCC carriers. Hence the growth rate for this stream of revenue has been considered at 6%-8%.

7.1.4 Revenue from Car Parking is projected to be impacted by other factors such as alternate mode of transport, availability and tariff. Delhi Metro on June'2018 commenced operation of one metro station at domestic airport. This metro station connects Airport to various parts of city and accordingly it will have an adverse impact over the car parking revenue. Upcoming expansion work at Terminal 1 will lead to reduction in available parking bays and better bus connectivity to city will also have adverse impact over car park revenue. As per the concession agreement the revenue share from the car park JV will increase to 40% from current level of 20% w.e.f 1st April'2020. The impact of the increased revenue share has been considered in the projections of revenue from car park. With respect to car park revenue forecast DIAL has assumed growth in line with the pax growth and no

growth in the year of completion of expansion work at Terminal 1. Increase on account of revenue share has also been considered.

- 7.1.5 Radio taxi model is in the last leg due to wider popularity and acceptance of taxi aggregators like Ola and Uber. There is continuous drop in radio taxi business. The radio taxi count has also been reduced to 12.80 lakh in FY'17 from 15.06 in FY'16 (15% reduction) and further 11.20 lakh in FY'18 (12% reduction vis a vis FY'17). It is assumed that the income for radio taxi would be reducing in the coming years. DIAL has hence considered that the revenue from radio taxi would remain at the same levels including inflation impact.
- 7.1.6 Though in FY'18 Retail duty paid has observed exceptional growth due to onetime refresh, DIAL expects that the same growth will not continue. The shifting of domestic operations from Terminal 1 to Terminal 2 has had adverse impact on retail revenue. Due to this shifting the average monthly sale at various outlets at Terminal 1 has dropped by almost 30%. Hence DIAL has mentioned that the revenue from retail duty is not expected to grow more than 6%-8% which is in line with the overall passenger growth. Also, there will be no growth in one year prior to the expansion work of Terminal 1 due to relocation activities and disruption in the operations.
- 7.1.7 DIAL has mentioned that F&B revenue in the past three years has seen double digit growth however the same will not sustain in long run. In FY'18, there was F&B refresh which led to growth in F&B revenue. Similar to the retail duty at Terminal 1, the F&B average monthly sale has been reduced by 30% due to shifting of domestic operations from Terminal 1. Going forward, DIAL estimates that this growth may not sustain and accordingly in case of F&B and lounge they have considered growth in line with the passenger traffic, and no growth has been considered twelve months prior to the completion of Terminal 1 expansion work due to relocation activities. Other non-aero revenue is expected to grow in line with the passenger growth.
- 7.1.8 DIAL has mentioned that duty free area has reached to its saturation level and there is no room for any inorganic growth. DIAL has also mentioned that there are various international airports being developed in India which would result in to lower international traffic at Delhi Airport. Growth at Delhi airport is expected to be as per pax growth which is still higher than the trend at competitive Airports. Considering above factors, DIAL has considered a growth in duty free revenue in line with international pax growth.

Other Revenue from Revenue Share Assets

- 7.1.9 The inorganic growth in case of advertisement comes from creation of new sites. As per DIAL's submission, currently, advertisement capacity at Delhi Airport has reached its saturation level and going forward advertisement revenue will see only organic growth. Also, from pricing strategy perspective cost of advertisement at Delhi Airport is already very high compared to any other location of Delhi. Hence, there is no room for price increase. Accordingly, DIAL has considered organic growth in terms of inflation only.
- 7.1.10 Due to increase in usage of credit card as well as digitization there is expected de-growth in the forex revenue. DIAL has assumed 10% YoY de-growth in forex revenue. However, with inflationary increase of 4.5% the effective de-growth has been assumed at 5.5%.
- 7.1.11 In recent past there were one time land allotments like land for Terminal 1C to DCSC, land allotment for MRO and FBO, commencement of new air cargo logistic facility (ACLC). However, going

forward there is no business plan for allotment of new land/space. Hence, going forward DIAL has considered only 7.50% growth in line with the contractual arrangement.

7.1.12 Other contract linked non-aero revenue such as hangar, Common Area Management (CAM), Airport Service Charges (ASC), transit hotel and telecom are expected to grow by CPI linked inflation by DIAL.

IT JV

7.1.13 The outsourcing of IT works brings efficiency and benefit to DIAL. DIAL has entered into a Master Service Agreement with an IT service provider. This contract is in the nature of cost contract which ensure minimum subsistence level to the service provider. Any shortfall to the subsistence level has been funded by DIAL and similarly the excess amount being paid to DIAL. The income from IT JV has been considered based on contractual arrangement till FY'20. The Revenue for FY'21 to FY'24 has been considered based on expected arrangement of revenue share with the JV.

Cargo Revenue

7.1.14 DIAL has also submitted that the Cargo Revenue is expected to grow organically in line with the cargo traffic projection.

Revenue from Revenue Share Assets

7.1.15 Further, the cross subsidy from Revenue Share Assets would include Fuel Throughput Income and exclude revenue from AAI/existing assets. Further DIAL has requested that the S-Factor should be considered post Annual Fee payable to AAI. DIAL has accordingly considered the S-Factor in calculation of target revenue for the Third Control Period as per the table below;

Table 97: Revenue from Revenue Share Assets submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Fuel Farm	198.11	211.01	223.55	235.92	247.99
Ground Handling	102.54	109.21	115.71	122.11	128.35
BME	9.56	10.19	10.79	11.39	11.97
Flight Kitchen	69.44	74.52	79.68	84.80	89.83
Car Park	33.29	71.46	71.46	76.05	80.57
Radio Taxi	18.58	18.58	18.58	18.58	18.58
Retail duty paid	166.96	173.08	173.08	178.64	183.94
F&B	113.47	121.78	121.78	129.60	137.29
Lounge Income	49.22	52.82	52.82	56.21	59.55
Other passenger linked Revenue	23.95	25.71	27.49	29.25	30.99
Duty Free	480.27	511.74	543.81	575.76	607.48
Advertisement	168.35	175.93	183.84	192.11	200.76
Forex	61.79	58.11	54.66	51.40	48.35
Land & Space	362.74	389.94	419.19	450.63	484.42
Other contract linked revenue	102.05	106.38	110.91	115.64	120.58
IT JV	78.12	19.00	20.31	21.62	22.90
Cargo	248.69	263.72	279.16	294.71	310.34
Other Income	-	-	-	-	-
Gross Total	2,287.13	2,393.18	2,506.82	2,644.41	2,783.90

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
NAR for Cross Subsidy as per AERA	2,287.13	2,393.18	2,506.82	2,644.41	2,783.90
Cross Subsidy post reduction of Revenue from Existing Assets and Disallowed Area	548.91	580.15	613.65	654.35	695.62
Cross-subsidization after Revenue Share	296.47	313.34	331.43	353.41	375.71

7.1.16 DIAL also has informed that the Non-Aeronautical Revenue for Cross Subsidy does not include the profit on sale of assets or non-current inventory and income earned from interest, dividends, SEIS valuation and exchange difference which has been projected to be nil as per the MYTP.

7.2 Authority's Examination regarding Revenue from Revenue Share Assets for Third Control Period

7.2.1 The Authority has carefully examined DIAL's submissions regarding various non-aeronautical revenue streams for the Third Control Period and has the following observations.

Revenue from Fuel Throughput Charges

7.2.2 The Authority has looked at DIAL's submission regarding revenue from Fuel Farm Throughput Charges. The Authority is also in receipt of the communication from MoCA, via letter F.No. AV-13030/216/2016-ER dated 8th Jan'2020, wherein such charges have to be discontinued for all airports, which has been forwarded to DIAL. DIAL has replied to the same requesting for a compensatory tariff under aeronautical charges till the tariff determination is finalized for the Third Control Period. Authority is of the view that some compensation has to be paid to the airport operator to compensate for the revenue lost. Authority also proposes to consider such revenue as aeronautical revenue in consonance with the earlier proposals with regards to Fuel Throughput Charges as mentioned in this Consultation Paper for the First and Second Control Periods.

Revenue from Ground Handling

7.2.3 Authority has looked at the justification provided by DIAL for the projected revenue from ground handling services including the policy of MoCA and has agreed to consider the estimated revenue from Ground Handling as submitted by DIAL, subject to true up. In the case of revenue from Bridge Mounted Equipment, Authority is of the view that the past CAGR is considerably higher which shouldn't be discounted and has hence proposed to consider past five year CAGR as the projected growth rate for this revenue head in the Third Control Period. The revenue from Ground Handling including revenue from Bridge Mounted Equipment shall be trued up at the time of tariff determination of the Fourth Control Period.

Revenue from Flight Kitchen

7.2.4 The Authority has examined the submissions made by DIAL regarding revenue from Flight Kitchen. The Authority has observed that the growth rate projected by DIAL is significantly less than the actual growth rate in the Second Control Period. The Authority is of the view that the past five year growth rate should be sustainable and expects the past five year growth to continue in the next control period. The Authority has thus proposed to consider the past five year CAGR as the expected growth rate for this revenue stream in the Third Control Period.

Revenue from Retail, F&B, Lounge and Car Park

7.2.5 The Authority has examined DIAL's submissions regarding Retail, F&B, Lounge and expects that the past five year growth could continue for these revenue streams. The Authority is of the view that

there is no strong reason to consider any tempered growth rate as these revenue items in the past have grown independent of the Pax traffic growth rate which can be seen in the high growth rates for FY 2019 even when the Pax traffic growth rates have tempered. Authority hence proposes to consider the past five year CAGR for the revenue streams under Retail, F&B and Lounge. However, Authority has considered the reasoning behind the moderated projection for revenues from Car Park (MLCP) and radio taxis as submitted by DIAL and has hence proposed to consider the growth rate submission of DIAL as it is for these revenue streams.

Revenue from Duty Free Related Services

- 7.2.6 The Authority has examined DIAL's submissions with regards to duty free related income and has observed that DIAL has considered a highly moderated growth rate vis a vis the actuals in the past. Authority is of the view that these revenue streams in line with the above mentioned items such as Retail and F&B has been growing at a consistently high growth rate in the past and has hence proposed to consider the past five year CAGR for this revenue item.

Revenue from Advertisements

- 7.2.7 The Authority has carefully examined the submissions made by DIAL regarding advertisement revenue and considers that DIAL is underestimating the potential revenue from advertisements. Authority expects that the growth from advertisements would continue as in the previous control period and thus has decided to consider the actual growth rate achieved in the previous control period i.e. the five year CAGR for the Second Control Period.

Revenue from Land Leases and Spaces

- 7.2.8 The Authority has examined DIAL's submission regarding the revenue stream from land and spaces and has noticed that the growth rate has tapered down to 9% in FY 19 from the 12% rate in FY 18 and 15% rate in FY 17. As per the reasons provided by DIAL, the high growth rates in earlier years were due to one-time land allotments and hence are not sustainable in the future. Authority hence proposes to consider the growth rate as submitted by DIAL for the future years in the Third Control Period for this revenue stream.

Revenue from Forex, Hangar, Common Area Management and Transit Hotel

- 7.2.9 The Authority after examining the submissions made by DIAL has decided to consider the past five year CAGR for revenues from Forex, Hangar, Common Area Management, Airport Service Charge, and Transit Hotel for Third Control Period.

Revenue from Banks and Telecom

- 7.2.10 Authority has noted the revenue stream from Banks and Telecom have been inconsistent in the past and no trend could be established. However given the fact the same is part of specific contract linked revenue, Authority now proposes to consider the projection as made by DIAL for the Third Control Period for these revenue items which shall be trued up at actuals at the time of tariff determination for the Fourth Control Period.

Revenue from IT JV

- 7.2.11 The Authority has examined DIAL's submissions regarding revenues from IT JV based on the contract already entered into by them/expected revenue share from such arrangement and proposes to consider such revenues as projected by DIAL.

Revenue from Cargo

7.2.12 The Authority has examined DIAL's submissions regarding revenues from Cargo. The Authority is of the view that even though the growth rate as considered by DIAL is conservative compared to the past five year CAGR of 10.7%, the growth rates in each of the past years have not been consistent, with the growth rate very subdued in the initial half of the Second Control Period and comparatively higher in the latter half of the Second Control Period. The Authority hence proposes to consider the cargo traffic growth rate as submitted by DIAL for projecting revenues from this stream in the Third Control Period.

Other Income

7.2.13 The Authority has noted that DIAL has projected Other Income as nil. The Authority at the time of true up for the Second Control Period has proposed to consider Other Income excluding dividend income as part of Revenue from Revenue Share Asset as per this consultation paper.

Authority has now formed a view that dividend income earned by DIAL is primarily through JV set up with other group entities of DIAL who are carrying non-aeronautical related services in IGIA such as duty free, advertisement etc. and also aeronautical services such as fuel farm services. Hence, the Authority is of the view that such revenues should be considered at least for cross subsidization by inclusion as part of revenue from Revenue Share Assets.

Regarding Other Income apart from Dividends such as Income from Investments etc, Authority proposes to consider these income sources as part of revenue from Revenue Share Assets as these are revenues accruing to the airport operator through cash earned from airport operations.

Authority is also of the view that some portion of Other Income including dividends is also fit enough to be classified as aeronautical revenues and has proposed stakeholder views on the same.

However as the Other Income has been projected as nil by DIAL, the same is proposed to be considered as nil for the Third Control Period. The Authority hence proposes to consider Other Income actually earned by DIAL during the Third Control Period at the time of true up for the Fourth Control Period as part of aeronautical revenue stream and revenue from Revenue Share Assets based on stakeholder views.

7.2.14 The Authority, consistent with the stand already considered in the earlier control periods, proposes not to make any adjustment with regards to revenue from Existing Assets, disallowed area and proposes no deduction with regards to Annual Fee pertaining to Revenue Share Assets while arriving at the revenue from Revenue Share Assets for cross subsidization. The detailed justifications for the Authority's reasoning have already been provided as part of true up for the First Control Period in this Consultation Paper.

Growth Rates considered by Authority

7.2.15 The following table brings out the growth rates under the significant non-aeronautical revenue streams in the last five years vis a vis the growth rates as considered by DIAL in its submission and as proposed by Authority in the Third Control Period.

Table 98: Growth Rates of Revenue from Revenue Share Assets as per DIAL's submission and as proposed by the Authority

Particular	Past 5 year CAGR	Projected 5 year CAGR as considered by DIAL	Projected Growth Rates as proposed to be considered by Authority
Bridge Mounted Equipment	12.65%	5.96%	12.65%
Flight Kitchen	12.72%	6.84%	12.72%
Car Park	26.24%	21.09%	21.09%
Radio Taxi	1.65%	0.00%	0.00%
Retail duty paid	17.09%	2.72%	17.09%
F&B	17.18%	5.42%	17.18%
Lounge Income	17.32%	5.42%	17.32%
Duty Free	13.43%	6.19%	13.43%
Advertisement	13.19%	4.50%	13.19%
Forex	6.49%	-5.95%	6.49%
Land & Space Leases	18.76%	7.50%	7.50%
Cargo	10.73%	5.79%	5.79%

7.2.16 Based on the growth rates, the revised revenue from Revenue Share Assets as considered by the Authority is as shown in the table below which shall be trued up based on actuals at the time of tariff determination for the Fourth Control Period;

Table 99: Revenue from Revenue Share Assets proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Ground Handling	102.54	109.21	115.71	122.11	128.35
BME	10.09	11.37	12.81	14.43	16.25
Flight Kitchen	72.74	81.99	92.42	104.18	117.43
Car Park	33.29	71.46	71.46	76.05	80.57
Radio Taxi	18.58	18.58	18.58	18.58	18.58
Retail duty paid	188.34	220.53	258.22	302.36	354.03
F&B	123.57	144.79	169.67	198.82	232.97
Lounge Income	53.66	62.96	73.86	86.65	101.66
Other passenger linked Revenue	19.64	19.64	19.64	19.64	19.64
Duty Free	510.33	578.88	656.65	744.86	844.92
Advertisement	182.35	206.41	233.64	264.46	299.34
Forex	69.96	74.50	79.34	84.48	89.96
Land & Space	362.74	389.94	419.19	450.63	484.42
Other contract linked revenue (include Hangar, Transit Hotel, Airport Service Charges, Banks and Telecom)	108.19	119.81	132.92	147.75	164.51
IT JV	78.12	19.00	20.31	21.62	22.90
Cargo	248.69	263.72	279.16	294.71	310.34
Gross Total	2,182.83	2,392.79	2,653.57	2,951.31	3,285.89
NAR for Cross Subsidy as per AERA	2,182.83	2,392.79	2,653.57	2,951.31	3,285.89
Cross-subsidization considered as 30% of Revenue from Revenue Share Assets	654.85	717.84	796.07	885.39	985.77

7.3 **Authority's Proposals regarding Revenue from Revenue Share Assets for the Third Control Period**

Based on the material before it and its analysis, the Authority proposes the following for Revenue from Revenue Share Assets for the Third Control Period.

- 7.3.1 Authority proposes to consider past five year CAGR for all the revenue sources under revenue from Revenue Share Assets except in the case of cargo related revenue, ground handling related revenue and revenue from Car Park and radio taxis and contract linked revenues such as revenue from IT JV, Banks and Telecom and revenue from Land Leases in which case the growth rate submitted by DIAL has been considered (Table 98).
- 7.3.2 Authority proposes not to exclude revenue from existing assets, disallowed area and also not to consider deduction towards the Annual Fee payable to AAI on the revenue from Revenue Share Assets.
- 7.3.3 Authority proposes to true up revenue from Revenue Share Assets based on actuals **including Other Income based on outcome of the consultation process regarding treatment of Other Income.**

8 TAXATION

8.1 DIAL's Submissions regarding Taxation for the Third Control Period

- 8.1.1 DIAL in their submission has computed MAT and normal tax as per law and has also considered the carried forward business losses and unabsorbed depreciation as per Income Tax Act. MAT paid by DIAL and credit of the same has been considered in accordance with the law.
- 8.1.2 DIAL has calculated the ratio of aero PBT to non-aero PBT and has applied that ratio on the projected taxes for the company as a whole to arrive at the aeronautical taxes for the Third Control Period. The aeronautical taxes as submitted by DIAL to be considered for tariff calculation are as shown in the table below along with the calculation;

Table 100: Aeronautical Taxes submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Aero Revenue	4,809.13	5,279.91	5,776.64	6,295.18	6,839.66
Cross subsidy- non-aero	296.47	313.34	331.43	353.41	375.71
Total Aero Revenue	5,105.60	5,593.24	6,108.07	6,648.59	7,215.36
Annual Fee (arrived at by considering 45.99% on the Total Aero Revenue excluding Interest and Depreciation)	1,866.93	2,054.77	2,190.65	2,222.39	2,346.30
Aero Expense	1,025.52	1,283.22	1,620.70	2,090.02	2,359.28
EBIDTA	2,213.15	2,255.26	2,296.73	2,336.18	2,509.78
Interest	228.92	268.58	366.94	552.26	656.45
Depreciation	520.78	543.48	646.39	910.58	1,081.44
PBT	1,463.44	1,443.20	1,283.40	873.34	771.89
AERO PBT	1,463.44	1,443.20	1,283.40	873.34	771.89
Non-Aero PBT	312.64	314.48	295.34	272.98	178.61
Aero to Non-Aero PBT Ratio (A)	0.82	0.82	0.81	0.76	0.81
Tax as per Projected Financials (B)	485.56	495.71	508.47	442.20	426.42
Aeronautical Tax (T=A X B)	400.09	407.02	413.35	336.89	346.29

8.2 Authority's Examination regarding Taxation for the Third Control Period

Authority has looked at DIAL's submission regarding aeronautical taxes and has the following observations.

- 8.2.1 The Authority has looked at a scenario considering the aeronautical revenue stream along with the S Factor (Scenario 1) and also a scenario considering the aeronautical revenue stream without the S Factor (Scenario 2). The aeronautical PBT has been calculated under both the scenarios and the effective tax rate applicable for the company, has been applied on the aeronautical PBT thus arrived to calculate the aeronautical taxes considered for tariff determination.
- 8.2.2 The outcome under the Scenario 1 including S Factor as part of the revenue base for computation of aeronautical taxes is as shown in the table below;

Table 101: Aeronautical Taxes proposed to be considered by the Authority under Scenario 1 considering S Factor for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Aero Revenue	1,056.38	1,124.21	1,191.75	1,258.15	1,323.80
Cross subsidy – non-aero (S Factor)	654.85	717.84	796.07	885.39	985.77
Total Aero Revenue (including S Factor)	1,711.23	1,842.04	1,987.82	2,143.54	2,309.57
Annual Fee (considered as 45.99% of Total Aero Revenue including S Factor as arrived above)	786.99	847.16	914.20	985.82	1,062.17
Aero Expense	965.83	1,078.49	1,240.65	1,444.81	1,615.07
EBIDTA- Aero	(41.59)	(83.61)	(167.03)	(287.08)	(367.67)
Interest- Aero	230.19	262.96	339.57	508.75	619.22
Depreciation- Aero	519.53	514.68	554.30	727.21	847.20
AERO PBT	(791.31)	(861.24)	(1,060.90)	(1,523.04)	(1,834.09)
Effective Tax rate as per projected financials	1.37%	1.53%	2.36%	2.21%	1.92%
Aeronautical Tax (Max of 0 or Aero PBT X Effective Tax Rate)	-	-	-	-	-

8.2.3 The outcome under the Scenario 2 wherein S Factor is not considered as part of the revenue base for computation of aeronautical taxes is as shown in the table below;

Table 102: Aeronautical Taxes proposed to be considered by the Authority under Scenario 2 excluding S Factor for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024
Aero Revenue	1,056.38	1,124.21	1,191.75	1,258.15	1,323.80
Cross subsidy - non aero (S Factor)	-	-	-	-	-
Total Aero Revenue (including S Factor)	1,056.38	1,124.21	1,191.75	1,258.15	1,323.80
Annual Fee (considered as 45.99% of Total Aero Revenue including S Factor as arrived above)	485.83	517.02	548.08	578.62	608.82
Aero Expense	965.83	1,078.49	1,240.65	1,444.81	1,615.07
EBIDTA- Aero	(395.28)	(471.31)	(596.99)	(765.28)	(900.08)
Interest- Aero	230.19	262.96	339.57	508.75	619.22
Depreciation- Aero	519.53	514.68	554.30	727.21	847.20
Aero PBT	(1,144.99)	(1,248.95)	(1,490.85)	(2,001.24)	(2,366.51)
Effective Tax rate as per projected financials	1.37%	1.53%	2.36%	2.21%	1.92%
Aeronautical Tax (Max of 0 or Aero PBT X Effective Tax Rate)	-	-	-	-	-

8.2.4 The aeronautical taxes have been determined as nil during the years in the Third Control Period as the aeronautical PBT under both the scenarios is negative. **The Authority however invites stakeholder views on whether the S Factor should be considered as part of revenue base for assessment of aeronautical PBT.**

8.3 **Authority's Proposal regarding Taxation for the Third Control Period**

Based on the material before it and its analysis, the Authority proposes the following;

- 8.3.1 Authority proposes to determine aeronautical taxes for the Third Control Period by applying effective tax rate on the aeronautical PBT which is calculated by considering S factor also as part of the revenue base. **Authority invites stakeholder views on the same and the final decision on whether to consider S Factor as part of the aeronautical revenue base for aeronautical tax determination shall be decided post the stakeholder consultation process.** The aeronautical taxes for the purpose of tariff determination for the Third Control Period have been determined as nil which shall be trued up based on actuals.

9 TRAFFIC PROJECTIONS

9.1 DIAL's Submissions regarding Traffic Projections for the Third Control Period

- 9.1.1 DIAL has mentioned that the OMDA agreement required DIAL to develop an initial Master Plan (completed in Sept'2006) and provides an obligation to revise the master plan once in every ten years or at shorter interval if traffic forecast or other reasons require an earlier assessment.
- 9.1.2 DIAL has submitted that as the current terminal capacity reaches its saturation level, the need to improve turnaround time and operating efficiencies, predominance of belly cargo over freighter aircraft, dynamic changes in aviation industry, intra city connectivity like Delhi Metro, etc. have resulted in the need of reviewing the existing Master Plan and get IGI Airport ready to cater to future needs of Delhi NCR region. With this vision DIAL appointed Landrum & Brown (L&B) to review the initial Master Plan in 2015.
- 9.1.3 As part of master plan, L&B provided the traffic forecast for IGI Airport. DIAL for the purpose of tariff filing for Third Control Period has considered the growth projected by L&B in base case scenario for the years pertaining to the Third Control Period. Following is the traffic growth rate provided by L&B which has been considered by DIAL in their submission.

Table 103: Growth Rate of Traffic submitted by DIAL for Third Control Period as per MYTP

FY ending March 31	2020	2021	2022	2023	2024
Passenger					
Domestic	7.9%	7.6%	7.2%	6.6%	6.1%
International	6.8%	6.6%	6.3%	5.9%	5.5%
ATM					
Domestic	6.9%	6.8%	6.1%	5.7%	5.2%
International	6.0%	5.5%	5.3%	4.9%	4.8%
Cargo					
Domestic	7.5%	7.3%	6.9%	6.4%	6.0%
International	5.4%	5.3%	5.2%	5.0%	4.9%

- 9.1.4 DIAL based on the application of growth rates in the table above has projected the traffic for the years in the Third Control Period as below

Table 104: Traffic Projections submitted by DIAL for Third Control Period as per MYTP

FY ending March 31	2020	2021	2022	2023	2024
Passenger Traffic (Mn)					
Domestic	54.53	58.67	62.88	67.04	71.12
International	19.97	21.28	22.61	23.94	25.26
Total	74.50	79.95	85.49	90.98	96.38
Air Traffic Movement ('000s) - Billable					
Domestic	198.24	211.67	224.60	237.41	249.79
International	54.94	57.99	61.08	64.08	67.13
Total	253.18	269.66	285.69	301.49	316.91
Cargo Traffic (in 1000 MT)					
Domestic	420.11	450.65	481.81	512.85	543.64
International	687.10	723.45	761.02	799.22	838.02
Total	1107.21	1174.09	1242.84	1312.07	1381.66

9.2 Authority's Examination regarding Traffic Projections for the Third Control Period

- 9.2.1 The Authority has looked at the past five year traffic growth rates and could notice that the traffic growth has tapered down in the last FY on account of various factors including stress amongst airline operators. Authority has also noted that the actual passenger traffic for the 8 month period from April 2019 till November 2019 has decreased marginally vis a vis the actual Passenger Traffic for the 8 month period from April 2018 till November 2018.
- 9.2.2 Considering that the traffic growth rates as submitted by DIAL are based on a specific independent study conducted by L&B and given the fact that the traffic growth rates have moderated all over the country in the current FY, Authority has proposed to consider the traffic growth rates as submitted by DIAL for its tariff determination exercise for the Third Control Period.
- 9.2.3 The projected passenger traffic, Air Traffic Movement and Cargo Traffic based on the growth rates proposed to be considered is as shown in the table below which shall be trued up based on actuals;

Table 105: Traffic proposed to be considered by the Authority for Third Control Period

FY ending March 31	2020	2021	2022	2023	2024
Passenger Traffic					
Domestic Traffic (Mn)	54.53	58.67	62.88	67.04	71.12
International Traffic (Mn)	19.97	21.28	22.61	23.94	25.26
Total (Mn)	74.50	79.95	85.49	90.98	96.38
Air Traffic Movement (ATM)					
Domestic ATM (Nos)	198.24	211.67	224.60	237.41	249.79
International ATM (Nos)	54.94	57.99	61.08	64.08	67.13
Total	253.18	269.66	285.69	301.49	316.91
Cargo Traffic					
Domestic Cargo (MT)	420.11	450.65	481.81	512.85	543.64
International Cargo (MT)	687.10	723.45	761.02	799.22	838.02
Total (MT)	1107.21	1174.09	1242.84	1312.07	1381.66

- 9.2.4 In light of COVID-19 pandemic, GoI restriction on domestic and international flights and other prevailing situations, it is difficult to assess the Traffic Volume for FY 2021 at this moment. Further the traffic actually achieved in FY 2020 also has to be reassessed. AERA proposes to consider the above mentioned traffic figures as submitted by DIAL in their proposal as the expected traffic for the purpose of this Consultation Paper but would take a final decision after considering Stakeholders view on the subject.

9.3 Authority's Proposal regarding Traffic Projections for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following;

- 9.3.1 Authority proposes to consider traffic as projected by DIAL for the Third Control Period in its MYTP which shall be trued up based on actuals.

10 INFLATION

10.1 DIAL's Submissions regarding Inflation for the Third Control Period

10.1.1 For the purpose of inflation DIAL has considered the RBI survey of professional forecasters on macroeconomic indicators – result of the 51st round. As per the survey, DIAL considered median CPI Headline inflation rate of 4.5%. The medium and long term forecasts as per the 51st round of RBI survey can be seen in the table below;

Table 106: Inflation submitted by DIAL for Third Control Period as per MYTP

Percentage (%)	Mean	Median	Max	Min
CPI Combined	4.5	4.5	5.5	3.5

10.2 Authority's Examination regarding Inflation for the Third Control Period

10.2.1 The Authority has examined the submission made by DIAL on inflation to be considered during Third Control Period.

10.2.2 The Authority has noted that DIAL has considered mean CPI from the RBI survey conducted during March 2018 as the inflation for Third Control Period. The Authority however, proposes to consider the recent inflation forecast by RBI as per its 61st round of survey professional forecasters on macroeconomic indicators, as the same would be consistent with the recent macroeconomic developments.

10.2.3 Based on the recent inflation forecast by RBI, Authority proposes to consider inflation of 4.6% i.e. the mean CPI headline inflation during Q3 of FY 2019-20.

Table 107: Inflation forecast – 61st round of survey by RBI

Percentage (%)	Mean	Median	Max	Min
CPI Combined	4.6	4.7	5.1	3.5

10.3 Authority's Proposal regarding Inflation for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following;

10.3.1 Authority proposes to consider the CPI headline inflation of 4.6% based on the RBI survey of professional forecasters on macroeconomic indicators – 61st round for the next five years of the Third Control Period.

11 QUALITY OF SERVICE

11.1 DIAL's Submissions regarding Quality of Service for the Third Control Period

11.1.1 DIAL, in a letter to the Authority dated 23.07.2018 submitted that they are exploring ways to improve the quality of service provided at the airport. DIAL considered a number of actions to improve passenger experience at the airport which can be seen in the improved ASQ scores and rankings. The ongoing actions considered by DIAL to further improve ASQ score at the airport are stated below;

- Engagement of an expert agency to develop a long-term service concept and training program for Delhi airport involving all its stakeholders.
- Awareness and trainings for government agencies (CISF, Immigration staff), airlines & GHS outsourced agencies like housekeeping, trolley pushers, parking personnel, concessionaire, etc.
- Exclusive Customer Service training to security forces with fresh content.
- Reduction in passenger load at Terminal 1, post shifting of few flights to Terminal 2.
- All temporary signage removed and placed in acrylic holders. Restricted items signage refreshed at all check-in counters. In Terminal 3, the electronic dangerous goods & other notifications have been added in Check-in area as well as other areas to guide passengers better and also the screens have undergone the black spot cleaning activity.
- Passengers movement space increased in security check area at all terminals of IGIA.
- Metro Operations commenced at Terminal 1 for ensuring better connectivity.
- Deployment of Customer Service Agents (extra manpower to support daily operations) at departure forecourt to guide and assist passengers.
- Old FIDS replaced with new ones for better visibility to passengers.
- Extending the Wi-Fi service to the Forecourt Areas so that once the passengers can get connected as soon as they reach the airport; further connects seamlessly throughout till departure piers.
- PVC slats were facilitated at Entry Gates to stop high infiltration of air ensuring comfortable terminal environment.

11.2 Authority's Examination regarding Quality of Service for the Third Control Period

11.2.1 The Authority in its Order No 03/2012-13 dated 24.04.2014 had decided, as specified by the Government, to monitor the performance standards as laid down in the OMDA. The Authority had noted that OMDA provides for liquidated damages to be paid by DIAL to AAI, should the quality of service not be achieved by DIAL in line with requirements under OMDA.

11.2.2 The Authority has assessed various media reports and Airports Council International (ACI) website wherein the IGIA has constantly been adjudged one of the best airports in the world in its traffic category and the Airport Service Quality (ASQ) score has consistently improved in the past ten years.

11.2.3 The Authority has noted that in the past five years, IGIA has been consistently ranked as one of the top airports by the ACI in the Airport Service Quality awards in various categories as can be seen in the table below;

Table 108: ACI ASQ Rankings of IGIA over the past five years

Category	2014	2015	2016	2017	2018
Best Airport by size - Over 40 mppa			2 nd position	1 st position	
Best Airport by size - 25-40 mppa	1 st position	1 st position			
Best Airport by Region – Asia Pacific	5 th position	2 nd position	2 nd position	1 st position	
Departures - Best Airport by size and region (over 40 mppa, Asia Pacific)*					1 st position

* ACI altered their ranking system in 2018 by introducing categories of departure and arrival.

11.2.4 The Authority has also considered the ranking of airports by Skytrax, one of the leading ranking organizations in the aviation industry, where IGIA has been ranked as the best airport in Central Asia. Skytrax also rated IGIA as a four star airport, the only airport from India to be rated so.

11.2.5 Hence, the Authority does not propose any adjustment towards tariff determination of aeronautical tariff on account of service quality maintained by the airport operator.

11.3 Authority’s Proposal regarding Quality of Service for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following;

11.3.1 Authority proposes not to consider any adjustment in the aeronautical tariff during Third Control Period with regards to Quality of Service.

12 TARGET REVENUE DETERMINATION

12.1 DIAL's Submissions regarding Target Revenue for the Third Control Period

12.1.1 DIAL has arrived at the target revenue based on the submissions made as discussed in previous sections. The following are the resultant building blocks and X- Factor.

Table 109: Target Revenue submitted by DIAL for Third Control Period as per MYTP

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024	Total
Regulatory Asset Base	5,089.54	5,911.95	7,988.06	11,918.90	14,118.37	
WACC	16.42%	16.42%	16.42%	16.42%	16.42%	
Return on RAB	835.41	970.47	1,311.27	1,956.53	2,317.58	7,391.31
Operating expense	1,025.52	1,283.22	1,620.70	2,090.02	2,359.28	8,378.75
Depreciation	520.78	543.48	646.39	910.58	1,081.44	3,702.68
Taxes	400.09	407.02	413.35	336.89	346.29	1,903.65
Target Revenue	2,781.86	3,204.19	3,991.71	5,294.03	6,104.60	21,376.39
Cross subsidy - Revenue from Revenue Share Asset	296.47	313.34	331.43	353.41	375.71	1,670.36
Net Target Revenue	2,485.39	2,890.85	3,660.28	4,940.62	5,728.89	19,706.03
BAC True up	3,120.93					3,120.93
True up for Second Control Period	4,279.90					4,279.90
Adjusted Net Target Revenue	9,886.22	2,890.85	3,660.28	4,940.62	5,728.89	27,106.86
WACC	16.42%					
PV Factor	0.86	0.74	0.63	0.54	0.47	
PV of ARR	8,492.20	2,133.07	2,319.97	2,689.92	2,679.29	18,314.45
PV of Projected Revenue	4,131.01	3,895.88	3,661.38	3,427.42	3,198.77	18,314.45
X- Factor Increase	424.21%					

12.1.2 DIAL has requested for a one time increase of 424.21% on the Base Airport Charges followed by normal adjustment in tariff to the extent of inflation of 4.5% to recover the projected net target revenue as assessed by them.

12.1.3 Further as part of the Annual Tariff Proposal DIAL has requested for the following for the Third Control Period;

- Aeronautical Charges / Target Revenue should be determined as per the formula stated in Schedule I of SSA,
- PSF be determined under section 13(1)(c) of AERA Act, 2008 read with Rule 88 of Aircraft Rules, 1937 with specific Building Blocks of Depreciation and Interest out of target revenue, and
- Aeronautical Charges towards aeronautical services be calculated under section 13(1)(a) of AERA Act, 2008 (target revenue minus PSF).

12.2 Authority's Examination regarding Target Revenue for the Third Control Period

12.2.1 Based on the submissions made and based on Authority's examination on each of the submissions, the Target Revenue as proposed to be considered by Authority for the Third Control Period is as shown in the table below;

Table 110: Target Revenue as proposed to be considered by the Authority for Third Control Period

FY ending March 31 (Rs. Cr)	2020	2021	2022	2023	2024	Total
Control Period Year	1	2	3	4	5	
RAB (A) (Refer Table 81)	5,008.71	5,669.41	7,247.04	10,756.90	13,041.95	41,724.00
WACC (B)	12.81%	12.81%	12.81%	12.81%	12.81%	
Return on RAB (C= A X B)	641.45	726.07	928.11	1,377.61	1,670.25	5,343.49
Depreciation (D) (Refer Table 80)	519.53	514.68	554.30	727.21	847.20	3,162.91
Expense (E) (Refer Table 96)	965.83	1,078.49	1,240.65	1,444.81	1,615.07	6,344.85
Taxes (T) (Refer Table 101)	-	-	-	-	-	-
Gross Target Revenue (GTR= C+D+E+T)	2,126.81	2,319.24	2,723.06	3,549.62	4,132.52	14,851.25
Less: Cross Subsidy from Revenue Share Assets (NAR) (Refer Table 99)	654.85	717.84	796.07	885.39	985.77	4,039.92
Net Target Revenue (NTR) for CP 3 (NTR=GTR-NAR)	1,471.96	1,601.41	1,926.99	2,664.23	3,146.75	10,811.33
BAC True Up	-	-	-	-	-	-
True up for 2nd Control Period (TR) (Refer Table 65)	(5,736.88)	-	-	-	-	(5,736.88)
Adjusted NTR (ANTR= NTR+TR)	(4,264.92)	1,601.41	1,926.99	2,664.23	3,146.75	5,074.45
Present value of ANTR as on 01.04.2019 at 12.81% (X)	(3,780.74)	1,258.44	1,342.37	1,645.25	1,722.61	2,187.93
Projected Aero Revenue based on Base Airport Charges including compensation towards revocation of Fuel Throughput Charges (provided as part of BAC Tariff order)	1,056.38	1,124.21	1,191.75	1,258.15	1,323.80	5,954.28
Present Value of Projected Aeronautical Revenue as on 01.04.2019 at 12.81% (Y)	936.45	883.44	830.19	776.95	724.68	4,151.70
Over Recovery on PV terms as on 01.04.2019 (Z= Y-X)	4,717.18	(375.00)	(512.18)	(868.30)	(997.93)	
Over Recovery pending to be trued up as on 01.04.2019						1,963.77

12.2.2 Based on the above analysis, the Authority estimates that the eligible Target Revenue that could be collected by the airport operator during the Third Control Period is Rs. 2187.93 Cr based on present value terms. Given the fact that DIAL would have collected almost 50% of the eligible Target Revenue for the Third Control Period in the first year itself, effecting the adjustment in tariff to match the NPVs of Projected Aeronautical Revenues and the eligible Target Revenue would entail a drastic reduction in the aeronautical tariff for the airport operator who is currently levying Base Airport Charges plus 10%.

As per the terms of the SSA, the airport operator is eligible to charge Base Airport Charge plus 10% at the least and hence no reduction is possible with regards to aeronautical tariff beyond the Base Airport Charges plus 10%.

Authority hence proposes to allow the airport operator to continue levying Base Airport Charges plus 10% during the Third Control Period. This is also in compliance with the TDSAT directions wherein AERA is required to respect rights/concessions etc. flowing from lawful agreements / directions viz. OMDA, SSA etc. The charges determined by the Authority pertaining to BAC plus 10% as per Tariff Order No 39/2018-19, currently levied by the Airport Operator can be seen in [Annexure 7](#). These charges have been used to arrive at the projected aeronautical revenue as mentioned under Table 110.

12.2.3 Based on the above calculation, the difference between the Present Value of Revenue projected based on the existing Base Airport Charges plus 10% and Present value of Target Revenue is a projected over recovery to the extent Rs. 1964 Cr (arrived on a PV basis as on April 1, 2019) for the Third Control Period and the same has to be recovered in the future control periods along with carrying cost.

12.2.4 The Authority is in receipt of the communication from MoCA, via letter F.No. AV-13030/216/2016-ER dated 8th Jan'2020 wherein Fuel Throughput Charges have to be discontinued for all airports. Based on the letter, the Authority in its projections towards aeronautical revenues for the airport operator has proposed to consider compensatory tariff in lieu of the disallowance of the Fuel Throughput Charges, considered as aeronautical by the Authority. The compensatory tariff is proposed to be fixed such that the revenue projected from Fuel Throughput Charges at the allowed rate of Rs. 500/KL every year and based on the projected fuel utilization is recovered through an additional charge levied on every billable passenger.

12.2.5 The Authority proposes to consider the compensatory tariff as per the calculation in the table below;

Table 111: Compensatory Tariff proposed to be considered by the Authority for Third Control Period in lieu of Disallowance of Fuel Throughput Charge

FY ending March 31	2020	2021	2022	2023	2024
Fuel Uptake Projected as per DIAL submission (KL) (A)	28,41,173.3	30,26,103.3	32,05,994.7	33,83,383.4	35,56,451.7
Fuel Throughput charge allowed by AERA as per BAC order (Rs/KL) (B)	500.00	500.00	500.00	500.00	500.00
Fuel Farm revenues Estimated (Rs. Cr) (R=AXB)	142.06	151.31	160.30	169.17	177.82
Fuel Farm Revenues collected till Dec 31, 2019 (Rs. Cr) (C)	100.50				
Fuel Farm Revenues remaining non recovered in the Third Control Period (Rs. Cr) (FFR=R-C)	41.56	151.31	160.30	169.17	177.82
Billable Passengers projected as per DIAL submission in its MYTP (Mn)	31.52	33.83	36.18	38.50	40.79
Billable Passenger Traffic achieved till Dec 31, 2019 (Mn)	22.47				
Balance Billable Passenger Traffic (Mn) (BP)	9.05	33.83	36.18	38.50	40.79
Compensation Tariff to be collected per passenger (Rs/Billable Pax) (FFR/BP)	45.91	44.72	44.31	43.93	43.59

12.3 Authority's Proposals regarding Target Revenue for the Third Control Period

Based on the material before it and based on its analysis, Authority is proposing the following regarding Target Revenue for the Third Control Period;

- 12.3.1 Authority proposes to continue with the existing Base Airport Charges plus 10% for the airport operator since as per the terms of the Schedule 6 of the SSA, the airport operator shall be eligible to levy at the minimum Base Airport Charges plus 10% during the tenor of the OMDA.
- 12.3.2 Authority proposes to recover the over recovery pending to be trued up as on April 1, 2019 with carrying cost in the subsequent control periods through suitable adjustment in aeronautical tariff.
- 12.3.3 Authority proposes to consider compensatory tariff to compensate the airport operator towards disallowance of Fuel Throughput Charges by MoCA via letter F.No. AV-13030/216/2016-ER dated 8th Jan'2020.

13 SUMMARY OF AUTHORITY'S PROPOSALS

The below mentioned provides a summary of the Authority's proposals with regards to the tariff determination for the Third Control Period;

13.1 True up for the First Control Period

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.1.1 Authority proposes to consider the upfront fee of Rs. 150 Cr as part of equity base and true up WACC based on the cost of equity of 16%, cost of debt at actuals i.e. 10% and cost of RSD at the cost of debt i.e. 10% based on the recommendation of the independent study. The proposed recalculated WACC for the First Control Period is 11.65% (Table 7).
- 13.1.2 Authority proposes to apportion DF to the extent of Rs. 3065 Cr against aeronautical assets that are capitalized in the First Control Period and rework the aeronautical RAB and associated depreciation (Para 2.2.9).
- 13.1.3 Authority proposes not to consider Baggage Screening Related Assets as part of the RAB in the First Control Period and to consider these assets only after the remittance of the Passenger Service Fee Fund amount to MoCA (Para 2.2.10).
- 13.1.4 Authority proposes to consider costs incurred in relation to rehabilitation of Runway 10/28 to the extent of Rs. 17.50 Cr as part of the operating expenses for FY 2011 (Para 2.4.10).
- 13.1.5 Authority proposes not to consider forex losses as part of efficient O&M Costs for the First Control Period (Para 2.4.11).
- 13.1.6 Authority proposes to consider revenues from Fuel Throughput Charges earned in the First Control Period as part of aeronautical revenue (Para 2.6.15).
- 13.1.7 Authority proposes not to consider any adjustment in revenue from Revenue Share Assets towards revenue from Existing Assets, disallowed area, payment to AAI as part of 45.99% revenue share (Paras 2.6.16, 2.6.17 and 2.6.18).
- 13.1.8 Authority proposes to true up Rs. 641.68 Cr which shall be provided to the airport operator along with the proposed true up for the Second Control Period as part of the tariff determination for the Third Control Period.

13.2 True up for the Second Control Period

Based on the material before it and based on its analysis, Authority proposes the following;

- 13.2.1 Authority proposes to true up Aeronautical RAB considering the actual additions on a pro rata basis and as per the asset segregation ratios as suggested by the independent study (Para 3.2.14). The adjustment towards ATC Tower capitalization and Baggage Screening Related Assets shall also be carried out on a pro rata basis for FY 2019 with the balance carried forward to FY 2020.
- 13.2.2 Authority proposes to reclassify an amount of Rs. 23.58 Cr from Aeronautical assets to Non-Aeronautical assets in the Second Control Period, as part of additions to RAB for the Second Control Period based on the independent study (Para 3.2.15). The revised allocation ratio for FY 2019 has been considered as 89.16%:10.84%.

- 13.2.3 Authority proposes to consider the upfront fee of Rs. 150 Cr as part of equity base and true up WACC based on the cost of equity of 16%, cost of debt at actuals i.e. 9.28% and cost of RSD at the cost of debt i.e. 9.28% (Paras 3.3.10, 3.3.11, 3.3.12 and 3.3.14). The proposed recalculated WACC for the Second Control Period is 11.10% (Para 3.3.15).
- 13.2.4 Authority proposes to recalculate Airport Operator Fee for the Second Control Period as 3% of the aeronautical revenues for the previous year (Para 3.5.15).
- 13.2.5 Authority proposes to consider refinancing cost based on actuals as part of Admin and General Expenses with the segregation ratio based on aeronautical asset allocation utilized to calculate the efficient refinancing costs (Para 3.5.12).
- 13.2.6 Authority proposes to consider forex losses based on actuals to the extent the effective weighted average cost of debt doesn't exceed the cost of RTL considered at the time of tariff determination for the Second Control Period as per Order No 40/2015-16 which has been then segregated as per the aeronautical asset segregation ratio similar to refinancing charges (Para 3.5.13).
- 13.2.7 Authority proposes to reclassify IT JV expenses to the extent of Rs. 8.20 Cr classified as aeronautical by DIAL over a period from FY 2015 till FY 2017 as non-aeronautical as suggested by the independent study based on revised segregation ratio for IT JV assets.
- 13.2.8 Authority proposes to consider Efficient O&M Costs based on the adjustment as suggested by the independent study tasked with studying the O&M Cost segregation as submitted by DIAL (Para 3.5.9).
- 13.2.9 Authority proposes not to consider any adjustment in revenue from Revenue Share Assets towards revenue from existing assets, disallowed area, payment to AAI as part of 45.99% revenue share (Paras 3.7.13, 3.7.14 and 3.7.15) and also to consider Fuel Throughput Charges as part of aeronautical revenue (Para 3.7.11).
- 13.2.10 Authority proposes not to consider any adjustment with regards to BAC True up as submitted by DIAL on the Target Revenue assessed for the Second Control Period.
- 13.2.11 Authority proposes to true up Rs. 5,737 Cr which is proposed to be recovered from the airport operator in the Third Control Period subject to the applicability of Schedule 6 of the SSA with regards to Base Airport Charges.

13.3 Regulatory Asset Base and Depreciation for the Third Control Period

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.3.1 Authority proposes to consider the cost for Phase 3 A expansion as Rs. 9126.42 Cr against the cost submitted by DIAL and shall consider any further escalation if submitted with reasons deemed justifiable at the time of tariff determination for the Fourth Control Period.
- 13.3.2 Authority proposes to consider only IDC incurred by DIAL on account of financing capex during Third Control Period based on prudent means of finance for funding the capex (Para 4.2.16).
- 13.3.3 Authority proposes to consider the cost of debt for the Rupee Term Loan at 10.00% p.a. towards calculation of IDC while the cost of debt with regards to the Bond raised towards Phase 3 A Expansion is considered at 9.92% in line with the submissions made by DIAL (Para 4.2.17). The cost of the debt shall be true up subject to an upper cap of 50 bps.

- 13.3.4 Authority proposes to consider General Capex as submitted by DIAL excluding the cost related to the new administrative block amounting to Rs. 200 Cr in FY 2020.
- 13.3.5 Authority proposes to consider asset allocation ratio of 89.16% as aero for common assets and General Capex except for the capex associated with body scanner, aircraft recovery kit and cost associated with underpass which are considered as 100% aeronautical.
- 13.3.6 Authority proposes to consider depreciation rate tentatively for Expansion Capex as 4.51% against 5.90% as considered by DIAL which shall be trued up based on actual depreciation.
- 13.3.7 Authority proposes to true up the RAB and depreciation based on actuals subject to the reasonable justifications for any escalation in cost beyond the efficient cost as considered by AERA for Phase 3 A expansion project and disallowances considered under General Capex.
- 13.3.8 Authority proposes to levy a penalty of 1% on the Phase 3A Project Cost at the time of tariff determination for the Fourth Control Period if the proposed Phase 3 A Project has not been completed and made available for the passengers before March 31, 2023.

13.4 Weighted Average Cost of Capital for the Third Control Period

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.4.1 Authority proposes to consider cost of equity as 15.41% as per the outcome of the independent study commissioned (Table 86).
- 13.4.2 Authority proposes to consider cost of debt as 9.99% based on its assessment of the cost of Rupee Term Loan and the effective cost of the bonds already raised by DIAL, which shall be trued up subject to a ceiling of 50 bps (Table 87).
- 13.4.3 Authority proposes to consider a notional debt equity ratio of 48%:52% as suggested by the independent study.
- 13.4.4 Authority proposes to consider the Weighted Average Cost of Capital as 12.81% for the Third Control Period based on the above mentioned cost of equity and cost of debt and considering the notional gearing ratio of debt to equity ratio as suggested by the Independent Study.
- 13.4.5 Authority proposes to consider the treatment of RSD as part of the notional debt to arrive at WACC which shall be subject to the final outcome of the adjudication in higher courts.

13.5 Operating Expenses for the Third Control Period

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.5.1 Authority proposes to project manpower related expenses at a growth rate of 9.00% in the Third Control Period which shall be trued up based on actuals (Para 6.2.1).
- 13.5.2 Authority proposes to consider past five year CAGR for certain items under Admin and General expenses such as travelling and conveyance, communication, advertising, costs allocated towards corporate overheads, other admin and general expenses (Table 91) while the past five year average has been considered for items such as rents, Rates and Taxes, Professional and consultancy expenses and other stationery costs (Table 90). These expenses shall be trued up based on actuals.

- 13.5.3 Authority proposes to consider Bank Charges which have been adjusted against DIAL's submissions based on the debt proposed to fund the efficient Project Cost considered by the Authority against the debt considered by DIAL to fund its estimated Project Cost (Table 92).
- 13.5.4 Authority proposes not to consider CSR expenses for the Third Control Period (Para 6.2.2).
- 13.5.5 Authority proposes not to consider forex losses as the cost of debt considered includes hedge costs while forex losses incurred based on actuals shall be considered subject to assessment of cost efficiency at the time of true up while determining tariff for the Fourth Control Period (Para 6.2.2).
- 13.5.6 Authority proposes to consider utility expenses as submitted by DIAL for the Third Control Period (Para 6.2.3).
- 13.5.7 Authority proposes to consider past five year CAGR for various heads under operating expenses excluding R&M for Building, Other assets, Consumables and Insurance (Table 94). In the case of R&M for Building and Insurance, past five year average has been considered as a constant expense in the Third Control Period while in the case of R&M for Other Assets and Consumables, the same has been considered as per the submission of DIAL.
- 13.5.8 Authority proposes to consider Property Taxes and VRS payments as submitted by DIAL (Paras 6.2.6 and 6.2.7).
- 13.5.9 Authority proposes to consider 3% of the projected Aeronautical Revenue for the previous year as Airport Operator Fee (Para 6.2.5).
- 13.5.10 Authority proposes to consider cost segregation ratios based on the segregation carried out by the independent study for the Second Control Period.
- 13.5.11 Authority proposes to true up the operating expenses based on actuals at the time of tariff determination for the Fourth Control Period subject to the efficiency tests for certain items such as Bank Charges and Forex losses.

13.6 Revenue from Revenue Share Assets for the Third Control Period

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.6.1 Authority proposes to consider past five year CAGR for all the revenue sources under revenue from Revenue Share Assets except in the case of cargo related revenue, ground handling related revenue and revenue from Car Park and radio taxis and contract linked revenues such as revenue from IT JV, Banks and Telecom and revenue from Land Leases in which case the growth rate submitted by DIAL has been considered (Table 98).
- 13.6.2 Authority proposes not to exclude revenue from existing assets, disallowed area and also not to consider deduction towards the Annual Fee payable to AAI on the revenue from Revenue Share Assets.
- 13.6.3 Authority proposes to true up revenue from Revenue Share Assets based on actuals **including Other Income based on outcome of the consultation process regarding treatment of Other Income.**

13.7 **Traffic Projections for the Third Control Period**

Based on the material before it and its analysis, the Authority proposes the following;

- 13.7.1 Authority proposes to consider traffic as projected by DIAL for the Third Control Period in its MYTP which shall be trued up based on actuals.

13.8 **Taxation for the Third Control Period**

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.8.1 Authority proposes to determine aeronautical taxes for the Third Control Period by applying effective tax rate on the aeronautical PBT which is calculated by considering S factor also as part of the revenue base. **Authority invites stakeholder views on the same and the final decision on whether to consider S Factor as part of the aeronautical revenue base for aeronautical tax determination shall be decided post the stakeholder consultation process.** The aeronautical taxes for the purpose of tariff determination for the Third Control Period have been determined as nil which shall be trued up based on actuals.

13.9 **Inflation for the Third Control Period**

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.9.1 Authority proposes to consider the CPI headline inflation of 4.6% based on the RBI survey of professional forecasters on macroeconomic indicators – 61st round for the next five years of the Third Control Period.

13.10 **Quality of Service for the Third Control Period**

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.10.1 Authority proposes not to consider any adjustment in the aeronautical tariff during Third Control Period with regards to Quality of Service.

13.11 **Target Revenue for the Third Control Period**

Based on the material before it and based on its analysis, the Authority proposes the following;

- 13.11.1 Authority proposes to continue with the existing Base Airport Charges plus 10% for the airport operator since as per the terms of the Schedule 6 of the SSA, the airport operator shall be eligible to levy at the minimum Base Airport Charges plus 10% during the tenor of the OMDA.
- 13.11.2 Authority proposes to recover the over recovery pending to be trued up as on April 1, 2019 with carrying cost in the subsequent control periods through suitable adjustment in aeronautical tariff.
- 13.11.3 Authority proposes to consider compensatory tariff to compensate the airport operator towards disallowance of Fuel Throughput Charges by MoCA via letter F.No. AV-13030/216/2016-ER dated 8th Jan'2020.

14 STAKEHOLDERS' CONSULTATION TIMELINE

- 14.1.1 In accordance with the provision of Section 13(4) of the AERA Act, 2008, the proposals contained in this Consultation Paper read with the relevant discussion in the other sections of the paper is hereby put forth for Stakeholders' Consultation.
- 14.1.2 For removal of doubts, it is clarified that the contents of this Consultation Paper may not be construed as any Order or Direction by the Authority. The Authority shall pass an order, in the matter, only after considering the submissions of the stakeholders' in response hereto and by making such decisions fully documented and explained in terms of the provisions of the Act.
- 14.1.3 The Authority welcomes written evidence based feedback, comments and suggestions from Stakeholders on the proposals made in this Consultation Paper, latest by 08.07.2020 at the following address.

Director,
Policy & Statistics
Airports Economic Regulatory Authority of India
AERA Building, Administrative Complex
Safdarjung Airport, New Delhi - 110003
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(Chairperson)

15 LIST OF ANNEXURES

15.1 Annexure 1 – Summary of Independent Study on Allocation of Assets between Aeronautical and Non-Aeronautical Assets

15.1.1 Background

Regulatory Asset Base (RAB) is an integral element of tariff determination having considerable impact on other building blocks like rate of return, operating expenses, depreciation, etc. To determine RAB each year, the allocation of capital investments into Aeronautical and Non-Aeronautical assets is extremely relevant and often subject to extensive stakeholder discussions.

The Authority had commissioned an independent study concerning Allocation of Assets between Aeronautical and Non-Aeronautical assets for the Second Control Period.

15.1.2 Classification of Assets

The Independent study, based on their analysis, classified the aggregate assets of DIAL under the following categories:

- **Aeronautical:** All assets which are exclusively utilised for activities covered under Schedule 5 of the OMDA are tagged as “Aeronautical” Assets. Examples - Runways, drainage and culverts, taxiways, aprons and bays, airfield ground lighting, etc. Additionally, any service bought under the scope of Aeronautical services by TDSAT order dated 23rd April 2018 is also classified under Aeronautical Assets. Example – CUTE Counter Charges.
- **Non-Aeronautical:** All assets which are exclusively required or necessary for the performance of Non-Aeronautical services at DIAL as listed in Schedule 6 of the OMDA are tagged as “Non- Aeronautical”. Examples - Development of the retail stores, cargo assets, Metro Station Development.
- **In-Admissible Assets:** Upfront fee paid to Airport Authority of India (AAI) (of Rs. 150 Cr) has been tagged as an In-Admissible asset and does not qualify for consideration in the RAB as per the definition of RAB in the State Support Agreement of DIAL.
- **Common Assets:** Assets which are not directly allocable to either Aeronautical or Non-Aeronautical are classified as Common assets. During the course of the study, based on the nature of assets, its location, usage and criteria defined under relevant documents, the consultant has determined the basis for appropriately apportioning the common assets in to “Aeronautical” and “Non-Aeronautical”, in a fair proportion.

15.1.3 Principle for Segregation of Assets

The independent study reviewed the various asset categories and developed a basis for classification of the assets into Aeronautical and Non-Aeronautical activities. The study also determined the appropriate proportion of the Common Assets that may be included as part of Aeronautical activity in order to determine Aeronautical asset base. The principles of segregation used by the independent study are, broadly, as follows;

Aeronautical Assets

- All assets that are exclusively utilised for Aeronautical activities under Schedule 5 of OMDA are treated as Aeronautical assets.

- *Capital Expenditure incurred to improve the look and feel of the Airport except areas identified as Non-Aeronautical, which helps maintain the ASQ rating mandated by the OMDA are classified as Aeronautical assets.*
- *Capital Expenditure on Reserved Activities (as defined in OMDA) like Customs, Immigration, security, health meteorology, plant and animal quarantine and CNS/ATM services are classified as Aeronautical assets.*
- *Assets related to the services bought under the scope of Aeronautical Services through the decision of the Telecom Dispute Settlement and Appellate Tribunal (TDSAT) dated 23rd April 2018.*

Non-Aeronautical Assets

- *All assets that are exclusively utilised for Non-Aeronautical activities covered under Schedule 6 of OMDA are treated as Non-Aeronautical assets. Examples are Cargo, Ground Handling and Retail Spaces.*
- *Common Use Terminal Equipment (CUTE) and Common Use Self Service (CUSS) software are classified as Non-Aeronautical Assets in accordance with the DGCA Order number 7/2007 and OMDA.*

Common Assets

- *Assets for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical are classified as Common Assets.*
- *Assets primarily used for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are classified as Common Assets. Examples are Civil and Electrical Works for terminal building.*
- *Assets which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Assets. Examples are Transit house and Corporate Headquarter expenditures.*
- *Common Assets which are situated within the terminal buildings are apportioned to Aeronautical activity in the ratio of the space allocated for Aeronautical and Non-Aeronautical services.*
- *Common assets which are situated outside the terminal buildings are apportioned to Aeronautical activity based on an appropriate cost driver. However, in the absence of any information regarding the location of the asset or a specific cost driver, a reasonable ratio is determined based on discussions with management and consultant's review of the Fixed Asset Register (FAR) and other records of the Airport.*

15.1.4 Details of Adjustments to RAB

Based on the principles of segregation adopted, as can be seen in the above paragraphs, assets added by DIAL in the Second Control Period have been re-segregated towards aeronautical assets and non-aeronautical assets. The details of adjustments by the independent study can be seen below;

Segregation of EPOS system integration to CCTV

DIAL has considered the assets pertaining to EPOS system integration to CCTV as 100% aeronautical. The independent study analysed DIAL's submissions and has made the following observation;

“Software for monitoring retail sales integrated to CCTV Camera with objective of plugging revenue leakage from retail stores are related to Non-Aeronautical activities. Hence the same is reclassified from 100% Aeronautical to 100% Non-Aeronautical Asset”

The re-segregation from 100% Aero to 100% Non-Aero reduces the RAB to the extent of Rs. 5.98 Cr in the Second Control Period.

New Udaan Bhavan

The support functions for the management of the entire airport operations are looked after from the administrative office at New Udaan Bhavan (NUB) near Terminal 3 of IGIA. DIAL has allocated the assets related to NUB based on the weighted average floor space of all the three terminals of the airport i.e. 84.10%. The independent study analysed DIAL’s submissions and has made the following observation;

“The NUB premises are commonly utilized for the operations of the GMR group, this allocation is re-visited to exclude the total space and the costs related to such spaces rented out to the group entities. The balance costs are segregated on the weighted average terminal space.”

The re-segregation of the assets pertaining to NUB after excluding the floor space rented out reduces RAB to the extent of Rs. 3.59 Cr in the Second Control Period.

Senior Management Development Operation

DIAL has considered the expenses incurred on the development of the office of the Business Chairperson and Group Chairperson as Common Expenses with aeronautical allocation done on the basis of weighted average terminal space of 84.10%. The independent study analysed DIAL’s submissions and has made the following observation;

“Although the Senior Management is housed at New Udaan Bhawan (NUB), they are entrusted with responsibilities at the Group level.”

Thus, the Consultant has reallocated the expenses on an assumption of 50:50 proportion as it is not feasible to determine the proportion of man hours spent by Senior Management for Group companies. The total impact of segregation from 84% Aero to 50% Aero reduces RAB to the extent of Rs. 3.61 Cr during Second Control Period.

Common Transit Houses

DIAL has taken 10 transit houses on lease and they have been considered as common assets segregated on the basis of weighted average terminal space of 84.10%. The independent study analysed DIAL’s submissions and has made the following observation;

“Since the purpose of visit of the transiting personnel could not be gauged, an assumption of 50:50 aeronautical and non-aeronautical services was done, and the expenses were segregated based on the above assumption/ logic.”

The total impact of re-segregation from 84.10% Aero to 50% reduces RAB to the extent of Rs. 7.95 Cr during Second Control Period.

Re-Segregation of Aeronautical Assets to Common Assets

DIAL has considered a few assets pertaining to Terminal 2 as 100% aeronautical. The independent study analysed DIAL’s submissions and has made the following observation;

“Expenditure incurred for the refurbishment and expansion of the Terminal Building includes development of Retail spaces. Hence these development costs are classified from 100% Aeronautical to Common assets.”

The total impact of re-segregation from 100% Aero to 84.20% Aero based on floor space proportion of Terminal 2 reduces RAB to the extent of Rs. 2.76 Cr during Second Control Period.

Common Assets reclassified to Aeronautical Assets

DIAL has considered assets such as perimeter intrusion systems, the tetra mobile radio systems, sign boards and CISF assets as Common Assets segregated on the basis of weighted average floor space of the terminal. The independent study analysed DIAL’s submissions and has made the following observation;

“As the above assets are classified as “Aeronautical” under Schedule 5 of the OMDA, the same are re-classified to 100% Aeronautical.”

Thus, the total impact of re-segregation from Common Assets to Aeronautical Assets results in increase of the RAB to an extent of Rs. 0.31 Cr during Second Control Period.

15.1.5 Adjustments to RAB during Second Control Period

Considering the above adjustments, the summary of adjustments to aggregate assets of DIAL during the Second Control Period can be seen in the table below;

Fixed Asset Adjustment (Rs. Cr)	FY 15-18	FY19	Total
(1) Total Investment in Fixed Assets during Second Control Period	397.61	686.21	1,083.82
(2) Investments in RAB during Second Control Period			
(i) Aeronautical Assets, <i>included in (1) above</i>	220.48	629.02	849.50
(ii) Adjustments to (2)(i) above for settlement/sale/deletion	(0.65)	0	(0.65)
(iii) Common Assets, <i>to the extent apportioned as Aeronautical Assets</i>	106.26	23.03	129.29
(iv) Adjustment for Air Traffic Control Tower funded from DF, <i>included in (2)(i) above*</i>	-	(350.00)	(350.00)
Total Investment in RAB during Second Control Period	326.09	302.05	628.14
(3) Proposed adjustments to RAB due to change in segregation logic, for reasons below:			
(i) Reworking based on the Hand Over – Take Over (HOTO) certificates	-	-	-
(ii) Segregation of the EPOS system integration to CCTV	(5.98)	-	(5.98)
(iii) New Udaan Bhavan Improvement	(3.27)	(0.32)	(3.59)
(iv) Senior Management Office Improvements	(3.26)	(0.35)	(3.61)
(v) Transit House Improvements	(4.80)	(3.15)	(7.95)
(vi) Segregation from Common to Aero	0.31	-	0.31
(vii) Segregation from Aero to Common	-	(2.76)	(2.76)
Total proposed adjustments to RAB	(17.00)	(6.58)	(23.58)
(4) Adjusted Investment in RAB during Second Control Period (4) = (2) + (3)	309.09	295.47	604.56
(5) Adjustments to the Opening RAB as on the 1st April 2014 for settlement/sale/deletion by DIAL.#	(55.29)	(2.77)	(58.06)
(6) Adjusted Investment in RAB during Second Control Period net of	253.80	292.70	546.50

Fixed Asset Adjustment (Rs. Cr)	FY 15-18	FY19	Total
adjustments made to the opening RAB in the Second Control period (6) = (4) + (5)			

* The total Investment in Gross Fixed Assets amounts to ₹ 733.82 crores. The number is arrived after deducting the Development Fee (DF) funding in ATC Tower for ₹ 350 crores from the total Investment in Gross Fixed Assets during Second Control Period (as per FAR of DIAL) of ₹ 1083.82 crores.

The total adjustments on account of Sales/Deletions/Settlement with contractors sums to ₹ 58.71 crores. Out of the total value of such sales/deletions/settlement, ₹ 0.65 crores (Refer item 2(ii) of above table) pertain to assets of Second Control Period and the remaining ₹ 58.06 crores (Refer item 5 of above table) pertained to assets related to the First Control Period and were adjusted to the Gross Fixed Assets of the Second Control period. The adjustment of Rs 58.71 Cr gets covered under Depreciation (E) and Deletion (D) while arriving at the RAB for the Second Control Period.

As can be seen from the above table, the total adjustments on Aeronautical assets during Second Control Period as per the independent study commissioned by the Authority is Rs. 23.58 Cr, which have been reclassified from aeronautical assets to non-aeronautical assets.

15.2 **Annexure 2 – Summary of Independent Study on Allocation of Assets for IT JV**

15.2.1 **Background**

DIAL, in order to fulfill OMDA requirements, issued a RFP dated June 19, 2009 to interested parties inviting tenders to undertake the concession of IT system work at Terminal 3. The selected tender required the incorporation of a special purpose company, as concessionaire for the purpose of performance, execution and implementation of the concession.

After evaluation of the tenders by DIAL, the concession agreement was awarded to Wipro Limited. Consequently, Wipro Airport IT Services Limited (WAISL) was formed to act as the concessionaire.

The Authority had commissioned an independent study concerning allocation of costs for the IT JV for the Second Control Period including the assessment of efficiency of the JV structure

15.2.2 **Scope and Service Monitoring Parameters of DIAL**

The five categories of services provided by WAISL are;

- Data Centre services
- Application services
- Network services
- End User services
- Common services

The details of the services provided by WAISL can be seen in the table below;

Data Centre services	Server availability, SAN/NAS availability, Data Backup, Storage and Retrieval, Applications Performance, System Recovery and Availability
Application services	Application Module Availability and Application Quality Enhancement
Network services	Ensure Network Availability and in time resolution of network related complaints
End User services	IT helpdesk service for user and resolution of IT related queries within stipulated time.
Common services	Timely Configuration Updates, Change management, asset management, Virus Signature File Updates, Information Security Risk Event Notification and Mitigation, Firewall Security, Reporting Timeliness and Accuracy, Billing Timeliness and Accuracy and Customer Satisfaction.

15.2.3 **Funding Structure of WAISL**

As per terms of the Master Service Agreement, in case the receivables of WAISL exceed the subsistence level in the previous financial year, the concessionaire has to pay DIAL a concession fee equivalent to the excess of receivables over subsistence level.

Subsistence Level for the concessionaire shall be determined as the aggregate of the following elements:

- The total cost of Concessionaire IT Systems payable under the Master Service Agreement along with the additional cost incurred from time to time upon the occurrence of the Asset Refresh Event for renewal and replacement of the IT Systems.
- Charge for the performance, execution and implementation of the Services as detailed in the scope of WAISL under the Master Service Agreement.

The concession fee or premium is calculated as below:

- As per terms of the Master Service Agreement, in case the receivables of WAISL exceed the Subsistence Level in the previous financial year, the Concessionaire shall pay to DIAL, a concession fee equivalent to any such excess of the receivables over the subsistence level.
- In case the receivables of WAISL are less than the Subsistence Level of WAISL, DIAL shall pay a premium equivalent to such difference to the Concessionaire.
- The revenue streams identified by DIAL and the concessionaire are as follows: Communication & Tetra Mobile Radio Systems (TMRS), Wi-fi, Telephony, Network, Mobile Phone Antenna Systems (MPAS), Electronic Point of Sale (EPOS), Co-location, Common Use Passenger Processing Systems (CUPPS) and Customer Self Service (CUSS).

The premium/concession fee computation can be seen in the table below;

Particulars (Rs. Cr)	FY 15	FY 16	FY17	FY18
Subsistence Level (A)	168.73	158.64	172.97	143.47
End-User Revenue (B)	111.76	136.53	168.23	189.31
Difference (A-B)	56.97	22.11	4.74	(45.84)
Universal Flight Information System (UFIS)/ISP Adjustment	(3.71)	(4.00)	(2.05)	-
(Concession Fee)/ Premium Payable	53.26	18.11	2.69	(45.84)

15.2.4 Principle for Segregation of Premium and IT Concession Fee

The concession fee (Receivables > Subsistence Level) received by DIAL is entirely segregated as Non-Aeronautical revenue since the total revenue earned by WAISL are from CUTE and CUSS services. The total IT cost is subsidized through the total IT revenue with the excess revenue over cost being passed on to passengers in the form of 30% subsidization of non-aeronautical revenue from IT.

These services are classified non-aeronautical as per OMDA and aeronautical as per AERA act. But considering the following, the classification of CUTE and CUSS services as per OMDA would prevail:

- The OMDA has been in force between DIAL and AAI since 2006, prior to the enactment of the AERA Act in 2008
- There has been no explicit amendment to the OMDA in order to synchronize its clauses of agreement with the AERA Act, 2008
- While AERA Act, 2008 is a statutory pronouncement that provides general principles guiding the segregation of certain assets and their derivative income as aeronautical and non-aeronautical, OMDA specifically governs the terms of engagement of its constituent parties

The premium payable (Receivables < Subsistence Level) by DIAL is treated as Common Expense. The costs incurred by WAISL are for the upkeep and maintenance of the entire IT infrastructure at the Airport which includes both Aeronautical Assets and Non-Aeronautical assets. The IT cost is subsidized through the total IT revenue with the excess cost over revenue added to tariff computation cost of passengers and airlines.

All the major assets held by WAISL were categorized to analyze the purpose and segregate the assets into Aero, Non-Aero, Common based on its purpose;

- Such assets which directly supported in rendering services listed under Schedule 5 of the OMDA were classified as Aeronautical.
- Such assets which supported services listed under Schedule 6 of the OMDA were classified as Non-Aeronautical.
- Such assets neither directly allocable to aero nor non-aero services and had common usage for supporting the overall functioning of the airport like administrative laptops, networks, etc. were classified as "Common" and segregated into aero and non-aero basis the floor space determined in the Jacob's report 2011.

The broad category of IT assets with reference to the purpose and segregation into aero and non-aero is as per the below table;

Aeronautical	Non-Aeronautical	Common
Flight Information Display System	CUPPS	Computer
TMRS	MPAS	Software License
Public Address Voice Alarm system	EPOS	Server
Airport Operation Control Centre	Telephony	Networking
CCTV		IBMS
MATV		Administrative

The gap funding of Rs. 73.89 Cr paid during Second Control Period was segregated based on the terminal space considered under Jacobs Report by DIAL. The independent study has analyzed DIAL's submissions and proposed the following solution;

"We had reviewed the Asset base of WAISL (from FY 2011 till FY 2019) and segregated them in to Aeronautical and Non- Aeronautical assets. A segregation ratio of Aeronautical and Non-Aero assets (78% and 22%) was arrived at and the same was used for segregating the Gap Funding expenses incurred by DIAL".

15.2.5 Implication of IT JV Funding Structure for DIAL Tariff Computation

To determine the impact of IT related capital expenditure and operating costs and non-aeronautical revenue from airport IT infrastructure for fixing tariffs, the following assumptions were made to analyse two distinct scenarios, one where IT operations generate a surplus and another where they result in a deficit;

	Particulars (Rs. Cr)	Scenario 1	Scenario 2
A	Total Cost of Operation and Maintenance of IT Infrastructure	350	500
B	Total Aeronautical Cost (78% of (A), segregated based on the proportion of IT Assets), approx.	275	390
C	Total Non-Aeronautical Cost (22% of (A), segregated based on the proportion of IT Assets)	75	110
D	Total Revenue Collection from the Operation of IT Infrastructure	500	350
E	Total Aeronautical Revenue (20% of (D), segregated based on the components of Revenue)	100	70
F	Total Non-Aeronautical Revenue (80% of (D), segregated based on the components of Revenue – Since 80% of the total revenue is from CUTE and CUSS, 80% of the total is considered Non-Aero	400	280
G	Net Non-Aeronautical Revenue for DIAL/ (Aeronautical Deficit to be funded by DIAL) from WAISL (D)-(A)	150	(150)

The Master Service Agreement provides for the surplus to accrue entirely to, or the deficit to be funded entirely by DIAL only.

Scenario 1 - Concession Fee payable to DIAL – Receivables are higher than subsistence level of WAISL:

Particulars (Rs. Cr)	Current Structure - With JV (A)	Alternate Structure – If there was no IT JV (B)
Total IT Aeronautical Operating Cost in DIAL's books	NA	300
Total IT Non-Aeronautical revenue from IT services in the books of DIAL	NA	400
Net Revenue contributing to lower Tariff as per formula	150*30% = 45	NA
Net Cost contributing to incremental Tariff as per formula	NA	275- 30% of 400= 155

Scenario 2 - Premium payable by DIAL – Receivables are lesser than the subsistence level of WAISL:

Particulars (Rs. Cr)	Current Structure - With JV (A)	Alternate Structure – If there was no IT JV (B)
Total IT Aeronautical Operating Cost in DIAL's books	NA	390
Total IT Non-Aeronautical revenue in DIAL's books	NA	280
Net Revenue for Tariff Computation/ (Net Cost for Tariff Computation)	NA	NA
Net Cost contributing to incremental Tariff as per formula	500-350 = 150	390- 30% of 280= 306

From the above table, it can be clearly seen that in the current structure with JV, only the excess costs over the revenue are passed on to the passengers and airlines. The costs passed on to the passengers are lower than costs applied for tariff determination in the alternate structure without JV.

15.2.6 Segregation of Premium/Concession Fee of DIAL

Based on the above adjustments to cost allocation, the independent study has proposed reclassification of Rs. 8.20 Cr worth aeronautical expense to non-aeronautical expense during Second Control Period as can be seen in the table below;

Particulars (Rs. Cr)	FY15	FY16	FY17	FY18	FY19	Total
IT JV Payment	53.00	18.14	2.75	-	-	73.89
% Split by DIAL	89.27%	89.20%	89.08%	89.04%	89.04%	
Aeronautical IT Expenses	47.31	16.18	2.45	-	-	65.94
Revised % on assets	78.15%	78.15%	78.15%	78.15%	78.15%	
Revised Aero IT Expenses	41.42	14.18	2.15	-	-	57.74
Differential to Non-Aero	5.89	2.00	0.30	-	-	8.20

The adjustment in Aeronautical expenses of the IT JV would be considered as part of Efficient Operation and Maintenance costs for the Second Control Period.

15.3 **Annexure 3 –Summary of Independent Study on Efficient Operation and Maintenance**

Costs

15.3.1 **Background**

Establishing efficient operation and maintenance costs and their reasonableness is pivotal to the effective execution of tariff determination for aeronautical services. This expenditure has consistently been increasing, driven by investments in expanding, modernizing and improving the efficiency and excellence of the airport.

Assessment of Operation and Maintenance cost requires AERA to examine the financial information submitted by the airport operator, and also independently examine the baseline operating cost levels, cost reduction, efficiency initiatives and benchmarking exercises undertaken by the airport operator etc.

The Authority had commissioned an independent study to determine Efficient Operations & Maintenance costs for the Second Control Period as per the decision it had taken in the Tariff Order for Second Control Period.

15.3.2 **Classification of Operation and Maintenance Expenses**

The Independent study, based on their analysis, classified the Operation and Maintenance expenses under the following categories;

- **Terminal Operating Expenses** such as Utilities, Consumables, Housekeeping, Insurance, Repairs and Maintenance, Security and Landside expenses, IT JV expenses (Gap Funding) etc.
- **Administration and General Expenses** such as Advertising and Sales Promotion, Charities and Donations, Consultancy, Office Maintenance, Rent, Traveling and Conveyance, Chartering expense, allocation of Corporate costs etc.
- **Manpower expenses**

15.3.3 **Principle for Segregation of Costs**

The principle for segregation of costs used by the independent study can be seen below;

Aeronautical Costs

- *Expense incurred for operation and maintenance of aeronautical assets.*
- *All costs incurred for Aeronautical activities under Schedule 5 of OMDA are segregated as Aeronautical Costs.*

Non-Aeronautical Costs

- *Expense incurred for operation and maintenance of non-aeronautical assets.*
- *Costs incurred for Non-Aeronautical activities covered under Schedule 6 of OMDA are treated as Non-Aeronautical expenses. Examples are Cargo, Ground Handling and Retail Spaces.*

Common Costs

- *Costs for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical are segregated as Common Costs.*
- *Costs primarily incurred for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are segregated as Common Costs. Examples are costs for Civil and Electrical Maintenance for Terminal Building.*
- *Costs which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Costs. Examples are Transit House and Corporate Headquarters.*
- *Common costs are apportioned to Aeronautical activity based on an appropriate cost driver. However, in the absence of any specific information regarding the purpose of incurring the cost, a reasonable ratio is determined based on discussions with management and our review of other records of the Airport.”*

15.3.4 Details of Adjustments to O&M Expenses

The independent study on the basis of the expense classification and principles of segregation adopted, as can be seen in the above paragraphs, has considered re-segregation of Operation and Maintenance expenses to determine efficient O&M costs. The independent study has proposed the following adjustments;

IT Systems Maintenance Costs for Terminals 1 and 2

DIAL has considered the IT systems maintenance cost for Terminal 1 and Terminal 2 as 100% aeronautical in their submissions. The independent study has considered DIAL’s submissions and proposed adjustments to IT systems maintenance costs, which can be seen below;

“These are common facilities used for both Aeronautical and Non-Aeronautical services. Hence, the total IT expense of ₹ 8.22 Crores are segregated to “Common” and segregated in the proportion of the Adjusted Gross Fixed Assets ratio of 89:11.”

The total impact of segregation from 100% Aero to 88.92% reduces aeronautical expense to the extent of ₹ 2.26 Cr.

Landscaping Costs

DIAL has considered the Landscaping Costs as 100% aeronautical in their submissions. The independent study has considered DIAL’s submissions and has proposed adjustments to Landscaping costs, which can be seen below:

“It includes costs for entire Terminal, approach roads to Terminals and the admin office serving both Aero and Non-Aero facilities. Hence this expense is segregated as “Common” and segregated in the proportion of the weighted average terminal space.”

The total impact of segregation from 100% Aero to 84.10% reduces aeronautical expense to the extent of ₹ 4.42 Cr.

Quality Management Costs

DIAL has considered the Quality Management Costs as 100% aeronautical in their submissions. The independent study has considered DIAL’s submissions and has proposed adjustments to Quality Management costs, which can be seen below:

“Quality Management team, work towards the overall improvement of Airport operations and aren’t specific to Aeronautical Operations. Hence the costs are segregated to “Common” and segregated in proportion of Adjusted Gross Fixed Asset Ratio of 88.91%.”

The total impact of segregation from 100% Aero to 88.92% reduces aeronautical expense to the extent of ₹ 1.60 Cr.

Segregation of Common Costs within the Terminal

DIAL, in their submissions, have considered segregation of common costs within the terminal into aero and non-aero in the proportion of floor area measurement of aeronautical and non-aeronautical space i.e. 82%:18%. The independent study has considered DIAL’s submissions and has proposed adjustments to segregation of common costs within the terminal, which can be seen below:

“The total floor area measurements for the terminals were drawn from M/s Jacob’s Consultancy report dated 14th June 2011 detailing the area measurements for each component into Aeronautical / Non-Aeronautical. However, Order number 28 of AERA dated 14th November 2011 directed the elimination of 8652 sqm from the gross area calculation and the total let-out area to the concessionaires at Terminal 3 which were not considered in the 14th June 2011 report.

Considering the impact of the adjustment of 8652 sqm in line with the order number 28 of AERA, the proportion of aeronautical floor space was revised from 82% to 84%.”

The total impact of segregation from 82% Aero to 84% increases aeronautical expense to the extent of ₹ 8.11 Cr.

Segregation of Common Costs outside the Terminal

DIAL have considered the costs related to the offices of Senior Management, allocated costs from group companies and costs related to support functions like IT, finance, etc. in the proportion of Gross Fixed Asset Base i.e. 89.27%:10.73%. The independent study has considered DIAL’s submissions and has observed;

“However, owing to the revision in the segregation logics under RFP 03/2018-19 for assets related the New Udaan Bhavan, the office development of the Business and Group Chairperson and the common guest houses, the aeronautical proportion of the assets was reduced from 89% to 88.91%. (Refer Annexure 1 of Pre-Final report on segregation of assets for workings on Adjusted Gross Fixed Assets ratio).”

Thus, the independent study has proposed adjustments to the Gross Fixed Asset Ratio i.e. 88.92:11.08, thereby reducing aeronautical expense for support functions and senior management costs to the extent of ₹ 2.05 Cr.

Chartering Costs

DIAL has considered chartering costs used by Business and Group Chairperson of DIAL in the proportion of Gross Fixed Asset Base i.e. 89%:11%. The independent study has considered DIAL’s submissions and has observed;

“Since the purpose of these chartering services cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the chartering services are used by the senior management in a 50:50 proportion for Aeronautical and Non-Aeronautical services.”

Thus, the independent study has proposed adjustments to reduce the proportion of aeronautical expense from Gross Fixed Asset Ratio (89%) to 50%, thereby reducing aeronautical portion of Chartering Costs to the extent of ₹ 10.61 Cr.

Transit House

DIAL has considered expenses incurred for transit houses, taken on lease and used by corporate members of the company in the proportion of Gross Fixed Asset Base i.e. 89%:11%. DIAL has incurred ₹ 45 Cr for Second Control Period on rental and maintenance of the transit house. The independent study has considered DIAL's submissions and has observed;

“Since the purpose of use of these guest houses cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the guest house is used in a 50:50 proportion for Aeronautical and Non-Aeronautical services.”

Thus, the independent study has proposed adjustments to reduce the proportion of aeronautical expense from Gross Fixed Asset Ratio (89%) to 50%, thereby reducing aeronautical portion of expense related to Transit House by ₹ 17.91 Cr.

Charities and Donations

DIAL, in its submissions, has considered the segregation of costs incurred on account of Charities and Donations in the proportion of the Gross Fixed Asset Ratio i.e. 89%:11%. The independent study has considered the submissions by DIAL and has made the following observation;

“As these expenses are not related to passenger or airline services, these costs are segregated as 100% Non-Aeronautical.”

Thus, the independent study has proposed to re-segregate the costs incurred due to Charities and Donations as 100% non-aeronautical, thereby reducing the aeronautical portion of Charities and Donations by ₹ 7.27 Cr.

Legal Costs

DIAL, in its submissions, has considered the segregation of Legal expenses at the Gross Fixed Asset Ratio i.e. 89%:11%. The independent study has analysed the submissions by DIAL and has made the following observation;

“Review of legal cases for Second Control Period up to FY 17-18 (costing Rs. 44 crores), showed that 19% of the total legal cases were Non-Aeronautical in nature, while the remaining were either Aeronautical or Common in nature. Considering the above fact, the segregation of costs was revised from 89% proportion of Gross Fixed Asset to 74.84% proportion of Aeronautical cases to Total Cases.”

Thus, the independent study has proposed to reduce the aeronautical proportion from 89% to 74.84% which would reduce the aeronautical portion of legal costs by ₹ 7.71 Cr.

Common HR/Manpower Costs

DIAL has segregated the Common HR and Manpower Costs based on the manpower count per department. The independent study has analysed the submissions by DIAL and has made the following observation;

“However, since the segregation is based on the manpower count per department aren’t representative to the proportion of the associated cost of the department, the segregation logic has been revisited to ensure more accuracy.

The segregation was revised from a proportion of 89.79% to 88.91% in the proportion of Aeronautical Gross Fixed Asset to the Total Gross Fixed Assets.”

Thus, the independent study has reduced the Aeronautical expenses to the extent of **Rs. 5.97 Cr** for Manpower Costs and **₹ 2.52 Cr** for Common HR Costs.

Property Tax

DIAL, in its submissions, has considered the segregation of Property Tax on the proportion of asset base. The independent study has analysed the submissions by DIAL and has made the following observation;

“However due to the changes in the segregation logics for the assets held outside the Terminal, the proportion of Aeronautical assets to the total assets changed resulting in an adjustment to the Aeronautical costs pertaining to property tax.”

Thus, the independent study has reduced the Aeronautical portion of Property Tax to the extent of **Rs. 1.10 Cr** for the Second Control Period.

Payment to AAI for VRS

As per clause 6.1.1 of OMDA, the operation support period of 3 years has expired on 02.05.2009. AAI permitted DIAL to pay the retirement compensation in respect of employees who have not opted for absorption in terms of OMDA spread over a period of ten years from 1 May 2009. Accordingly, AAI had raised two invoices towards the total retirement compensation of ₹ 288.83 Cr. DIAL has segregated the expense in the ratio of 89.79:10.21 over the Second Control Period, on the basis of manpower count. The independent study has analysed the submissions by DIAL and has made the following observation;

“Since the segregation on the basis of the manpower count per department aren’t representative to the proportion of the associated cost of the department (Example: the headcount in operations may be higher to the head count of the Senior management office but the costs of the latter would be higher), the segregation logic has been revisited to ensure more accuracy in the segregation of the costs into Aeronautical and Non-Aeronautical.”

Thus, the independent study has revised the segregation to Gross Fixed Asset Ratio i.e. 88.92%:11.08% thereby reducing the aeronautical portion of Payment to AAI for VRS to the extent of **₹ 0.72 Cr**.

Finance Charges

DIAL, in its submissions, has considered the segregation of Finance Charges on the basis of Gross Fixed Asset Ratio. The independent study has analysed the submissions by DIAL and has made the following observation;

“However due to the changes in the segregation logics for the assets held outside the Terminal, the proportion of Aeronautical assets to the total assets changed resulting in an adjustment to the Aeronautical costs pertaining to these finance costs.”

Thus, the independent study has revised the aeronautical portion of Finance Costs, reducing them to an extent of **Rs. 0.57 Cr** for Second Control Period.

15.3.5 Efficient O&M Costs of Second Control Period

Based on the above adjustments, the independent study has proposed the revised O&M costs considered as efficient for Second Control Period as can be seen in the table below;

FY ending March 31 (Rs. Cr)	2015	2016	2017	2018	2019	Total
Manpower cost (salaries, wages and manpower)	117.48	111.45	116.11	146.26	166.53	657.83
Operating expense	248.15	250.77	261.42	313.76	332.68	1,406.78
Administrative expense (Admin and General expense)	135.14	128.45	153.38	193.22	200.65	810.84
Property tax (including additional property tax)	20.09	5.18	28.36	6.35	6.93	66.91
Utility cost	112.31	121.66	106.54	113.20	103.35	557.06
Payment to AAI for VRS	16.65	16.24	15.66	15.18	14.70	78.43
Airport Operator fee	80.15	84.56	97.97	113.33	51.16	427.17
Finance Charges	118.13	14.75	80.90	10.40	10.16	234.34
Total	848.10	733.06	860.33	911.70	886.16	4,239.36

The Efficient Operation and Maintenance costs computed in the above table also include the adjustments made to aeronautical expenses worth Rs. 8.20 Cr pertaining to IT JV.

15.4 **Annexure 4 – Summary of Independent Study on analysis of Capital Expenditure on Expansion of IGIA**

15.4.1 **Background**

Indira Gandhi International Airport (IGIA), situated in Delhi is the primary civil aviation hub for India and the National Capital Region. It is the busiest airport in India in terms of passenger traffic and second busiest in terms of cargo traffic. As of FY 2018, the airport has the capacity to handle passenger traffic of 62 MPPA and cargo traffic of 1.5 MTPA.

Expecting a higher growth rate for passenger traffic and cargo traffic, DIAL has proposed to expand the existing Terminal and airside facilities along with associated facilities to enhance the passenger handling capacity of IGIA from 62 MPPA to 109 MPPA and cargo handling capacity from 1.5 MTPA to 2.2 MTPA. The proposed expansion plan would be carried out in three phases namely Phase 3A, Phase 3B and Phase 4.

The Authority has commissioned an independent study concerning capital expenditure proposed by DIAL for Phase 3 A expansion of IGIA.

15.4.2 **Scope of Engagement**

The proposal for analysis of capital expenditure on IGIA comprises of the following packages;

- i. Expansion of Terminal 1 and Apron
- ii. Airfield works including 4th Runway
- iii. Landside/ Connectivity Works
- iv. Eastern Parallel Cross Taxiways
- v. Modifications to Terminal 3 and associated facilities

The scope of services to be carried out in the independent study includes;

- To examine the proposal of the airport and assess the need for the proposed project and its capacity / scope with reference to Passenger growth/Cargo volumes/Air Traffic movement and also to suggest cost effective alternatives.
- To examine the building standards and designs proposed by the airport operator in line with IMG norms/IATA/ICAO norms.
- To analyse the reasonableness of the proposed cost with reference to the tentative ceiling decided by Authority vide order no 7 dated 13/06/2016 based on the details of the rates and quantity as per government / industry approved norms and advise the Authority on the justification of the costs.
- To review designs and specifications proposed in case the costs are assessed to be excessive where the Projects are already in progress or the contracts are already awarded. Further to examine whether proper procedures have been followed in the award of work.
- To assist AERA in case any litigation arises in future in connection with the reasonableness of the cost estimates.
- To review and justify the reasonableness of time schedule of completion of work of proposed by DIAL
- To perform any other duties as may be deemed necessary and specified in the award letter.
- To assist AERA in Stakeholder Consultation process.

15.4.3 Need for Phase 3 A Expansion

The independent study analyzed the submissions made by DIAL regarding Phase 3 A expansion and examined the need for the proposed Project and its capacity including assessment of cost effective alternatives, whether the building standards and designs are in line with IMG/IATA norms and the reasonableness of the proposed cost with reference to the tentative ceiling as decided by the Authority.

The independent study has the following observations with regards to the necessity of Phase 3 A Expansion Project;

Particulars	Summary
Need for Package 1 – Expansion of Terminal 1	<p>The proposed Terminal 1 after expansion would have a total area of 1,92,985 m² i.e. an increase of 200% from the existing area of 64,140 m² along with upgrades to existing facilities which would now include 13 entry gates, 5 islands for check-in, 108 CUSS counters, 20 hand baggage x-ray machines, enhanced screening capacity of 5000-6000 bags/hr, 9 baggage carousels, flexible baggage system to flight wise rather than airline wise.</p> <p>The passenger growth at T1 is projected to reach 35 MPPA by 2024-25. According to L&B report, maximum capacity of T1 is 30 MPPA which mandates the expansion to meet the forecast of 35 MPPA.</p> <p>The expected peak hour passenger under the projected traffic is expected to be 9793 and along with the proposed area of 1,92,985 m² would translate into an area of 19.7 sq.m per passenger which is consistent with the IMG norms of 20 sq.m per passenger.</p> <p>The new Terminal 1 would also have an increased area of 18,000 m² for arrival with the arrival terminal now integrated and baggage belts increasing to 10 nos of 70m each which is consistent with the expansion in Terminal area.</p>
Need for Package 1 – Apron Development	<p>The proposed apron development would result in an increase in apron area from 282,000 m² to 716,288 m².</p> <p>The Terminal 1 apron has 55 aircraft stands fit for Code C aircraft for scheduled operations and 28 aircraft stands fit for general aviation aircraft without any contact stands and hence the aircrafts have to be remotely parked and operations through buses are carried out for conveying passengers from terminal to aircrafts.</p> <p>As the existing apron area of Terminal 1 is of varying age and design, it is recommended to redo the entire pavement area for optimum design layout.</p>
Need for Package 2 & 4 – Airfield works	<p>DIAL proposes as part of Phase 3 A Expansion 4th runway with associated taxiways links to cater to the demand and a new parallel taxiway to runway 10-28 and associated taxiway links to suit Code E aircrafts.</p> <p>IGIA handled 344,000 schedule movements in FY 2015-16 at a growth rate of 14.4%. With average aircraft sizes and load factors expected to increase, the aircraft movement is expected to rise from 281,034 movements in 2013-14 to 726,000 movements in 2033-34.</p> <p>The estimated airfield capacity is 75 ATMs per hour for the existing 3 runway system.</p> <p>ATC and taxiway improvements to existing runways would let the runway system handle between 593,500 and 620,500 annual ATMs at a delay of 10 to 15 minutes per ATM which is equivalent to 77.5 MPPA to 81.8 MPPA. An additional fourth runway would let the airport handle 776,000 to 790,500 annual ATMs i.e. 108 MPPA to 110.7 MPPA and would accommodate demand till 2033-34 and hence could be deemed necessary.</p>
Need for Package 3 –	The projected increase in air traffic and terminal expansion necessitates the augmentation of

Particulars	Summary
Landside works	land side connectivity and other terminal kerb side facilities. The independent study found that the widening of existing northern access road and central spine road to 2X5 configuration is necessary as they have reached breakdown condition. The independent study also found that the proposed kerb widening of Terminal 1 is justifiable based on average occupancy, hourly traffic volume, and annual demand of 35 MPPA.
Need for Package 5 – Assessment of Terminal 3 capacity enhancement	Terminal 3 is currently handling 34 MPPA and DIAL proposes to upgrade infrastructure to 40 MPPA for the design year 2022. The shortage in each process area was evaluated based on ADRM calculations and LOS C levels with shortage being found in number of check-in counters, arrival hall baggage belts, and kerb length requirements in arrival & departure concourse. The independent study found DIAL’s proposal to upgrade infrastructure of Terminal 3 to be justifiable and necessary.

15.4.4 Cost Effectiveness assessment

The independent study also analyzed several cost effective alternatives/options for the expansion of the airport which are detailed below;

- **Option 1 – Alternative option instead of new runway:** Option of enhancing the existing runway capacities by adding a northern parallel taxiway to Runway 10/28 and eastern cross taxiway from Runway 11/29 is analysed. The ATM’s that can be handled is enhanced only marginally.
- **Option 2- Alternate option instead of north side parallel taxiway:** Option of providing new runway 11/29 and cross taxiway without providing northern parallel taxiway to runway 10/28 is analysed. In this case, the aircraft movements to T1 affects the efficiency of runway 10/28 considerably and the ATM distribution is south centred and in favour of T3 only. In this option, refurbishment of runway 9/27 is inevitable.
- **Option 3 - Alternate option instead of Eastern cross taxiway:** Option considering the development without eastern cross taxiway, which warrants the relocation of T1 to T2 is analysed. The northern parallel taxiway is also not required in this option. But in this option the central spine road widening is beyond what is possible to cater the demand of passenger flow to T3 & T1. Therefore the option may be discarded.

Package	Description (Rs. Cr)	DIAL’s Estimate as originally submitted	Option 1	Option 2	Option 3
1	Terminal Building	2512.00	2512.00	2512.00	2941.55
1, 2 & 4	Airside works	4681.00	4371.56	4531.63	3413.63
3	Landside works	366.00	366.00	366.00	1148.60
5	Terminal 3	233.00	233.00	233.00	233.00
5	Others	911.00	875.00	894.00	905.00
Total cost		8703.00	8357.56	8536.63	8641.78
Savings			345.44	166.37	61.22

Though Option 1 is the most cost effective option as can be seen in the above table, the construction of new runway would become inevitable by FY 2025-26. Deferring the construction works of runway till that time is not a recommendable option due to the escalation in construction costs.

Hence the proposal by DIAL for construction of new runway, parallel taxiway, cross taxiway and associated connection taxiways is found justified as per the independent study.

15.4.5 Cost Analysis of Passenger Terminal Building – Package 1

The independent study analysed the new passenger terminal building which is part of Package 1, and has the following observations;

- Construction of a new passenger terminal building includes building code for fire protection system, alarms and sprinklers, water supply and sanitation, air conditioning, power supply equipment, passenger facilitation, flight information systems, security, airline related services, CUTE, CUSS, baggage reconciliation system, x-ray screening, escalators, travellers, elevators, passenger boarding bridges, aircraft operational services as part of terminal processing facilities.
- After reviewing DIAL’s costing and considering several factors impacting the capital costs, the rate/sqm for passenger terminal building is revised to Rs. 125,968/sqm instead of Rs. 137,472/sqm for area of 192,985 sqm. An amount of Rs. 2513 Cr proposed for civil works, MEP & Airport systems by DIAL has been reworked to Rs. 2431 Cr as per the details of costing sheet.

15.4.6 Cost Analysis of Airfield works including Eastern Cross Taxiway Package 1 (Apron), Package 2 and Package 4

The cost distribution of airfield works can be seen in the table below;

Package	Proportion
Apron (Package 1)	17.46%
New Runway (Package 2)	6.00%
Taxiways (Package 2)	24.01%
Drainage (Package 2)	13.50%
AGL (Package 2)	15.15%
Eastern cross taxiway (Package 4)	23.88%

The independent study had considered the ceiling cost of Rs. 4700/sqm as per AERA for construction of pavement (apron, taxiway, runway) and pavement for Code E Aircraft. The costing proposed by DIAL is Rs. 4,681 Cr. Considering factors like operational difficulties, constrained material conveyance, anticipated cost escalation, design for heavier aircraft (Code F) while evaluating the airfield costing;

- The rate/sqm recommended for apron is Rs. 9778/sqm for 629685 sqm against Rs. 11,127/sqm for an area of 7,16,255 sq.m.
- The rate/sqm recommended for taxiway is Rs. 8306/sqm against Rs. 8754.08 sq.m for an area of 931461 sqm.
- The rate/sqm for runway is Rs. 5978/sqm against Rs. 6848.50/sqm for 505086 sqm.

The revised cost as estimated by the independent study works out to Rs. 4320 Cr.

15.4.7 Cost Analysis – Others

The details of cost analysis performed by the independent study for other works of Phase 3 A expansion of IGIA can be seen below;

- **Preliminary works include demolition, relocation, enabling, diversions etc.:** DIAL’s proposal considers the cost of preliminary works as 2% of the estimated costs. This is catered towards demolition, relocation & re-routing of utilities, traffic management systems, temporary signage, temporary roads & access gates etc. As per the independent study, these sums generally vary from 1% to 5% of the total costs. Thus the independent study considers the provision of 2% as reasonable.
- **Design development and supervision:** Fee for design, development and supervision is considered at 4% of the estimated cost of works. The independent study considers the proposal as reasonable and justified.
- **Permits, Survey & Insurance:** A lumpsum amount of Rs. 30 Cr is provisioned in the capital cost proposal towards insurance & permits which is reasonable.
- **Operational Capex:** An amount of Rs. 30.00 Cr is provisioned towards operational capex which is accounted for equipment like Runway sweeping machine, runway paint marking machines (big & small), runway rubber removal machines, passenger trolleys, motorized lifting platform, etc. The independent study has reviewed the costs and observed that the revenue generated after creation of assets would cover the operational expense incurred. Hence the cost towards operational capex is not justified.
- **Contingencies:** DIAL has provisioned cost of contingencies at 5% of the capital cost. This cost has been revised to 3% of capital cost as per the independent study.

15.4.8 Revised Capital Expenditure for Phase 3 A Expansion of IGIA

Based on the above methodology and analysis, the Project Cost with all design and construction plan was independently reviewed and the recommended capital cost for phase 3A expansion is as below;

Package	Capex for Expansion (Rs. Cr)	Recommended cost
1	Expansion of Terminal 1	2,431.00
1, 2&4	Airfield works including 4 th Runway, Aprons & eastern parallel cross taxiways and expansion of Aprons under Package 1	4,318.45
3	Landside/connectivity works	366.17
5	Modification of Terminal 3	166.98
	Total	7,282.60
	Others	686.00
	Grand Total	7,968.60

15.5 Annexure 5 – Summary of Independent Study on Determination of Cost of Equity

15.5.1 Background

The airport infrastructure sector has been undergoing a phased change during the past 15 years. The first Public Private Partnership (PPP) model of airport operations was implemented in Delhi, Mumbai, Bangalore and Hyderabad airports starting in 2004. While Delhi and Mumbai were brownfield projects, the other two were greenfield in nature. As with any infrastructure project, these projects involved high Capital Expenditure (CAPEX) and Operational Expenditure (OPEX) mobilization. To ensure viability of airport investment, it is standard practice to provide a reasonable return to investors by charging airport users an appropriate tariff.

The Authority had determined 'Cost of Equity' for private sector in the year 2011. After 7 years, the Authority intended to conduct a fresh study in the current scenario to perform its statutory regulatory functions.

The Cost of Capital of FRoR (Fair rate of Return) is a significant influencer when Rate of Return Regulation is the opted method of Economic Oversight. The intent of such rate of return is to embody the reasonable return expectation of all investors in the project. Regulatory precedents at the time of choosing such Economic Oversight in India favored the use of WACC in which the COE would be determined with the help of the CAPM model.

As per TDSAT order dated April 23, 2018 in the matter of issues raised by DIAL with regards to decisions taken by AERA in the First Control Period, the Authority has commissioned an independent study for evaluation of Cost of Capital for DIAL for the Third Control Period.

15.5.2 Scope of Engagement

The scope of the engagement as stipulated under original terms of reference from the Authority can be seen below;

- Study of relevant environment, trends in airport capitalization
- Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity
- Recommendations on Cost of Equity
- Follow-on activities

The objective of the independent study is to provide recommendations on Cost of Equity including;

- Cost of Equity – Risk-free return, risk premium and beta levels
- Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing
- Alternative models for determination of cost of equity
- Reasonable/fair return to be provided on RSD as applicable for Delhi Airport is also to be determined.

15.5.3 Determination of Cost of Equity

The independent study compared the regulatory authorities of 12 countries and over 25 airports to understand the regulatory framework across the world, and assigned weights to the 25 international airports in 12 countries to estimate their comparability to IGIA based on the following parameters;

- **Revenue Till Structure:**
 - 1 – Single Till or where information is not available
 - 2 – Dual Till
 - 3 – Hybrid Till
- **Ownership Structure:**
 - 1 – if 100% Government owned/funded
 - 2 – if Government/private owned/funded, not being Public Private Partnership
 - 3 – if Public Private Partnership funded
- **Operations Scale (Ops):** For each comparable international airport, the independent study computed the ratios of passenger, cargo and aircraft movement of these airports to that of DIAL in each of the years from 2015 to 2017.

The airports shortlisted for comparative study with IGIA are Sydney, Changi, Gatwick, Auckland, MAHB, AoT, and Dublin. MAHB is the holding company for Kuala Lumpur airport and AoT is the holding company for Thailand Airport. The proximity score with IGIA for these airports is as shown in the table below;

Airport	Revenue Till	Ownership Structure	Operations	Proximity Scores
Delhi	0.00	0.00	0.00	0.0000
Sydney	1.00	1.00	0.84	1.6465
Changi	0.00	2.00	-1.43	2.4580
Gatwick	2.00	1.00	1.37	2.6222
Auckland	1.00	1.00	2.24	2.6477
MAHB	2.00	1.00	-2.29	3.2001
AoT	1.00	1.00	-2.97	3.2852
Dublin	2.00	2.00	1.83	3.3669

The independent study then studied the returns of the airport over the period from 2013 to 2017 and computed the Internal Rate of Return (IRR) for all the airports.

Methodology to compute Cost of Equity and Fair Rate of Return

The independent study analyzed the month-on-month passenger growth rate of IGIA to understand the demand risk of the airport, regressing the growth rate as a function of monthly stock returns of DIAL. The stock returns signify external economic conditions. The independent study analyzed the impact on demand if the external conditions change significantly, and found very low regression coefficients (~0.3) thereby establishing that demand in India is inelastic and highly constrained by supply.

The independent study has used CAPM to determine the Cost of Equity, stating that though it is a theoretical model based on assumptions that do not hold true in the real world, its simple and intuitive appeal have made it the model most used by airport regulators to determine Cost of Equity.

The standard approach in CAPM methodology is to find a set of comparable firms and compute a cost of capital based on the comparable cost of capital of those firms. The approach accounts for idiosyncratic differences in financial leverage, operations scale, revenue till arrangement, and ownership structure. The independent study has considered actual data rather than plausible motivations for drivers of cost of equity.

There are three components required for computing the cost of equity using CAPM – risk-free rate (R_f), equity beta and equity risk premium (ERP). R_f and ERP are macro-economic in nature and can be derived from using time series analysis with R_f being considered from public sources and estimates for ERP available from an independent study by Anshuman, Biswas, Jain and Sharma, 2019. Equity beta for an unlisted company like DIAL is more challenging and the methodology used by the independent study is described below;

- ✓ Un-lever the betas of the comparable airports.
- ✓ Estimate asset betas for DIAL with proximity distance scores as inputs.
- ✓ Re-lever asset betas to get equity betas for DIAL with target gearing ratios as inputs.
- ✓ Evaluate cost of equity with R_f and ERP as inputs.
- ✓ Estimate Fair Rate of Return with cost of equity and cost of debt as inputs.

Step 1: Unlevering of Beta for Comparable Airports

The Independent Study considered 6 airports from the comparable set of airports as Changi airport did not have an estimate of asset beta in the public domain. Of these airports, Sydney, Auckland, AoT and MAHB are listed airports for which the independent study evaluated equity betas based on market data. The equity betas of these airports are then un-levered to determine the corresponding asset beta of the listed airports. Dublin and Gatwick airports are unlisted but have the estimates for asset betas from their respective regulators. The asset betas for the comparable set of airports can be seen in the table below;

Airport	Asset Beta
Sydney	0.4000
MAHB	0.7693
AoT	0.8582
Auckland	0.6000
Dublin	0.5500
Gatwick	0.5600

Step 2: Estimation of Asset Beta for DIAL based on Proximity score of the Comparable Airports

Based on the Table above and considering the proximity scores as determined by the independent study, the proximity score weighted average unlevered asset beta for DIAL has been arrived at as 0.5911.

Step 3: Re-levering of Beta for DIAL using target value of D: E ratio

The independent study recommends using a lower target gearing ratio than the gearing ratio suggested by actual D/E values of DIAL as WACC should reflect a long term steady gearing ratio rather than the current gearing ratio. WACC should also be determined using market value of D/E ratios as equity tends to increase over time, thereby resulting in lower market D/E ratios than book D/E ratios. The independent study considers this factor to be a significant reason for airports using lower target gearing ratios.

The independent study, to estimate market value of D/E (MDE) ratio for DIAL, has examined the relation between MDE and BDE of infrastructure firms in India. Based on the established empirical relationship between MDE and BDE, the conversion multiplier to determine MDE from BDE has been estimated as 0.459. The independent study then assumed BDE of 2:1, which gave an MDE of 0.918 for a typical infrastructure firm in India. It translated in a target gearing ratio of 47.86% which

is close to average gearing ratio of comparable set of airports. Thus, the independent study considers the target gearing ratio at a notional value of 48% for computing cost of equity.

Based on this target gearing ratio, the Proximity Score Weighted (PSW) asset beta of DIAL (0.5911) has been re-levered to calculate **equity beta** whose value is arrived at **0.9732**.

Step 4: Estimation of Cost of Equity with R_f and ERP as inputs

To arrive at the cost of equity, Equity Risk Premium (ERP) is derived as the simple average of the three independent study estimates (historical average, based on CDS and bond ratings, forward looking estimate as suggested by Grant Thornton) i.e. 8.06% as this simple average technique helps eliminate the effect of biases implicit in each of the three independent studies.

After computing all the components required, the cost of equity using CAPM has been determined and the variables used to estimate the cost of equity and fair rate of return can be seen in the table below;

Variables	Gearing based on Target Gearing ratio
Asset Beta	0.591199
Gearing Ratio (D/E)	0.9231
Gearing Ratio (D/D+E)	48.00%
Equity Beta	0.9732
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.41%

Step 5: Estimation of Fair Rate of Return with Cost of Equity and Cost of Debt as inputs

To arrive at the fair rate of return, the independent study has computed an estimate of cost of debt. The estimated cost of debt arrived at is 9.97% by taking the simple average of the yields of thirteen debt instruments issued by infrastructure companies rated AA- or equivalent by credit rating agencies between 01/01/2018 and 15/02/2019. Based on the variables computed in the above steps, as can be seen in the above table, the independent study has computed the Fair Rate of Return as **12.80%**.

Thus, the independent study has computed the Cost of Equity at 15.41% using Capital Asset Pricing Model at a notional D:E ratio of 48:52 and using as benchmark, a comparable set of airports with more than 50% private ownership.

15.6 **Annexure 6 – Summary of Independent Study on Opportunity Cost of RSD**

15.6.1 **Background**

Under OMDA, DIAL has been given the right of commercial development of the 5% of the total land parcel. DIAL, in the first phase of development licensed 45.08 acres of land and got an amount of refundable deposits of Rs. 1471.5 Cr on Phase 1 of lease of CPD.

Contractually, DIAL was not bound to use the refundable deposits for funding the project. The amount collected was part of Non Transfer Assets which are not used for cross-subsidizing the aero charges, but DIAL used them for financing the project cost.

As these funds utilised for financing the project cost, a fair rate of return i.e. opportunity cost needs to be provided. DIAL has treated these funds as quasi-equity in nature. The Authority decided to treat RSD as a means of finance at zero cost as they felt that there were no costs involved in raising RSD. DIAL filed an appeal in TDSAT regarding certain contentions on the decisions taken by AERA while determining the tariff for the First Control Period.

As per TDSAT order dated April 23, 2018 in the matter of issues raised by DIAL with regards to decisions taken by AERA in the First Control Period, the Authority had commissioned an independent study concerning Opportunity Cost of Capital of Refundable Security Deposits.

15.6.2 **Assessment and Opportunity Cost of RSD**

The Independent study, based on their analysis, assessed the opportunity cost of RSD as can be seen below;

RSD was raised from concessionaires for operating non-transfer assets. As per OMDA/SSA, DIAL is free to use the proceeds in whatever manner they deem appropriate, emphasised in the TDSAT order as can be seen below:

- *There is no dispute that this investment amounting to Rs. 1471 crores belongs to DIAL', TDSAT Order dated 23.04.2018 on AERA Tariff Order for DIAL, paragraph 101).*
- *It ignores the liabilities which DIAL undertook by bidding for the project in view of clear stipulations as to rights in respect of such land as part of Non-transfer Assets." (TDSAT Order dated 23.04.2018, Para 103).*

DIAL was able to procure lower cost of financing of aero assets as the explicit cost of financing RSD is 0%. DIAL, being the rightful owners of RSD amount, could have utilized it in alternative investment opportunities instead of financing aero assets. Thus, DIAL needs to be provided opportunity cost for investment in aeronautical assets.

As the beneficiaries of the opportunity cost incurred by DIAL with regards to RSD are airport users, an equivalent compensation ought to be provided to DIAL.

15.6.3 **Compensation to DIAL for bearing the Opportunity Cost of deploying RSD**

The independent study based on their assessment of the opportunity cost of RSD has come up with two options, the details of which can be seen below;

Option 1:

If DIAL had raised the amount equivalent to RSD amount to invest in aero assets, the cost of financing would have been equal to cost of debt. Thus, the opportunity cost of RSD would be equal to the cost of debt at the time RSD was invested in aeronautical assets.

Option 2:

The RSD amount could have been invested in an escrow account in funds having required ratings from CRISIL, as specified in OMDA/SSA. The potential earnings from escrow account would be the loss incurred by DIAL by investing RSD amount in aeronautical assets for which they ought to be compensated. Thus, the opportunity cost of RSD amount should be equivalent to returns from the escrow account, as suggested in the TDSAT order.

Thus, while Option 1 recommends cost of debt to be the equivalent opportunity cost for RSD, Option 2 recommends the opportunity cost to be an equivalent return from a suitable escrow account. The Option 2 is more difficult to implement as the returns from a specified CRISIL rated fund would vary over time and be subject to estimation whereas Option 1 is relatively stable and frequently estimated by the Authority while determining the cost of capital.

15.7 Annexure 7 –Tariff Card pertaining to BAC + 10% as approved by the Authority as per Tariff Order No. 39/2018-19

15.7.1 Landing Charges

Rate per landing – International Flight

Weight of the Aircraft	Rate Per Landing (In INR)
<= 21 MT	Not Applicable
<=100 MT	INR 250.47/ MT
>= 100 MT	INR 250.47 + INR 336.60/MT in excess of 100 MT

Rate per landing – Domestic Flight

Weight of the Aircraft	Rate Per Landing (In INR)
<= 21 MT	INR 113.30/ MT
<=100 MT	INR 187.88/ MT
>= 100 MT	INR 187.88 + INR 252.45/MT in excess of 100 MT

Note

1)	Minimum charges of INR 1,100 per landing, except in case of domestic aircraft with MAUW ≤ 21 MT
2)	25 per cent surcharge on landing charges for supersonic aircraft
3)	5 per cent surcharge on International landings between 2301-2400 hours IST (peak hour)
4)	5 per cent discount on International landing between 1301-1600 hours IST
5)	15 per cent reduction in landing charges in case of payments within the 15-days credit period for domestic flights
6)	The domestic leg of international routes of Indian operators is treated as domestic flights as far as airport charges are concerned
7)	No landing charges for helicopters and aircraft with seating capacity ≤ 80 and operated by domestic scheduled operations and for helicopters of all types

15.7.2 Parking and Housing Charges

Housing Charges

Weight of the Aircraft	Housing Charges Rates per Hour
<=100 MT	INR 8.14 MT
>= 100 MT	INR 8.14 + INR 10.78 MT in excess of 100 MT

Parking Charges

1)	When an aircraft is parked in the open, only half of the housing charges are levied. No parking charges are levied for the first 2 hours.
2)	While calculating the free parking time, standard time of 15 minutes is added on account of time taken between touchdown and actual parking time on the parking stand. Another standard time of 15 minutes is added on account of taxiing time of aircraft from parking stand to take off point.
3)	For calculating chargeable parking time, part of an hour shall be rounded off to the nearest hour)
4)	Charges shall be calculated on the basis of the nearest MT
5)	Charges for each period parking shall be rounded off to the nearest Rupee
6)	At in contact stands, after free parking hours, normal parking charges are levied for the first two hours.
7)	After this period, the charges are double the normal charges.

15.7.3 X-Ray Baggage Charges

Domestic Flight – Registered Baggage	International Flight – Registered Baggage
<= 25 seats: INR 110	For turnaround flights For aircraft 747, DC-10 and Tristar-US\$ 209.55 For transit flights- US\$ 149.33
26-50 seats: INR 220	
51-100 seats: INR 495	
101-200 seats: INR 770	
≥ 201 seats: INR 880	

15.7.4 Passenger Service Fee (PSF) – Facilitation

Rate per embarking passenger	
₹ 77 for tickets issued against INR	US\$ 1.93 for tickets issued against foreign currency

For conversion of US\$ to INR the rate as on the 1st day of the month for the first fortnightly billing period and rate as on the 16th of the month for the second fortnightly billing period shall be adopted.

15.7.5 Passenger Service Fee (PSF) – Security

Rate per embarking passenger	
₹ 130 for tickets issued against INR	US\$ 3.25 for tickets issued against foreign currency

For conversion of US\$ to INR the rate as on the 1st day of the month for the first fortnightly billing period and rate as on the 16th of the month for the second fortnightly billing period shall be adopted.

15.7.6 Fuel Throughput Charges

Rate per KL (in INR)
₹ 500

**ALLOCATION OF ASSETS BETWEEN
AERONAUTICAL AND NON-
AERONAUTICAL ACTIVITIES**

(RFP No. 03/2018-19)

for

**DELHI INTERNATIONAL AIRPORT LIMITED
2014-2019**

by

**R. SUBRAMANIAN AND COMPANY LLP
CHARTERED ACCOUNTANTS**

initiated by

**AIRPORTS ECONOMIC REGULATORY AUTHORITY OF
INDIA**

March 2020

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1 STATEMENT OF CONFIDENTIALITY

This report has been prepared by M/s. R. Subramanian and Company LLP, Chartered Accountants, an Indian Limited Liability Partnership Firm as part of its deliverables under the engagement awarded as per RFP No. 03/2018-19 dated 27th November 2018 floated by the Airports Economic Regulatory Authority of India (AERA). This document is being submitted to AERA for use in connection with the tariff determination of Delhi International Airport Limited (DIAL). This report or its contents may not be shared with anyone except with the consent of AERA. R. Subramanian and Company LLP shall not have any liability for the unauthorized use or distribution of this document.

2 OBJECTIVE OF ENGAGEMENT

Regulatory Asset base (RAB) is an integral element of tariff determination. RAB also has a pervading influence on other building blocks i.e., rate of return, operation costs and depreciation. RAB's influence in the tariff determination process is also growing, owing to the significant investments being made to expand capacity and render airports into contemporary assets meeting global standards of excellence. *In the determination of RAB, a factor of extreme relevance and most often subject to extensive stake holder discussions is the allocation of capital investment into Aeronautical (Aero) and Non-Aeronautical (Non-Aero) assets.*

The exercise of allocation of assets into Aeronautical and Non-Aeronautical warrants simultaneous consideration of multiple factors that include asset nature, location and use, revenues derived, area occupied, etc. Further, RABs change every year owing to various factors viz., increased investments, utilization patterns, nature of asset composition, asset ownership methods, useful life determination, wear and tear, and life-cycle changes, all of which necessitate review of such Aero and Non-Aero allocation.

Further, airports are increasingly deploying IT assets to execute Aero and Non-Aero activities across airside, terminal and landside not only as a productivity improvement tool, but also as an operational necessity. These IT assets facilitate both the back-end and front-end processes at all customer and consumer touchpoints in the airport, while seamlessly linking the key infrastructural components of the airport, example: flight movements and communication, entry, check-in, security check, terminal concession services, boarding, baggage and ground handling, etc.

Given the above circumstances, AERA has deemed it necessary to conduct an independent study to establish an independent perspective into the Aero & Non-Aero allocation of the gross fixed assets.

The various statutes and document, which determine the scope of our study include:

1. The Airports Economic Regulatory Authority of India Act, 2008
2. Operation, Management and Development Agreement (OMDA) between Airports Authority of India and Delhi International Airport Private Limited (now Delhi International Airport Limited), dated 4th April 2006
3. State Support Agreement of the Delhi Airport between The President of India on behalf of The Government of India and Delhi International Airport Private Limited (now Delhi International Airport Limited), dated 26th April 2006
4. Orders of Telecom Disputes Settlement and Appellate Tribunal (TDSAT)
5. The Master Service Agreement between DIAL, WIPRO and WIPRO Airport IT Services Limited (WAISL)
6. Documents and records of, and discussions with management of, DIAL

3 TERMS OF REFERENCE AND OUR WORK PERFORMED¹

The detailed scope of this engagement as stipulated under the Schedule.1, Terms of Reference of RFP No. 3/2018-19 of AERA, has been provided below. The scope entails a study of the Allocation of Assets between Aeronautical and Non-Aeronautical activities covering all assets with a specific focus on IT assets as detailed below:

3.1 EXTRACT OF TERMS OF REFERENCE FROM SECTION 3 OF SCHEDULE - 1 OF RFP NO. 3/2018-19

3a) Attribution of assets to regulated activity and establishment of RAB

Establish the assets attributable to regulated activities, gross and net value of RAB both in terms of physical existence, quantity & value by a study of all reports including:

- *internal/statutory/cost/propriety audit reports,*
- *internal entity documentation,*
- *reports discussing asset damage/replacement/destruction/diminution/changes to value*
- *reports on asset utilization, corrective actions to RAB etc.,*

3b) Determination of asset segregation methodology

This includes:

- *A comprehensive study of the key documents including master plan, State Support Agreement, Land lease agreements, OMDA/Concession Agreements, any other project documents that are critical in guiding the logic to division of airport activity into aero and non-aero and all reports that provide guidance on actual utilization of the assets in Aero and Non-Aero activities.*
- *Identify the activities that are Aero, Non-Aero and Common from a combined study of all the above, determine asset segregation logic vis-à-vis costs, revenues and activities and examine existing logic applied.*

¹ Source: RFP 03/2018-19

3c) Mapping segregation logic to RAB

Examine the present reporting of segregated asset values of Aero and Non-Aero assets, apply the learnings from 3a) & 3b) above and arrive at the revised split of RAB into Aero, Non-Aero and Common assets.

3d) Study of Common Assets & determination of allocation logic

Study existing Common assets so determined by the airport operator and re-examine the same by applying learnings from 3a), 3b) & 3c) above. Study allocation logic applied presently to split common assets into Aero and Non-Aero, review the appropriateness, accuracy, feasibility and sustainability of such Allocation logic. Apply the revised allocation logic to 3c) and arrive at the segregation of Aero and Non-Aero assets.

3e) Detailed study of the contractual arrangement and transaction/s between DELHI airport and the IT JV [clause 6.111 – 6.112 supported by 6.103 -6.110 in Order No. 40/2015-16 dated 8th December, 2015 issued 10th December, 2015 in the Determination of Aeronautical Tariffs in respect of Indira Gandhi International Airport, Delhi for the Second Control Period (01.04.2014 - 31.03.2019) issued by Airports Economic Regulatory Authority of India,].

Study should establish an understanding of this joint business arrangement, the services and investments and ownership model envisaged under this contract by the parties involved, understand the transactions conducted that impact the tariff/ true up exercise including segregation of Aero and Non-Aero assets with reference to the costs incurred and revenue streams earned due to the use of the services of such ITJV.

3f) Recommendations and Report

Report to include the following sections:

Discussions and recommendations that serve as standards/ guidelines:

- *to attribute assets to regulated activities and establish the RAB*
- *to determine segregation logic to split RAB into Aero, Non-Aero and common assets explaining the typical underlying assumptions, reports that could be relied upon etc*
- *to determine allocation logic for common assets, including underlying assumptions, reports that could be relied upon etc*

- *to determine the revised value of Aero and Non-Aero assets with a discussion on the primary drivers of both the asset segregation and common asset allocation logic, underlying assumptions, feasibility & sustainability, pros and cons.*

Segregation logic and other related factors

- *pros and cons of adopted logic, its sustainability in the general airport environment*
- *alignment of adopted methodology with the Tariff determination philosophy of the Authority reconciling the business logic with Regulation logic including learnings from airports in global scenario*
- *logical relationship between the Aero and Non-Aero assets in reference to their activity, revenues and cost environment including learnings from airports in global scenario*
- *typical influencers (advantages/constraint factors) of an airport's asset environment &*
- *any other factor that has a significant bearing on the report*

IT asset environment and guidelines

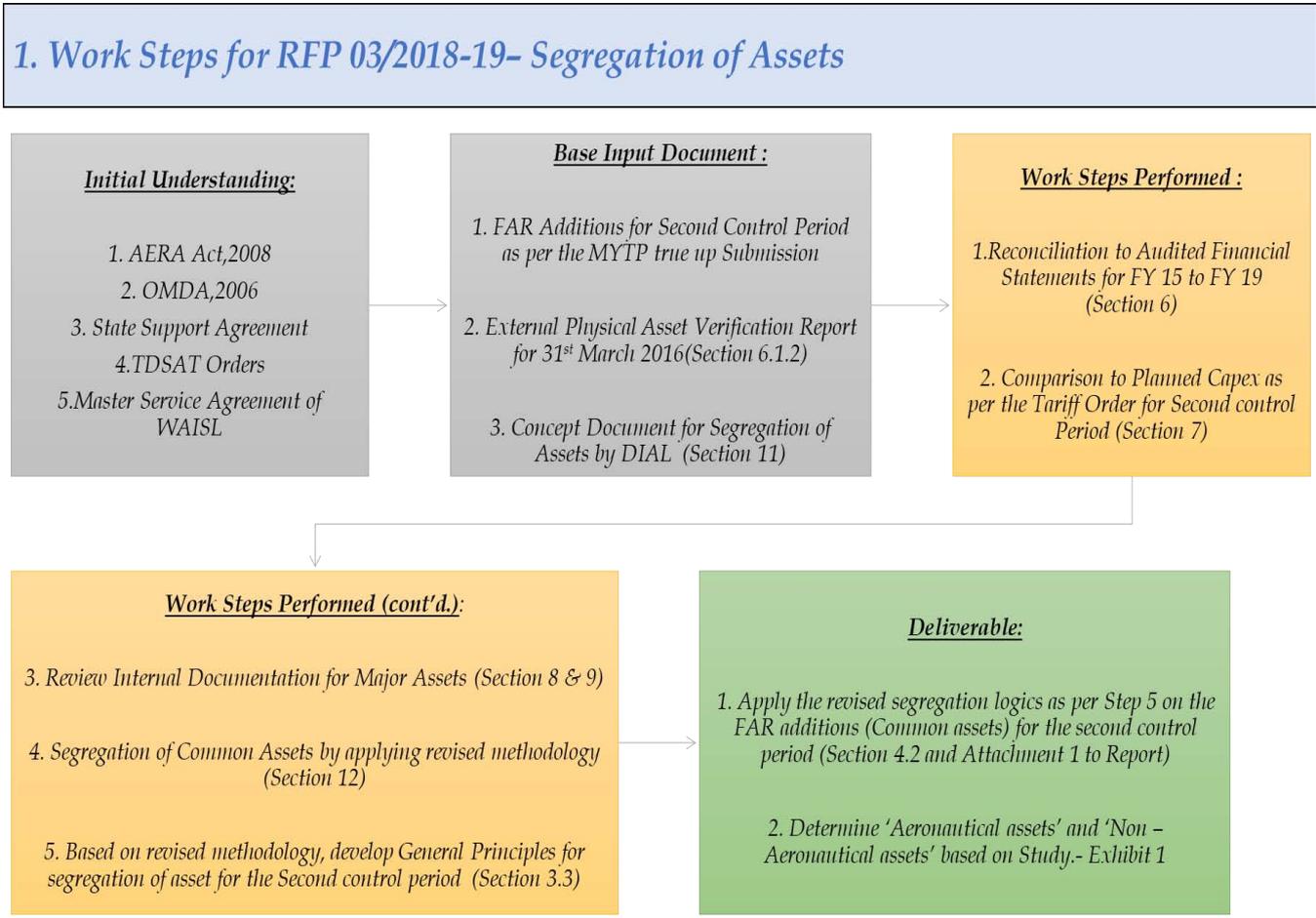
- *Asset ownership models in IT asset environment, impact of the same on RAB, Role of SLAs/Contracts in asset ownership costs.*
- *Systemic controls that airport operator must engage with in IT supplier management in general and especially in supplier concentration scenarios.*
- *Measurement & monitoring effectiveness of IT asset spends in reference to their lifecycle.*
- *Any other matter that has a significant bearing on comprehending IT asset environment of the airport operator.*

Business arrangement with ITJV by DIAL

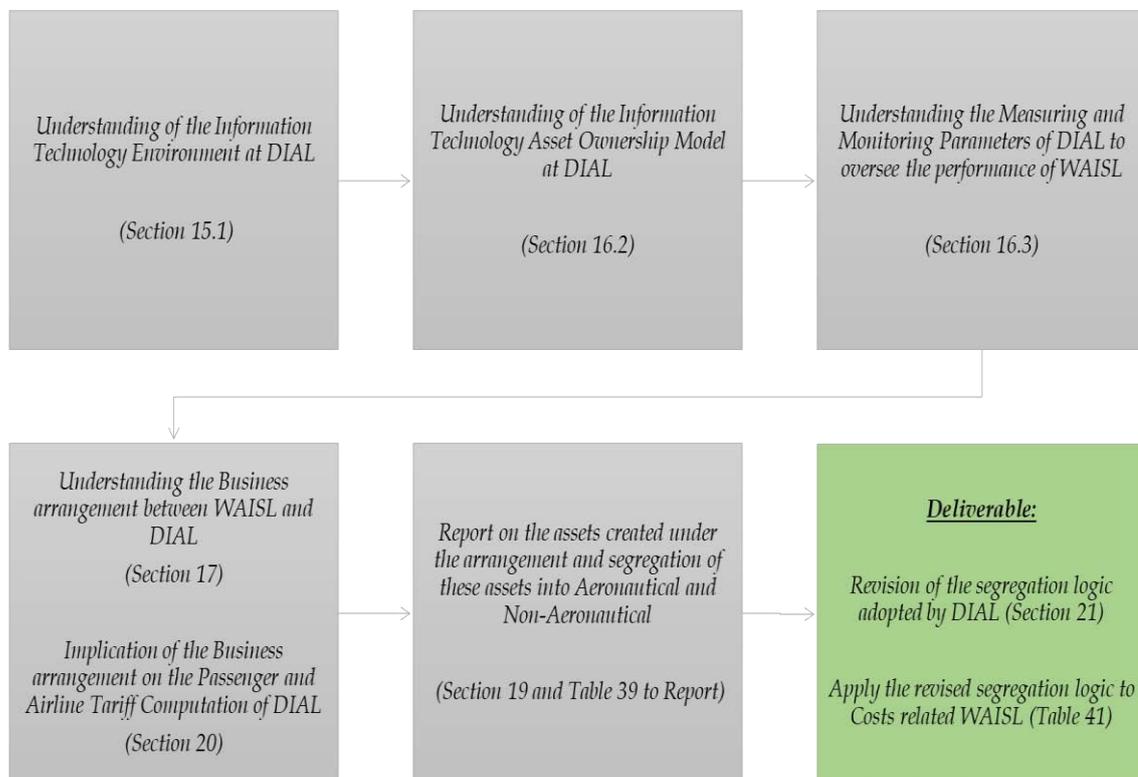
- *Set out an understanding of the business arrangement, the services contemplated under the same, the investments envisaged including asset ownership methods*
- *Detailed report on the assets created including ownership models under this arrangement along with Aero and Non- Aero segregation and establish logical relationship with costs incurred, revenue streams earned by DIAL owing to this arrangement*
- *Revisions/Rectifications to the submissions made to the Authority for Tariff determination/True up exercises.*

3.2 STEPS FOR OUR WORK PERFORMED

The flowchart detailing the steps followed to complete the report is given below:



2. Work Steps for RFP 03/2018-19- Information Technology



Step No	Work Performed	TOR (RPF 03/2018-2019) Reference	Reference to this Report
1	Our study and development of the basis of segregation of assets is based on the Fixed Assets Register (FAR), financial and business data, as well as audited financial statements of DIAL for the period up to FY18 (as the financial statements of DIAL for FY19 was under preparation and audit). Therefore, we had determined the asset allocation basis from information provided up to FY 18 and applied it to the asset details subsequently provided for FY19. Consequently, the	NA	NA

Step No	Work Performed	TOR (RPF 03/ 2018-2019) Reference	Reference to this Report
	segregation of gross fixed assets and the RAB have been summarized in two parts for the Second Control Period, i.e. up to FY18, and separately for FY19.		
2	We initiated our study by familiarizing ourselves with the statutes and documents as well as DIAL Master Plan and land lease agreements	3a	<i>Section 2: Documents Reviewed</i>
3	We then reviewed the FAR of DIAL updated up to FY18 (along with DIAL's segregation of Aeronautical, Non-Aeronautical and Common assets) and confirmed that the gross value of additions to the assets matched the gross book value of fixed assets addition as per the audited financial statements of FY18. A similar reconciliation was carried out for FY19 after the completion of the audit for the Financial year	3a	Section 4.5: Actual investment in Gross Fixed Assets vis-à-vis projections in the Second Control Period Tariff Order.
4	We correlated the actual capital expenditure as per the FAR with the planned capital expenditure projected in the Tariff Order for Second Control Period.	3a	Section 6: <i>Comparison of the Actual Capital expenditure with the Projections as per MYTP submissions for Second Control Period.</i>
5	DIAL had deputed a Chartered Accountant firm to conduct physical verification of airport assets during the month of May 2017. We have read their final report and relied on the same to establish the existence of assets included in the RAB.	3a	Section 6.1: <i>Adjustments to FAR on account of Physical verification of assets.</i>

Step No	Work Performed	TOR (RPF 03/2018-2019) Reference	Reference to this Report
	We also performed a physical verification of all significant DIAL asset categories at the terminal (airside, cityside, baggage, ground handling, retail spaces, passenger seating systems, Airport Control Rooms, queue managers and people counting solutions) with respect to their existence and usage.		
6	Further, for key assets capitalized during Second Control Period, we reviewed the documents supporting the procurement such as Note for Approval (NFA), competitive bidding, technical evaluation and selection of vendors. We also reviewed the adequacy of the procurement process followed by DIAL. Apart from the approval process and documentation, we reviewed the nature of assets described in the NFA to specifically determine the appropriateness of segregation done by DIAL	3b	<p><i>Section 7: Major Investments in Gross Fixed Assets for Second Control Period and Purpose of Investment</i></p> <p><i>Section 8: Internal Documentation Review</i></p>
7	We conducted detailed discussions with the management of DIAL to review their asset segregation methodology. As regards Second Control Period, a line item-wise review was undertaken for all assets with gross book value of more than ₹ 25 lakhs for the segregation of assets into Aeronautical and Non-Aeronautical activities.	3c	<p><i>Section 10: Segregation Logics adopted by DIAL</i></p> <p><i>Section 11: Summary of Asset Segregation by DIAL</i></p>
8	The asset segregation criteria were developed in order to classify assets based on the asset category, FAR description and further information obtained from the above steps. A basis for determining the proportion of segregation of Common assets into Aeronautical and Non-Aeronautical was derived	3d	<i>Section 3.3: Basis of Segregation of Assets</i>

Step No	Work Performed	TOR (RPF 03/ 2018-2019) Reference	Reference to this Report
9	The total asset investment of DIAL during second control period was split into Aeronautical and Non-Aeronautical assets based on the segregation logics adopted by us	3c	<p><i>Table 2: Proposed Adjustments to RAB</i></p> <p><i>Section 12: Revised Asset Segregation based on the study under this RFP</i></p> <p><i>Exhibit 1 Revised FAR with RAB split as per DIAL logics and Revised Logics</i></p>
11	<p>Information Technology Environment of DIAL</p> <ul style="list-style-type: none"> • Understanding of the business arrangement between WAISL and DIAL • Asset ownership models in IT asset environment • Measurement & monitoring mechanisms of DIAL to oversee the performance of WASIL • Detailed report on the assets created under this arrangement along with Aeronautical and Non-Aeronautical segregation • Revisions/Rectifications to the submissions related the IT JV Funding 	3e	<p><i>Section 15.1: IT Landscape of DIAL</i></p> <p><i>Section 16.2: IT asset ownership model</i></p> <p><i>Section 16.3: Monitoring Parameters</i></p> <p><i>Section 17: Business arrangement between DIAL and WAISL</i></p> <p><i>Table 40: Report on assets under IT arrangement and segregation into Aeronautical and Non-Aeronautical</i></p>

Step No	Work Performed	TOR (RPF 03/ 2018-2019) Reference	Reference to this Report
			<i>Table 41: Revision to the Segregation logic for the IT JV funding</i>

3.3 BASIS FOR SEGREGATION OF ASSETS

As described in our work steps in section 3.2 of this Report, we have reviewed the various asset categories and developed a basis for classification of the assets into Aeronautical and Non-Aeronautical activities. We have also determined the appropriate proportion of Common Assets that may be included in Aeronautical activity, in order to determine the Aeronautical asset base. Broadly, our principles for segregation of assets (also described as Segregation Logic in section 11 in this Report) are as follows:

Aeronautical Assets

- All assets that are exclusively utilised for Aeronautical activities under Schedule 5 of OMDA are treated as Aeronautical assets
- Capital Expenditure incurred to improve the look and feel of the Airport except areas identified as Non-Aeronautical, which helps maintain the ASQ rating mandated by the OMDA are classified as Aeronautical assets
- Capital Expenditure on Reserved Activities (as defined in OMDA) like Customs, Immigration, security, health meteorology, plant and animal quarantine and CNS/ATM services are classified as Aeronautical assets
- Assets related to the services bought under the scope of Aeronautical Services through the decision of the Telecom Dispute Settlement and Appellate Tribunal (TDSAT) dated 23rd April 2018

Non-Aeronautical Assets

- All assets that are exclusively utilised for Non-Aeronautical activities covered under Schedule 6 of OMDA are treated as Non-Aeronautical assets. Examples are Cargo, Ground Handling and Retail Spaces
- Common Use Terminal Equipment (CUTE) and Common Use Self Service (CUSS) software are classified as Non-Aeronautical Assets in accordance with the DGCA AIS number 7/2007 dated 28 September 2007 and OMDA read along with section 13 of AERA Act. (Refer section number 19 on Segregation of Concession fee and Premium)

Common Assets

- Assets for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical are classified as Common Assets
- Assets primarily used for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are classified as Common Assets. Examples are Civil and Electrical Works for terminal building
- Assets which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Assets. Examples are Transit house and Corporate Headquarter expenditures
- Common Assets which are situated within the terminal buildings are apportioned to Aeronautical activity in the ratio of the space allocated for Aeronautical and Non-Aeronautical services
- Common assets which are situated outside the terminal buildings are apportioned to Aeronautical activity based on an appropriate cost driver. However, in the absence of any information regarding the location of the asset or a specific cost driver, a reasonable ratio is determined based on discussions with management and our review of the FAR and other records of the Airport.

Broad segregation of assets based on the principles laid above has been provided herein:

Table 1 General Principles for Asset Classification

Asset Category	Corresponding reference to Schedule 5 of OMDA	Asset Sub-category/ Description	Asset Classification	Segregation Logic for Apportionment of Common Asset to Aeronautical
Administrative Office Development		Administrative Office Development	Common	Proportion of Weighted Average Terminal Space. <i>Refer Note 1 at Page No. 25</i>
Air Ground Lighting	14. Airfield Lighting	Refurbishment of Apron Lighting	Aeronautical	
		Improvements of Apron Lighting	Aeronautical	
		Cabling and Other Improvements	Aeronautical	
Airport Staff Training Institutes		Airport Staff Training Institutes	Common	Proportion of Weighted Average Terminal Space. <i>Refer Note 2 at Page No. 25</i>
Airside Improvements	13. Airfield 45. Runways 48. Taxiways	Administrative Office Development	Aeronautical	
		Vehicles at the Airside	Aeronautical	
		Improvements and Rehabilitation of Taxiways	Aeronautical	
		Improvements and Rehabilitation of Runways	Aeronautical	
		Rehabilitation of Old Airside Pavements	Aeronautical	
Approach Roads Improvement	16. Airside and landside access roads and forecourts including writing, traffic signals, signage and monitoring	Construction, Resurfacing, Re-carpeting and Widening of Approach Roads	Aeronautical	
		Construction, Resurfacing, Re-carpeting and Improvement of forecourt roads	Aeronautical	
		Lighting at Approach Roads / forecourt roads	Aeronautical	

Asset Category	Corresponding reference to Schedule 5 of OMDA	Asset Sub-category/ Description	Asset Classification	Segregation Logic for Apportionment of Common Asset to Aeronautical
		Light Masts for the Street Lights at Approach Roads / forecourt roads	Aeronautical	
Assets related to Cargo Activities		Assets related to Cargo Activities	Non-Aeronautical	
Assets related Multi Level Car Parking		Assets related to Multi Level Car Parking	Non-Aeronautical	
Baggage X-Ray Machines	<i>51. X-Ray Services for carry on and Check in Luggage</i>	Baggage X-Ray Machines	Aeronautical	
Boundary Walls	<i>2. Ensuring the safe and secure operation of the Airport, excluding national security interest</i>	Boundary Walls	Aeronautical	
Cladding Work	<i>4. General maintenance and upkeep of the Airport</i>	Cladding for Specific Aeronautical Locations like Arrival, Departure, etc	Aeronautical	
		Cladding for Other Common Areas	Common	Proportion of Weighted Average Terminal Space
		Cladding for Specific Non-Aeronautical Locations	Non-Aeronautical	
Development of Commercial Property		Development of Commercial Property	Non-Aeronautical	
Electricity Infrastructure	<i>24. Cleaning, heating, lighting and air conditioning public areas</i>	Electrical for Specific Aeronautical Locations like Arrival, Departure, etc	Aeronautical	
		For other areas within the Terminals	Common	Proportion of Weighted Average Terminal Space
		- Low Tension and High-Tension Panels		
		- Transformers		
		- DG Sets/UPS Batteries/ Electricity Meters		
For the Administrative Offices	Common	Proportion of Weighted		

Asset Category	Corresponding reference to Schedule 5 of OMDA	Asset Sub-category/ Description	Asset Classification	Segregation Logic for Apportionment of Common Asset to Aeronautical
		- Low Tension and High-Tension Panels		Average Terminal Space
		- Transformers		
		- DG Sets/UPS Batteries/ Electricity Meters		
Essential Spares to the Machinery		Capitalised Spares under Ind AS 16	Common	Proportion of Weighted Average Terminal Space
Fuel Farm Assets	<i>17. Common hydrant infrastructure for aircraft fuelling services by authorized personnel</i>	Fuel Farm Assets	Aeronautical	
Transit House Improvements		Transit House Improvements	Common	Actual quantum of aeronautical expenditure or reasonable proportion. In case of DIAL, 50% of Second Control Period expenditure assumed to be Aeronautical
Heating, Ventilation and Air Conditioning Systems	<i>24. Cleaning, heating, lighting and air conditioning public areas</i>	Within the Terminal	Aeronautical	
		Outside the Terminal	Common	Proportion of Weighted Average Terminal Space
Improvement of the Look and Feel of the Airport	<i>To maintain the ASQ as mandated under the OMDA</i>	Artwork within the Terminal	Aeronautical	
		Horticulture within the Terminal	Aeronautical	
		Horticulture on Approach Roads to the Terminals	Aeronautical	
		Horticulture at Administrative Offices	Common	Proportion of Weighted Average Terminal Space

Allocation of Assets between Aeronautical and Non-Aeronautical Activities

Asset Category	Corresponding reference to Schedule 5 of OMDA	Asset Sub-category/ Description	Asset Classification	Segregation Logic for Apportionment of Common Asset to Aeronautical
Passenger Boarding Bridges	35. Loading Bridges	Passenger Boarding Bridges	Aeronautical	
Passenger Seating System within the Terminal		Passenger Seating System within the Terminal	Common	Proportion of Weighted Average Terminal Space
Refurbishment, Expansion, Construction of Building Infrastructure - Core and Shell		Passenger Terminal Building - Core and Shell	Common	Proportion of Weighted Average Terminal Space
	11. Other Services Deemed necessary for the Operations of the Airport	Specific Aeronautical Location Development like Airport Control Room, Airport Service Buildings, Departure Location, Arrival Location, etc	Aeronautical	
		Specific Non-Aeronautical Location Development like Retail Spaces, Cargo, etc	Non-Aeronautical	
Public Health Equipment	49. Toilet Renovation	Public Health Equipment	Aeronautical	
Rescue and Fire Fighting Equipment	28. Fire service 7. Rescue and fire-fighting services;	Fire Detection Systems	Aeronautical	
		Fire Alarms	Aeronautical	
		Fire Extinguishers	Aeronautical	
		Assets related ARFF within and Outside the Terminal	Aeronautical	
Reserved activity Improvements	Aeronautical as per the definition of Reserved Activities	Assets for VISA counters	Aeronautical	
		Assets for Immigration counters	Aeronautical	
		Assets for Customs counters	Aeronautical	
		CISF Assets	Aeronautical	
Retail Area Development		Retail Area Development	Non-Aeronautical	

Asset Category	Corresponding reference to Schedule 5 of OMDA	Asset Sub-category/ Description	Asset Classification	Segregation Logic for Apportionment of Common Asset to Aeronautical
Security Related Assets	<i>2. Ensuring the safe and secure operation of the Airport, excluding national security interest</i>	Handheld Metal Detectors	Aeronautical	
		Bomb Detection and Disposal Devices	Aeronautical	
		Ladies Frisking Booth	Aeronautical	
	<i>37. Passenger and Hand Baggage Search</i>	Baggage Scanning Equipment	Aeronautical	
Senior Management Office Development		If the Airport Operator has a holding company/Other group Companies and have a common senior management	Common	Actual quantum of aeronautical expenditure or reasonable proportion. In case of DIAL, 50% of Second Control Period expenditure assumed to be Aeronautical
		If the Airport Operator is a standalone company	Common	Proportion of Weighted Average Terminal Space
Sign Boards		Sign Boards at Non-Aeronautical Areas	Non-Aeronautical	
	<i>46. Signage</i>	Sign Boards at Other Areas	Aeronautical	
Solar Power Plant	<i>11. Efficient Operations of Airport</i>	Solar Power Plant	Aeronautical	<i>Refer Note 3 at Page No. 25</i>
Bird Scaring	<i>22. Bird Scaring</i>	Bird Scaring	Aeronautical	
STP/WTP/ Other Drain Management Systems (Refer Note 4)	<i>50. Waste and refuse treatment and Disposal</i>	Sewage treatment Plant and Spares	Aeronautical	<i>Refer Note 4 at Page No. 25</i>
		Water treatment Plant and Spares	Aeronautical	
	<i>30. Foul and Surface Water Drainage</i>	Surface Water Drainage/Diversion systems	Aeronautical	

Asset Category	Corresponding reference to Schedule 5 of OMDA	Asset Sub-category/ Description	Asset Classification	Segregation Logic for Apportionment of Common Asset to Aeronautical
		Utility Trenches	Aeronautical	
Baggage Trolleys, Buggies for Passenger	<i>11. Other Services Deemed necessary for the Operations of the Airport</i>	Baggage Trolleys, Buggies for Passenger	Aeronautical	
Vertical Travellers/Horizontal Travellers	<i>34. Lifts, escalators and passenger conveyors</i>	Vertical Travellers/Horizontal Travellers	Aeronautical	
VIP Lounges	<i>52. VIP / special lounges</i>	Airport VIP Lounges	Aeronautical	
		Airline VIP Lounge	Non-Aeronautical	
Medical Services for Airport Operations	<i>11. Efficient Operations of Airport</i>	Medical Services for Airport Operations	Aeronautical	
Canteen Development		Inside the Terminal	Common	Proportion of Weighted Average Terminal Space
		Outside the Terminal	Common	Proportion of Weighted Average Terminal Space
Haj Terminal / Prayer rooms / Temples	<i>40. Prayer Room</i>	Inside the Terminal	Aeronautical	
		Outside the Terminal	Common	Proportion of Weighted Average Terminal Space
Bus Gate and Pier Refurbishment/Expansion	<i>38. Pier and Gate Room</i>	Bus Gate and Pier Refurbishment/Expansion	Aeronautical	
Check in Concourse	<i>23. Check in Concourse</i>	Kiosks	Aeronautical	
		Furniture	Aeronautical	
		Bay Partitions	Aeronautical	

Notes:

1. The proportion of the weighted average terminal space for Aeronautical and Non-Aeronautical activities has been arrived at, considering the space demarcated (as per the initial floor plan) for the above activities at each terminal. Since the actual space let out was lower than the demarcated space (*refer Table 18 for detailed workings*), the demarcated space has been taken as the basis for apportionment of Aeronautical and Non-Aeronautical asset values within the terminals.
2. It would be appropriate for segregation of assets related to staff training institute to be determined based on proportionate department-wise Aeronautical, Non-Aeronautical and Common costs. However, in the absence of such data, the assets costs have been segregated in the proportion of weighted average terminal space.
3. Capital investment in Solar Power Plant is considered as 100% Aeronautical as the power generated from the Plant is sold to the grid and the revenue arising from such sales is entirely set off against the electricity charges payable to the electricity board. Since the electricity costs are considered as 100% Aeronautical expense net of all the recoveries for usage at the let-out spaces, the investment in Solar power plant is also considered as 100% Aeronautical investment.
4. STP/WTP/ Other Drain Management Systems are classified as Aeronautical Assets under *clause 50 (Waste and Refuse Treatment and Disposal) and clause 30 (Foul and Surface Water Drainage) of Schedule 5 of the OMDA. This classification is irrespective of the location and usage of the STP/WTP or the drainage systems.*

4 EXECUTIVE SUMMARY

4.1 SEGREGATION OF ASSETS

The aggregate assets of DIAL have been classified under the following categories:

- **Aeronautical:** All assets which are exclusively utilised for activities covered under Schedule 5 of the OMDA are tagged as “Aeronautical” Assets. *Examples - Runways, drainage and culverts, taxiways, aprons and bays, airfield ground lighting, etc.*
Additionally, any service bought under the scope of Aeronautical services by TDSAT order dated 23rd April 2018 are also classified under Aeronautical Assets.
- **Non-Aeronautical:** All assets which are exclusively required or necessary for the performance of Non-Aeronautical services at DIAL as listed in Schedule 6 of the OMDA are tagged as “Non- Aeronautical”. *Examples - Development of the retail stores, cargo assets, Metro Station Development*
- **In-Admissible Assets:** Upfront fee paid to Airports Authority of India (AAI) (of ₹ 150 crores) has been tagged as an In-Admissible asset and does not qualify for consideration in the RAB as per the definition of RAB in the State Support Agreement of DIAL
- **Common Assets:** Assets which are not directly allocable to either Aeronautical or Non-Aeronautical are classified as Common assets. During the course of our study, based on the understanding gained by us from the nature of assets, its location, usage and criteria defined under relevant documents, we have determined the basis for appropriately apportioning the common assets in to “Aeronautical” and “Non-Aeronautical”, in a fair proportion.

Reference to Regulatory Asset Base:

As per the State Support Agreement, the closing RAB is derived using the formula below:

$$\text{RAB} = \text{Opening RAB} + \text{Investments} - \text{Depreciation}$$

Investments in the RAB comprises:

- 100% Aeronautical Assets, the Aeronautical proportion of the Common Assets; and
- any investments made for the performance of Reserved Activities, which are owned by DIAL.

RAB does not include:

- capital work-in-progress, which are not capitalised in fixed assets; and
- upfront fee of ₹ 150 crores paid to Airports Authority of India (referred to as In-Admissible Asset above)

Our engagement is focused on reviewing the Investments in the RAB for Second Control Period.

4.2 PROPOSED ADJUSTMENTS TO INVESTMENT IN RAB FROM FY15 TO FY19.

Table 2 Proposed adjustments to RAB from FY15 to FY19

(₹ crores)

Fixed Asset Adjustment	FY15-18	FY19	Total
(1) Total Investment in Gross Fixed Assets during Second Control Period (as per FAR of DIAL)	397.61	686.21	1,083.82
(2) Investments in RAB during Second Control Period (as per classification by DIAL)			
(i) Aeronautical Assets, included in (1) above	220.48	629.02	849.50
(ii) Adjustments to (2)(i) above for settlement/sale/deletion (refer Note 2)	(0.65)	-	(0.65)
(iii) Common Assets, to the extent apportioned as Aeronautical Assets	106.26	23.03	129.29
(iv) Adjustment for Air Traffic Control Tower funded from DF, included in (2)(i) above (refer note 1)	-	(350.00)	(350.00)
Total Investment in RAB during Second Control Period as classified by DIAL (sum of 2(i) to 2(iv) above).	326.09	302.05	628.14
(3) Proposed adjustments to RAB due to change in segregation logics (based on this Report)			
(i) Reworking based on the Hand Over – Take Over (HOTO) certificates (section 12.2.2)	-	-	-
(ii) Segregation of the EPOS system integration to CCTV (section 4.3.1)	(5.98)	-	(5.98)
(iii) New Udaan Bhavan Improvements (section 4.3.2)	(3.27)	(0.32)	(3.59)
(iv) Senior Management Office Improvements (section 4.3.3)	(3.26)	(0.35)	(3.61)
(v) Transit House Improvements (section 4.3.4)	(4.80)	(3.15)	(7.95)
(vi) Segregation from Aero to Common (section 4.3.5)	-	(2.76)	(2.76)
(vii) Segregation from Common to Aero (section 4.3.6)	0.31	-	0.31
Total proposed adjustments to RAB (based on this Report)	(17.00)	(6.58)	(23.58)

Fixed Asset Adjustment	FY15-18	FY19	Total
(4) Adjusted Investment in RAB during Second Control Period (4) = (2) + (3)	309.09	295.47	604.56
5) Adjustments to the Opening RAB as on the 1st April 2014 for settlement/sale/deletion by DIAL. (refer Note 2)	(55.29)	(2.77)	(58.06)
6) Adjusted Investment in RAB during Second Control Period net of adjustments made to the opening RAB in the Second Control period (6) = (4) + (5)	253.80	292.70	546.50

Notes:

- The total Investment in Gross Fixed Assets amounts to ₹ 733.82 crores. The number is arrived after deducting the Development fund (DF) funding in ATC Tower for ₹ 350 crores from the total Investment in Gross Fixed Assets during Second Control Period (as per FAR of DIAL) of ₹ 1083.82 crores (Refer Table 5 and Table 6 for year wise details of Aeronautical and Non-Aeronautical investments)
- The total adjustments on account of Sales/Deletions/Settlement with contractors sums to ₹ 58.71 crores (Refer Table 3). Out of the total value of such sales/deletions/settlement, ₹ 0.65 crores (Refer item 2(ii) of Table 2) pertain to assets of Second Control Period and the remaining ₹ 58.06 crores (Refer item 6 of Table 2) pertained to assets related to the First Control Period and were adjusted to the Gross Fixed Assets of the Second Control period.

Table 3 Adjustments to RAB on account of Sales/Deletion/Settlement made to contractors for Second Control Period (Refer Note 2 to Table 2)

(₹ crores)

Particulars	Aeronautical Adjustments for Sale/Deletions/Settlement with Contractors					
	FY 15	FY 16	FY 17	FY 18	FY 19	Total
Bridges-Culverts & Bunders etc.	0.06	-	-	-	-	0.06
Buildings	20.63	0.31	2.06	8.82	2.52	34.33
Capitalised Software and Computing Equipment	0.39	-	4.42	1.75	-	6.56
Electrical Fittings and Equipment	0.14	-	0.02	0.17	-	0.33

Particulars	Aeronautical Adjustments for Sale/Deletions/Settlement with Contractors					
	FY 15	FY 16	FY 17	FY 18	FY 19	Total
Furniture & Fittings	1.10	-	1.94	0.04	-	3.08
Office Equipment	0.18	-	10.14	0.03	-	10.35
Plant and Machinery	1.09	0.40	0.57	0.15	0.08	2.29
Roads	0.06	0.57	0.01	-	-	0.64
Vehicles	0.35	0.31	0.25	-	0.17	1.07
Grand Total	23.99	1.59	19.40	10.96	2.77	58.71

4.3 DETAILS OF PROPOSED ADJUSTMENTS MENTIONED IN SECTION 4.2

4.3.1 Aeronautical Assets re-classified to Non-Aeronautical Assets

- *Reference: Table 14*
- *Segregation by DIAL: 100% Aeronautical*
- *Issue: Software for monitoring retail sales integrated to CCTV Camera with objective of plugging revenue leakage from retail stores are related to Non-Aeronautical activities. Hence the same is reclassified from 100% Aeronautical to 100% Non-Aeronautical Asset.*
- *Impact: Re-classifying these assets from 100% Aeronautical to 100% Non-Aeronautical reduces the RAB to the extent of ₹ 5.98 crores.*

4.3.2 Improvements at New Udaan Bhavan

- *Reference: Table 20 for summary of adjustments and Tab 1D of Exhibit 1 (for asset details).*
- *Segregation by DIAL: Expenses incurred on development of the administrative office are classified as Common Assets and segregated in proportion of the weighted average terminal space.*
- *Issue: As the above premises are commonly utilised by other group companies, the proportion of expenses related to the rented floor space should be eliminated from the RAB. Thus 19.53% of the total expenditure related to the rented space is eliminated and*

only the balance (80%) is segregated into Aeronautical and Non-Aeronautical in proportion to the weighted average terminal space.

- **Impact:** The above segregation reduces the RAB to the extent of ₹ 3.59 crores.

4.3.3 Expenditure on Senior Management Office Development

- **Reference:** Table 21 for summary of adjustments and Tab 1D of Exhibit 1 for asset details.
- **Segregation by DIAL:** Expenses incurred on development of the office of Business Chairperson and Group Chairperson were classified as Common Expenses and segregated in proportion of the weighted average terminal space of 84.10%.
- **Issue:** Although the Senior Management is housed at New Udaan Bhawan (NUB), they are entrusted with responsibilities at the Group level. Hence, the segregation was revisited on an assumption of a 50:50 proportion (*as the proportion of actual man hour spent on Delhi Airport operations Vs other Group companies could not be gauged*).
- **Impact:** Revising the above segregation from 84% to 50% reduces the RAB to the extent of ₹ 3.61 crores.

4.3.4 Expenditure on Transit House Development

- **Reference:** Table 22 for summary of adjustments and Tab 1D of Exhibit 1 for asset details.
- **Segregation by DIAL:** Expenses incurred on development of Transit Houses taken on lease by DIAL were classified as Common Expenses and segregated in proportion of the weighted average terminal space of 84.10%.
- **Issue:** Since the purpose of visit of the transiting personnel could not be gauged, an assumption of 50:50 Aeronautical and Non-Aeronautical services was done, and the expenses were segregated based on the above assumption/ logic.
- **Impact:** Revising the above segregation from 84.10% to 50% reduces the RAB to the extent of ₹ 7.95 crores.

4.3.5 Aeronautical Assets re-classified to Common Assets

- *Reference: Table 15*
- *Segregation by DIAL: 100% Aeronautical*
- *Issue:* Expenditure incurred for the refurbishment and expansion of the Terminal Building includes development of Retail spaces. Hence these development costs are classified from 100% Aeronautical to Common assets.
- *Impact:* Re-Segregation from 100% Aeronautical to Common Assets segregated based on floor space proportion of T2 at 84.20% reduced the RAB by ₹ 2.76 crores.

4.3.6 Common Assets re-classified to Aeronautical Assets

- *Reference: Table 23*
- *Segregation by DIAL:* Assets such as perimeter intrusion systems, the tetra mobile radio systems, sign boards and CISF assets are classified as Common Assets by DIAL and segregated based on the weighted average floor space of the terminal.
- *Issue:* As the above assets are classified as “Aeronautical” under Schedule 5 of the OMDA, the same are re-classified to 100% Aeronautical.
- *Impact:* Re-classifying these assets from common weighted average terminal space of 84.10% into 100% Aeronautical increases the RAB to the extent of ₹ 0.31 crores.

4.4 YEAR WISE ADJUSTED INVESTMENTS IN AERONAUTICAL AND NON- AERONAUTICAL ASSETS

Table 4 Year-wise Investment in the RAB during Second Control Period (Aeronautical Assets)

(₹ crores)

Block of Assets	FY15	FY16	FY17	FY18	FY19	Total addition to RAB
Bridges, Culverts and Bunders	-	-	-	-	-	-
Building	2.85	19.53	16.39	6.38	181.21	226.36
Capitalised Software and Computing Equipment	1.39	11.09	8.15	13.03	18.53	52.19
Electrical Fittings and Equipment	12.2	5.51	22.99	11.73	90.11	142.53
Furniture and Fittings	1.39	8.28	20.17	5.65	19.26	54.76
Leasehold Improvements	-	-	3.73	1.18	2.99	7.90
Office Equipment	0.4	0.48	0.52	0.14	1.06	2.60
Plant and Machinery	17.82	40.55	17.95	6.11	287.05	369.48
Roads	-	0.74	4.45	1.78	10.15	17.12
Runway and Taxiway	7.05	13.92	12.21	9.3	31.44	73.93
Vehicles	1.22	0.09	1.84	0.89	3.66	7.69
Grand Total	44.32	100.19	108.4	56.19	645.47	954.56
Less: ATC funded through DF	-	-	-	-	(350.00)	(350.00)
Net RAB	44.32	100.19	108.4	56.19	295.47	604.56

Table 5 Year-wise Investment to the Non-Aeronautical Assets during the Second Control Period

(₹ crores)

Block of Assets	FY15	FY16	FY17	FY18	FY19	Total Non-Aeronautical Assets (B)
Bridges, Culverts and Bunders				0.32	0.01	0.33
Building	0.70	6.57	3.27	2.14	3.81	16.49
Capitalised Software and Computing Equipment	1.38	4.47	4.07	2.38	3.66	15.95
Electrical Fittings and Equipment	0.04	2.31	6.18	2.83	2.12	13.48
Furniture and Fittings	0.68	10.54	14.15	6.22	22.70	54.28

Block of Assets	FY15	FY16	FY17	FY18	FY19	Total Non-Aeronautical Assets (B)
Leasehold Improvements	-	-	3.73	1.18	2.99	7.90
Office Equipment	0.19	0.10	0.34	0.09	0.62	1.32
Plant and Machinery	6.90	2.40	3.19	1.20	2.50	16.19
Roads	-	-	0.00	-	1.79	1.79
Vehicles	-	0.00	0.60	0.36	0.56	1.52
Grand Total	9.88	26.39	35.53	16.71	40.75	129.26

Note:

1. Segregation of above assets in to 'Aeronautical' and 'Non-Aeronautical' (Table 4 & 5) have been done based on criteria defined in Section 3.3 and Table 1.
2. The total of Table 4 and Table 5 of ₹ 733.82 crores is the total gross investment in fixed assets (Refer Note 1 of Table 2) excluding investment in the ATC tower for ₹ 350 crores as per the MYTP Submission of DIAL at the end of the Second Control Period.

4.5 ACTUAL INVESTMENT IN GROSS FIXED ASSETS VIS-À-VIS PROJECTIONS IN THE SECOND CONTROL PERIOD TARIFF ORDER ²

As against the projected capital expenditure of ₹ 1,035.50 crores as per the Tariff Order for Second control period, DIAL had made an actual investment of ₹ 733.82 Crores up to FY19.

² Source: Tariff Order No: 40/2015-16

Table 6 Comparison of MYTP Submission to the Projected Investment in Gross Fixed Assets as per the Tariff Order of Second Control Period

(₹ crores)

S. No	Category of Investment	Projections as per Second Control Period Tariff Order	Actual investment in Gross Fixed Assets	Difference
1	Maintenance and Security Assets	957.73	701.00	256.73
2	Solar Power Plant	77.76	32.82	44.94
Aggregate true-up in Second Control Period		1,035.49	733.82	301.67

Note: Refer Table 4 and 5 for year-wise details of Aeronautical and Non-Aeronautical investments.

4.6 REVISED SEGREGATION OF IT JOINT VENTURE GAP FUNDING INTO AERO AND NON-AERO EXPENSE

Please refer Section 14 for discussion on IT Joint Venture

- **Issue:** Gap funding of ₹ 73.89 crores paid during Second Control Period was segregated by DIAL into Aeronautical and Non-Aeronautical based on terminal space proportion given under the initial Jacob's report of 2011
- **Our Solution:** We had reviewed the Asset base of WAISL (from FY11 until FY19) and segregated them in to Aeronautical and Non-Aeronautical assets. A segregation ratio of Aeronautical and Non-Aeronautical assets (78% and 22%) was arrived at, and the same was used for segregating the Gap Funding expenses incurred by DIAL
- **Impact:** By applying the above segregation ratio, ₹ 8.20 crores has been proposed to be moved from Aeronautical to Non-Aeronautical asset

4.7 SUMMARY

- The total investment in Gross Fixed Assets during the Second Control Period was ₹ **1083.82 crores**.
- Out of the above total investment, ₹ 350 crores invested in ATC tower was funded through Development Fund (DF) collected from the passengers. Hence, excluding the same, the net investment in Gross Fixed Assets amounts to ₹ **733.82 crores**.
- Out of the above net investment (of ₹ **733.82 crores**), DIAL had classified ₹ **628.14 crores** as Aeronautical Assets.
- Post reclassification and other adjustments made to the total investment in RAB (as detailed in Section 4.2 and Section 4.3), the total RAB investment is re-segregated as Aeronautical and Non – Aeronautical assets as under:
 - Adjusted Total Investment in RAB as per this Report: ₹ **604.56 crores**
 - Additions of Non – Aeronautical assets: ₹ **129.26 crores**
 - Total Adjustment to the Investment in RAB as per this Report: ₹ **23.58 crores**
- Aeronautical adjustments for sale/deletion/settlement with contractor by DIAL for ₹ 58.06 crores are to be additionally considered for arriving at Net Investment in RAB. Thus, the Total Investment in RAB net of such sale/deletion/settlement with contractor by DIAL would amount to ₹ **546.50 crores**.

5 REVIEW OF THE MASTER PLAN FY16 ³

The OMDA requires DIAL to develop an Initial Master Plan outlining its development plans until FY34 (Completed in September FY06) and revise the same every ten years or at shorter intervals depending on the traffic forecasts.

As part of the process of developing the master plan, broadly the following steps are initiated by DIAL



Based on the above process, DIAL made the following forecasts for the next 10 years and adopted an implementation plan (detailed below) post evaluation and stakeholder review:

5.1 FY34 TRAFFIC FORECASTS:

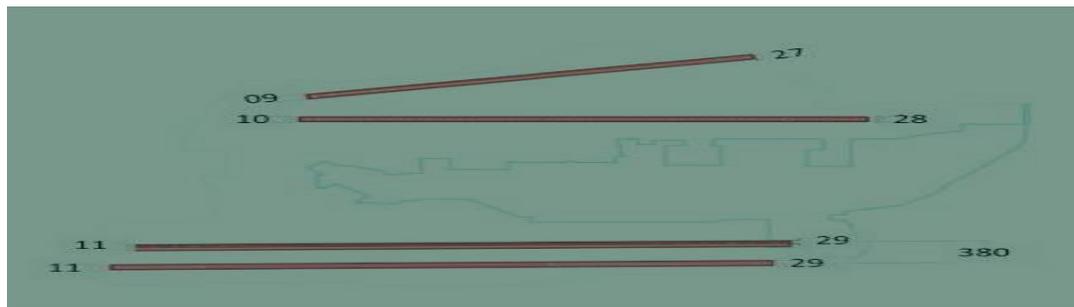
- Total passenger growth estimated to increase from 36.9 Million Annual Passengers (MAP) in FY14 to 109MAP in FY34
- Air Traffic Movement (ATM) growth estimated to grow from 281,034 in FY14 to 726,400 in FY34
- Total air cargo volume expected to increase from 605,699 tons in FY14 to 1,764,100 ton in FY34
- Total Peak hour ATM expected to increase from 64 in FY14 to 110 in FY34

³ Source: Master Plan 2016

5.2 DEVELOPMENT PLAN

5.2.1 Airside Development

Maintain the existing alignment of the 3 runways and build an additional runway parallel to the south of 11-29 Runway to meet the peak hour traffic of 110 MAP.



5.2.2 Terminal Development

Increase the terminal capacity at T1 and T3 and new terminal T4 with a capacity of 34 MAP by FY34 to meet the passenger growth of 109 MAP

5.2.3 Road Network within the Airport

- Widening of the Northern Access Road and tunnel
- Widening of the Central Spine Road
- A new dedicated cargo zone access road from NH-8

5.3 TIMELINES

The Master plan segregates the above development plan in 3 Phases:

- Phase 3A - FY16-FY20 (Target in Second Control Period): T1 and T3 Expansion, Development of the 4th Runway and other Airfield Improvements
- Phase 3B - FY21-FY25: Development of T4 up to 17MAP
- Phase 4 - FY26-FY34: Development of T4 up to 17MAP

5.4 STATUS OF THE DEVELOPMENT PLAN AT THE END OF SECOND CONTROL PERIOD

The turnkey construction agreement for the expansion of T1 and T3 and development of the 4th Runway was signed on 7th February 2019 and an approval to initiate action was given only on 7th March 2019. Hence, the progress of Phase 3A of the above development plan is currently in progress.

5.5 SUMMARY

In accordance with the requirements of OMDA, DIAL has developed an Initial Master plan outlining its development plans until FY34.

DIAL has estimated an increase in Passenger traffic 36.9 Million Annual Passengers (MAP) in FY14 to 109 MAP in FY34 and increase in Air Traffic Movement (ATM) from 281,034 in FY14 to 726,400 in FY34. Total Peak hour ATM expected to increase from 64 in FY14 to 110 in FY34. Development plan has been designed for development of Airside, Terminal and Road network within the Airport and the same is envisaged to be accomplished in 3 phases (from FY16 to FY34). For the Second Control Period, Phase 3A of the Master Plan ins under progress.

6 RECONCILIATION OF INVESTMENT IN GROSS FIXED ASSETS AS PER MYTP SUBMITTED AT THE END OF SECOND CONTROL PERIOD WITH THE AUDITED FINANCIAL STATEMENTS ⁴

A total investment in Gross Fixed Assets of ₹ 1,083.82 crores was made in Second Control Period to match DIAL airport to international standards of excellence and capacity expansion.

We reconciled

- the gross value of additions as per the Fixed Assets Register (FAR) with the investments as per DIAL's MYTP submission at the end of Second Control Period (detailing actual investments during the period)
- the MYTP submitted by DIAL at the end of Second Control Period with the audited financial statements of FY15 - FY19

A difference of ₹ 352.71 crores was noted between MYTP submission of DIAL and the Audited Financial Statements, which has been explained in Table 7 below:

⁴ Source: Audited Financial Statements of DIAL

Table 7 Reconciliation of Investment in Gross Fixed Assets as per MYTP (Multi Year Tariff Plan) submitted to AERA with the Audited Financial Statements for Second Control Period

(₹ crores)

Details of Investment as per MYTP submitted at the end of Second Control Period						
Asset Segregation	FY15	FY16	FY17	FY18	FY19	Total
Bridges, Culverts and Bunders	-	-	-	0.32	0.01	0.33
Building	3.55	26.1	19.67	8.52	185.02	242.85
Capitalised Software and Computing Equipment	2.76	15.56	12.21	15.42	22.19	68.14
Electrical Fittings and Equipment	12.24	7.82	29.17	14.56	92.24	156.01
Furniture and Fittings	2.07	18.82	34.32	11.88	41.96	109.05
Leasehold Improvements	-	-	7.47	2.36	5.98	15.8
Office Equipment	0.59	0.58	0.86	0.23	1.68	3.92
Plant and Machinery	24.72	42.95	21.15	7.3	289.55	385.67
Roads	-	0.74	4.46	1.78	11.95	18.92
Runways and Taxiway	7.05	13.92	12.21	9.3	31.44	73.93
Vehicles	1.22	0.09	2.45	1.25	4.22	9.21
Grand Total	54.19	126.58	143.95	72.89	686.21	1,083.83
As per the Audited Financial Statements						
Asset Segregation	FY15	FY16	FY17	FY18	FY19	Total
Bridges, Culverts, Bunders	-	-	-	0.32	0.01	0.33
Building	3.55	26.1	19.67	8.52	37.77	95.61
Capitalised Software and Computing Equipment	2.23	14.5	11.69	14.85	19.82	63.09
Electrical Fittings and Equipment	12.24	7.82	29.17	14.56	35.28	99.07
Furniture and Fittings	2.07	18.82	34.32	11.88	41.96	109.05
Leasehold Improvements	-	-	7.47	2.36	5.98	15.81
Office Equipment	0.59	0.58	0.86	0.23	1.68	3.94
Plant and Machinery	24.72	42.98	21.15	7.22	146.11	242.18
Roads	-	0.74	4.46	1.78	11.95	18.93
Runway and Taxiway	7.01	13.92	12.21	9.3	31.44	73.88
Vehicles	1.22	0.09	2.45	1.25	4.22	9.23
Grand Total	53.63	125.55	143.45	72.27	336.22	731.12
Difference between the Audited Financial Statement and MYTP submission						
Asset Segregation	FY15	FY16	FY17	FY18	FY19	Total
Building	-	-	-	-	147.25	147.25
Capitalised Software and Computing Equipment	0.53	1.06	0.52	0.57	2.37	5.05
Electrical Fittings and Equipment	-	-	-	-	56.96	56.96
Plant and Machinery	-	(0.03)	-	0.08	143.44	143.49

Difference between the Audited Financial Statement and MYTP submission						
Asset Segregation	FY15	FY16	FY17	FY18	FY19	Total
Runway and Taxiway	0.04	-	-	-	-	0.04
Grand Total	0.57	1.03	0.52	0.65	350.02	352.71

The difference of ₹ 352.71 crores was on account of the following:

- ₹ 350 crores: ATC tower** was under construction until FY 18 and capitalized in the books of accounts during FY19 to the tune of ₹ 398.69 crores. Out of the above total cost, ₹ 350 crores were funded from the ear-marked development fund and was not considered as part of RAB. Remaining ₹ 48.59 crores was funded by DIAL and has been considered as 100% Aeronautical asset for the purpose of RAB.
- ₹ 2.71 crores:** There were manual adjustments/ rounding off made by DIAL to the Audited Financials, in each of the years in the Second Control Period

6.1 PHYSICAL EXISTENCE OF ASSETS:

DIAL had deputed a Chartered Accountant firm to conduct physical verification of airport assets during the month of May 2017. We have read their final report and relied on the same to establish the existence of assets in the RAB as on 31st March 2016. The outcomes have been tabulated below:

Table 8 Adjustments done based on Physical Verification of Assets as on 31st March 2016

(₹ crores)

S. No	Asset Category	WDV Adjustment
1	Building and Roads (Demolished) - Terminal 1B	1.14
2	Computing Equipment including desktops and Laptops	-
3	Electrical Fittings	
4	Furniture and Fixtures	0.45

S. No	Asset Category	WDV Adjustment
5	Office Equipment	0.03
6	Plant and Machinery	0.27
7	Roads	-
8	Vehicles	
	- GPS Equipment	0.01
	- 6 Vehicles scrapped	
	Total	1.91

6.2 EXCLUSIONS FROM RAB

6.2.1 Foreign Exchange Fluctuations

As per decision number 12.c pronounced under order number 03/2012-13 dated 24th April 2012 for the first Control Period, AERA had decided to exclude from the regulatory asset base, any currency fluctuations on the principal repayment on external borrowings capitalized under Accounting Standard 11. Hence for Second Control Period, total currency fluctuation capitalized (₹ 429.20 crores till FY19) has been excluded from the RAB.

6.2.2 Development Fund (DF) Charges

As per Decision Number 3.a. of Order number 03/2012-13 dated 24th April 2012, AERA decided that out of the total allowable project cost of ₹ 12,502.86 crore, the gap funding of ₹ 3,415 crores collected or to be collected from passengers as Development Fee shall not be included in RAB. Thus, the related collection charges of ₹ 11.18 crores capitalized to the carrying cost of assets towards collection of development fee during Second Control Period were also excluded from RAB.

6.2.3 Land and Improvements on Approach Roads other than DIAL Property

Our study of the investment made by the company towards the approach roads leading to the terminal and all other roads in and around the premises, showed that DIAL invests in the development of only the roads owned by it. Expenses incurred on developments of roads belonging to DIAL are treated as Aeronautical for regulatory purposes.

6.3 SUMMARY

- Total investment in the Gross Fixed Assets as stated in MYTP submitted at the end of Second Control Period (actual spend of ₹ 1,083.82 crores during FY15-19) was compared with actuals reported in the Audited Financial statements. A difference of ₹ 352.70 crores was noted on account of investment made in ATC tower using Development Fund and other manual adjustments due to rounding off.
- Physical verification of assets was performed by a Chartered Accountant firm in May 2017 based on which adjustment of ₹ 1.91 crores have been made to the books of account.
- Following have been excluded from RAB:
 - Foreign Exchange Fluctuations
 - Development Fund (DF) Charges
 - Land and Improvements on Approach Roads other than DIAL Property

7 MAJOR INVESTMENTS DURING SECOND CONTROL PERIOD INCLUDED IN THE RAB

Table 9 Major Investments during Second Control Period

(₹ crores)

S. No	Asset Description	Asset Segregation	Additions FY15-18	Additions FY19	Total FY15- FY19
1	T2 Refurbishment and Expansion	Aeronautical	69.58	8.36	77.94
2	Rehabilitation of the Airside Pavements, Taxiways and Aprons	100% Aeronautical	40.87	13.35	54.22
3	Solar Power Plant	100% Aeronautical	32.80	-	32.80
4	T1 – Bus Gate Expansion	100% Aeronautical	19.50	-	19.50
5	New Udaan Bhavan Improvements	Common Assets	21.63	1.96	23.59
6	Transit House Improvements	Common Assets	14.08	9.24	23.32
7	Link PAPA taxiway to Runway 10/28-PA	100% Aeronautical	-	18.08	18.08
8	Air Traffic Control Tower	100% Aeronautical	-	398.69	398.69
9	Cost of X-Ray Machines reimbursed	100% Aeronautical	-	119.60	119.60
	Total Major Investments		198.46	569.28	767.74
	Total Non- Major Investments		199.15	116.93	316.08
	Total Investment in Gross Fixed Assets as per the Table 2 (Major and Non-Major Investments)		397.61	686.21	1,083.82

On review of each asset added during FY15 to FY18, a materiality threshold of ₹ 2 crores (Sample of 50% of the Total investment in Gross Fixed Assets) was designated for review of documents such as Note for Approval (NFA), Competitive bidding, technical evaluation and selection of vendors. Such assets are classified as “Major Investments” in the above table and the review process of the same is detailed under Section 8 of this Report.

7.1 T2 REFURBISHMENT

In order to provide relief to the ever-increasing domestic passenger traffic at Terminal - 1D and Terminal - 1C (Departing and Arriving Passengers), an additional capacity of 12 MAP was augmented at T2 (Previously used for Haj Operations)

7.2 REHABILITATION OF THE AIRSIDE PAVEMENTS

Most of the airside pavements at T1 and T2 which are constructed by AAI and taken over by DIAL require continuous improvements due to aging and safe operations. Thus, in line with the test results and surveys conducted on various taxiways by Jacob's Consultancy, the taxiways were proposed to be rehabilitated.

7.3 SOLAR POWER PLANT

To mitigate the emission of the greenhouse gases to counter Global Warming under Renewable Energy Certificate Solar Mission Policy, it was proposed to install Grid Connect Solar Power Plants of 5.7Mega Watt capacity.

7.4 T1 - BUS GATE EXPANSION

The existing bus gate/ queuing area at the Terminal 1D at the boarding gates were often found overcrowded with passengers especially during the peak hours. Due to limited queuing space in front of each boarding gate, a difficulty in the movement of the passengers was noted. Further it also reduced the seating space around the area. Thus, for improving passenger services it was proposed to expand the bus gate area.

7.5 NEW UDAAN BHAVAN (NUB) IMPROVEMENTS

Major improvements include -

- Seismic structures for the building
- Furniture and fitting renovation for the building
- Electrical fitting and e

- Common cafeteria
- IT networking for NUB Complex

7.6 TRANSIT HOUSE IMPROVEMENTS

Major improvements include

- Lease Hold Property Improvement at Pushpanjali Farms
- Effective 1st April 2018, the property has been given over to the Executive Chairman of DIAL for use as residence
- Lease Hold Property Improvement at Aurangzeb Lane Transit House
- Other Improvements at the Transit Houses

7.7 ATC TOWER

Development Fund amounting to ₹ 350 crores during FY13 ear-marked for the construction of the Air Traffic Control (ATC) Tower. The ATC Tower under construction until FY 18 was completed and capitalized in the books of accounts during FY19 with a total expenditure of ₹ 398.69 crores. Since the total cost incurred towards the construction of the tower exceeded the ear-marked DF of ₹ 350 crores, the additional amount incurred (₹ 48.69 crores) was considered as part of the regulatory asset base as 100% Aeronautical assets.

Table 10 Details of total expenditure on ATC Tower in FY19

(₹ crores)

Block of Assets	Additions FY19
Buildings & Roads	175.91
Computing Equipment	2.83
Electrical Fittings and Equipment	68.05
Plant and Machinery	151.90
Grand Total	398.69

7.8 X-RAY BAGGAGE MACHINES PURCHASED OUT OF PSF SECURITY FUNDS

The Ministry of Civil Aviation (MOCA) vide its letter dated 16th April 2010 had abolished the X-ray Baggage Charges from the Base Airport Charges (BAC) as the equipment were purchased from the Security fund collected from the passengers (PSF-Security Fee) and not from the funds of DIAL.

The authority entitled DIAL to charge back the X-ray baggage charges only if they remit the amount spent on the purchase of X-ray machines from the PSF Security funds. Thus, having remitted back ₹ **119.65 crores** towards the purchase of the X-ray machines, the authority allowed DIAL to charge the X-ray baggage charges effective from 01st February 2019 and the amount spent on this purchase were capitalized in FY19.

7.9 SUMMARY

Major Investments made by DIAL during the Second Control Period were towards refurbishment of T2, Rehabilitation of the Airside Pavements, Taxiways and Aprons, Solar Power Plant, ATC, T1 - Bus Gate Expansion, New Udaan Bhavan Improvements, Transit House Improvements, X-Ray baggage machines etc. The value of such Major Investment is ₹ 767.74 crores.

8 INTERNAL DOCUMENTATION REVIEW

8.1 SAMPLE SELECTION

For the major assets procured during Second Control Period (as defined under section 7), we reviewed the documents supporting the procurement such as Note for Approval (NFA), Competitive bidding, technical evaluation and selection of vendors. We also reviewed the adequacy of the procurement process followed by DIAL. Apart from the approval process and documentation, we reviewed the nature of assets described in the NFA to specifically determine whether the Segregation done by DIAL as Aeronautical or Non- Aeronautical asset is appropriate or not.

8.2 REVIEW OF THE NFA (NOTE FOR APPROVAL)

As part of the review of the NFA, the following criteria in the NFA were reviewed:

- Proposal given by the User department for the acquisition of asset explaining the justification for procurement, estimated costs etc. We also reviewed the nature of asset to determine whether it was for Aeronautical or Non-Aeronautical services.
- Approval of NFA by an appropriate authority
- Process followed for technical evaluation of the prospective vendors, selection of vendors and awarding of contract.

8.3 PROCUREMENT PROCESS OF DIAL:

Following is the procurement process followed at DIAL:

- Purchase requisition (PR) is created by the user department and is approved by the authority authorised as per Delegation of Powers. The above process of creation of PR and its approval is executed in SAP.
- Procurement department validates the PR and verifies the availability of budget.
- Procurement issues a request for quotation (RFQ) to prospective vendors (selected from Vendor database/ Open Market), detailing eligibility criteria, scope of work, timelines, etc.

- Bids received from prospective vendors (in response to RFQ) are evaluated by the Procurement & Technical team with respect to the eligibility criteria defined in RFQ, vendor capabilities in terms of their project delivery, previous work experience and commitment.
- Procurement department initiates negotiation with the technically qualified bidders.
- Post negotiations, the recommendation for award is submitted for approval in accordance with the approval matrix defined in the Delegation of Power. Once recommendations are approved, Contracts are awarded accordingly.

8.4 SUMMARY

For key assets procured during Second Control Period, a review was performed in respect of documents supporting the procurement such as Note for Approval (NFA), Competitive bidding, technical evaluation and selection of vendors to assess the nature of assets and its segregation. As part of the study the adequacy of the process followed by DIAL for procurement of assets was reviewed.

9 CHANGE IN ACCOUNTING PRINCIPLE IMPACTING CAPITALIZATION OF ASSETS DURING SECOND CONTROL PERIOD

Owing to a change in accounting principles or the sources used for funding the purchase of the assets, the following maintenance assets were capitalized in the books of DIAL for the first time in Second Control Period and the fundamentals applied for these capitalizations will continue henceforth.

9.1 X-RAY BAGGAGE MACHINES: BASE AIRPORT CHARGES (BAC) ORDER DATED 10TH JANUARY 2019

The Ministry of Civil Aviation (MOCA) vide its letter dated 16th April 2010 had removed the X-ray Baggage Charges BAC as the equipment was purchased from Security funds collected from the passengers (PSF Security Fee) and not from the funds of DIAL.

However, in response to DIAL's contention on the BAC for Second Control Period falling below the previous BAC+ 10% incremental as per clause 2 of schedule 6 of the State Support Agreement, AERA entitled DIAL to charge back the X-ray baggage charges only if they remit the amount spent on the purchase of X-ray machines from the PSF Security funds. Hence confirming the receipt of the money spent from the security funds, the authority allowed DIAL to charge the X-ray baggage charges effective from 1st February 2019. With the given decision, X-ray Baggage machines are now also capitalized in the RAB.

9.2 CAPITALIZATION OF ESSENTIAL SPARES

Owing to revision of the Indian Accounting Standard 16 (IND AS 16) on Property, Plant and equipment (PPE) including essential spares in the definition of PPE, effective FY17, DIAL capitalizes all the Essential Spares in accordance with the revised accounting principles of PPE to the RAB.

Earlier Concept (Prior to FY17) - As per AS-10, Accounting for Fixed Assets:

Machinery spares are usually charged to the Profit and Loss Statement as and when consumed. However, if such spares can be used only in connection with the principal fixed asset and their use is expected to be irregular, it may be appropriate to allocate the total cost on a systematic basis over a period not exceeding the useful life of the principal item.

Revised Concept: IND AS 16, Property, Plant & Equipment:

Now, it has been specifically provided that, for any spare part to be covered under the scope of PPE, it must satisfy the below mentioned definition criteria of PPE:

- Assets which are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and,
- Assets which are expected to be used during more than a period of twelve months.

On fulfillment of both the conditions, the spares may be considered as PPE and capitalized in the books of accounts.

9.3 SUMMARY

- X-ray baggage charges are charged by DIAL with effect from 1st February 2019, based on direction from AERA on remitting back the amount spent on purchase of X-Ray baggage machines using PSF Security funds.
- Effective FY17, DIAL capitalizes all the Essential Spares in accordance with the revised accounting principles of Property, Plant and equipment (PPE) as laid out in Indian Accounting Standard 16.

10 ASSET SEGREGATION LOGIC BY DIAL - CONCEPT NOTE FOR SECOND CONTROL PERIOD

The assets of the Airport have been classified under the following categories:

- Aeronautical
- Non-Aeronautical and
- In-Admissible Asset

The following methodology has been adopted to allocate the assets:

- i. Firstly, **an admissibility test** was applied to all assets capitalised in DIAL's books. Accordingly, the Upfront Fee paid to AAI (of ₹ 150 crores) has been tagged as an Intangible asset, as the same is not classified as Aeronautical Assets under the State Support Agreement.
- ii. **Guidelines as per OMDA (Schedules 5 and 6)**
 - a. **Aeronautical:** Assets which are directly related to an activity covered under Schedule 5 of OMDA is tagged as Aeronautical. Accordingly, Assets on airside like Runways, Drainage and Culverts, Taxiways, Aprons and Bays, Airfield Ground Lighting 'ACL', Satellite rescue and fire station, perimeter roads, boundary wall, Sub-stations etc. are classified as Aeronautical assets.
 - b. **Non-Aeronautical:** Investment in cargo terminal is considered as Non-Aeronautical as per Schedule 6 of OMDA. In case of the passenger terminal building (PTB), they are primarily used for passenger processing and facilitation. PTB's are therefore Aeronautical asset except in where such area is clearly identified to retail or commercial activity which are classified as Non-Aeronautical Asset.
 - c. **Common Assets:**
 - Assets which are not directly allocable to either Aeronautical or Non-Aeronautical are classified as Common Assets. In case such assets are related to, or located in, a terminal, the same has been allocated based on that terminal's area measurement proportion
 - Assets which have common usage and support the overall functioning of the management of the airport for example Administrative office furniture, laptops

etc. have been allocated based on the overall terminal area common of Indira Gandhi International Airport.

- iii. For terminal assets, as advised by Jacob's Consultancy the floor area has been used by DIAL for allocation of Aeronautical and Non-Aeronautical Terminal expenditures. A separate exercise of allocation of terminal areas was carried out by Jacob's, and a certificate dated 17th November 2011 has been obtained. The Aeronautical and Non-Aeronautical segregation obtained in the aforesaid exercise for the respective terminal areas is as under:

Table 11 Allocation Percentage as per the Jacob's Report dated 17th November 2011

Terminal	Aeronautical Portion	Non-Aeronautical Portion
T1	84.00%	16.00%
T2	84.20%	15.80%
T3	84.07%	15.93%
Weighted Average Terminal Area Mix	84.10%	15.90%

10.1 SUMMARY

DIAL had classified assets into Aeronautical and Non-Aeronautical as per Schedule 5 and 6 of OMDA. Common assets were segregated by DIAL using the Weighted Average Terminal Floor Space ratio defined by an independent agency, Jacob Consultancy based on their study done in 2011.

11 SUMMARY OF LOCATION-WISE SEGREGATION SUBMITTED BY DIAL ⁵

Table 12 Segregation of Investment in Gross Fixed Assets by DIAL during FY 15 to FY 19

(₹ crores)

S. No	Description	Additions FY 15-18	FY 19	Total
1	Aeronautical	220.48	629.02	849.50
1.1	100 % Aeronautical at Airside	78.03	52.59	130.62
1.1.1	Rehabilitation/Improvements of the Old Pavements and Taxiways	40.71	31.44	72.15
1.1.2	AGL Improvements	18.72	11.23	29.95
1.1.3	Airside Improvements	8.19	4.53	12.72
1.1.4	Other Assets	10.42	5.39	15.81
1.2	New Udaan Bhawan	1.02	1.51	2.53
1.2.1	CCTV Cameras	1.02	-	1.02
1.2.2	Other Assets	-	1.51	1.51
1.3	Other Common	42.39	4.65	47.04
1.3.1	New Solar Power Plant	32.83	-	32.83
1.3.2	Approach Roads Improvement	2.33	-	2.33
1.3.4	Other Assets	7.23	4.65	11.88
1.4	T1	31.72	4.03	35.75
1.4.1	Bus Gate Expansion at T1	19.60	-	19.60
1.4.2	Toilet Renovation	2.33	-	2.33
1.4.3	X-Ray Machines	1.92	-	1.92
1.4.4	CCTV Cameras	0	3.53	3.53
1.4.5	Other Assets	7.88	0.50	8.38
1.5	T2	6.64	19.34	25.98
1.5.1	T2 Refurbishment expenses - Approach Road	5.73	0.68	6.41
1.5.2	Other Civil Works for T2 Refurbishment	-	17.38	17.38
1.5.3	Other Assets	0.91	1.28	2.19
1.6	T3	60.68	28.55	89.23
1.6.1	Zero Tolerance Project - Energy Saving	8.07	0.07	8.14
1.6.2	EPOS System/CCTV Integration	5.98	-	5.98
1.6.3	Rain-Water Diversion Plan	5.61	-	5.61
1.6.4	CCTV Cameras	4.68	0.51	5.19
1.6.5	Software used at the Terminal	4.49	0.16	4.65

S. No	Description	Additions FY 15-18	FY 19	Total
1.6.6	Panels and Transformers	3.21	0.32	3.53
1.6.7	People Counting Solution	3.03	0.41	3.44
1.6.8	Boarding System	2.24	0.35	2.59
1.6.9	Lighting within the terminal	-	3.93	3.93
1.6.10	Other Assets	23.36	22.80	46.16
1.7	ATC Tower	-	398.69	398.69
1.8	PSF SE Funds	-	119.66	119.66
2	Common	126.29	27.38	153.67
2.1	New Udaan Bhawan	22.62	2.99	25.61
2.1.1	NUB Building Improvements	16.02	2.99	19.01
2.1.2	NUB Improvements- Seismic Protection	6.61	-	6.61
2.2	Other Common	29.35	20.97	50.32
2.2.1	Transit House Improvements	12.85	9.24	22.09
2.2.2	Video Conferencing Equipment	5.06	-	5.06
2.2.3	Essential Spares to the Machinery	3.45	2.91	6.36
2.2.4	Visitors Lounge Opposite T2	-	7.73	7.73
2.2.5	Other Assets	7.99	1.09	9.08
2.4	T1	2.11	0.10	2.21
2.4.1	CCTV Cameras	0.67	-	0.67
2.4.2	Approach Roads Improvement	0.50	-	0.50
2.4.3	Other Assets	0.94	0.10	1.04
2.5	T2	64.20	2.58	66.78
2.5.1	T2 Refurbishment expenses	63.85	1.36	65.21
2.5.2	Other Assets	0.35	1.22	1.57
2.6	T3	8.01	0.74	8.75
2.6.1	Contractor Office Refurbishment	2.29	-	2.29
2.6.2	Data Centre Operations	1.12	-	1.12
2.6.3	Other Assets	4.60	0.74	5.34
3	Non-Aeronautical	50.84	29.81	80.65
3.1	100% Non-Aeronautical (Related Retail, Cargo and CPD)	9.32	3.90	13.22
3.2	New Udaan Bhawan	0.46	0.36	0.82
3.3	Other Common	0.12	-	0.12
3.4	T1	19.08	0.97	20.05
3.5	T2	6.44	0.11	6.55
3.6	T3	15.43	24.46	39.89
	Total Investment to Gross Fixed Assets from FY15 to FY19 (1 + 2 + 3)	397.61	686.21	1,083.82

12 REVISED ASSETS SEGREGATION AS PER THE STUDY

12.1 SEGREGATION OF ASSETS AS PER SCHEDULE 5 AND 6 OF OPERATION, MAINTENANCE AND DEVELOPMENT AGREEMENT (OMDA)

The OMDA entered in to between the Airports Authority of India (AAI) and Delhi International Airport Limited (DIAL) **defines Aeronautical Assets** as those necessary or required for the performance of Aeronautical Services at the Airport and such other assets as JVC procures in accordance with the provisions of the Project Agreements in relation to any Reserved Activities and shall specifically include all land, property and structures thereon acquired or leased during the Term in relation to such Aeronautical Assets.

Schedule 5 of the agreement details all such Aeronautical services for which the related assets can be classified as Aeronautical.

12.1.1 AERONAUTICAL ASSETS AS PER OMDA

In accordance with clause 3b of RFP 03/2018-19 and Step 7 of the work performed under section 3.2 of this Report, each asset code added in the FAR during the Second Control Period were analyzed and grouped in line with Schedule 5 of OMDA. This section of the Report details the classification of each group of assets in line with the Schedule 5 of OMDA

OMDA defines Reserved Activities in the following manner:

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Assets for Reserved Activities - Immigration, Customs and Visa on Arrival	3.68	7.46	11.14
Assets for Reserved Activities - Security of the Airport (CISF and ARFF Assets)	1.58	3.89	5.47
Total	5.26	11.35	16.61

Improvement of look and feel of the Airport to maintain a passenger rating of minimum 3.75 as required by the OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Improvement of the Look and Feel of the Airport - Artwork at the Terminal	1.05	-	1.05
Total	1.05	-	1.05

Safe and Secure Operations of the Airport - Clause 2 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Access Control Systems	0.86	0.70	1.56
Property Boundary Wall for DIAL Area	2.04	-	2.04
CCTV Cameras Inside the Terminal	7.96	4.03	11.99
Perimeter Intrusion Detection System	1.24	-	1.24
Other Security Related Assets like Handheld Metal Detector, Bomb detectors, etc.	1.64	2.55	4.19
Total	13.74	7.28	21.02

General Upkeep of the Airport - Clause 4 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Cladding Work	0.58	-	0.58
Total	0.58	-	0.58

Hangarage of the Aircraft - Clause 5 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Hangarage	1.00	-	1.00
Total	1.00	-	1.00

Flight Information Display Systems and Other Public Address Systems - Clause 6 and Clause 29 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Communication Systems	0.14	0.03	0.17
Flight Information Display Systems (FIDS)	2.45	-	2.45
FIDS/Communication Systems	0.23	-	0.23
Tetra Mobile Radio System (Walkie-Talkie)	0.55	0.28	0.83
Total	3.37	0.31	3.68

Fire Fighting Services - Clause 7 and Clause 28 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Fire Systems	0.94	0.41	1.35
Total	0.94	0.41	1.35

Operation and Maintenance of Passenger Boarding and Disembarking System - Clause 10 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Boarding System - CUTE/CUSS Kiosks, Self-Boarding Systems* etc.	2.62	0.35	2.97
Total	2.62	0.35	2.97

Efficient Operations at the Airport - Clause 11 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Bus Gate Expansion at T1	19.60	-	19.60
New Solar Power Plant	32.83	-	32.83
People Counting Solution	3.03	0.41	3.44
Q Management System	0.35	1.32	1.67
Sewage Treatment Plant /Water Treatment Plant	0.15	0.57	0.72
Zero Tolerance Project - Energy Management	8.08	0.07	8.15
Total	64.04	2.37	66.41

Other Services Deemed Necessary for Operations of the Airport - Clause 11 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Flooring at the Aeronautical spaces within the Terminal like Immigration area/Check-in Area, etc.	0.82	-	0.82
IT Assets at the Terminals like Air-traffic and Noise Management systems, Data Centre Assets, Wi-Fi at T1, etc.	2.04	-	2.04
Other Common Area developments like Medical Services, etc.	0.20	2.07	2.27
Other Work at T2	0.10	0.72	0.82
Other Works at T1 like Electrical Wiring, Fixing of the Ceiling, RO water Systems, etc.	1.72	0.09	1.81
Other Works at T3 like Renovation of Terminal Building, Purchase of Baggage Trolleys, Buggies for passenger movement, etc.	6.77	4.08	10.85
Software used for Terminal Operations like power monitoring systems, UFIS, etc.	5.04	0.37	5.41
Video Management Software	0.34	-	0.34
Total	17.03	7.33	24.36

Airfield/Taxiway Improvements - Clause 13 and Clause 48 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Assets at the Airside for Daily Operational Requirements like Vehicles, Grass Cutting Machines, Training Rooms etc.	0.86	3.29	4.15
Airside Improvements like rehabilitation of the Taxiways	8.95	24.04	32.99
Rehabilitation of the Old Pavements as per technical study by Jacobs Consultancy	40.89	7.40	48.29
Other Airside Improvement like Bird Net System, Wireless Connectivity, etc.	-	4.53	4.53
Total	50.7	39.26	89.96

Airfield Lighting - Clause 14 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Air Ground Lighting Improvements	20.51	11.88	32.39
Total	20.51	11.88	32.39

Airside and Landside Access Roads Improvements - Clause 16 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Improvements for the Approach Roads to Terminals	2.59	0.01	2.6
T2 Refurbishment- Widening of the Central Spine Road	5.73	0.68	6.41
Varalakshmi Training Institute Landside Development	0.04	-	0.04
Light Masts for the Street Lights	1.02	0.94	1.96
Total	9.38	1.63	11.01

Common Hydrant Infrastructure - Clause 17 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Hydrant Infrastructure	-	0.40	0.40
Total	-	0.40	0.40

Baggage Systems Including Outbound and Reclaim - Clause 21 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Baggage Makeup Area Improvements	0.37	-	0.37
Total	0.37	-	0.37

Cleaning, Heating, Lighting and Air Conditioning Public Areas - Clause 24 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Electricity Panels and Transformers	4.40	1.41	5.81
Heating, ventilation and Air Conditioning Systems	2.01	0.68	2.69
Runway Sweeping Machines	1.80	-	1.8
Lighting at Terminals	-	3.93	3.93
Total	8.22	6.01	14.23

Foul and Surface Water Drainage - Clause 30 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Surface Water Drainage System at T3	5.75	-	5.75
Total	5.75	-	5.75

Inter Terminal Transit System - Clause 33 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Inter Terminal Transit System	-	0.09	0.09
Total	-	0.09	0.09

Signage at the Airside and Landside Access Road - Clause 46 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Sign Boards	2.50	0.60	3.10
Total	2.50	0.60	3.10

Toilet Renovation - Clause 49 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
Toilet Renovation at T1	2.33	-	2.33
Total	2.33	-	2.33

X-Ray Services for Carry-on and Check-in Luggage - Clause 51 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
X-Ray Machines including Electrical Works for Existing X-Ray Machines	3.39	3.88	7.27
Total	3.39	3.88	7.27

VIP/Special Lounges - Clause 52 of Schedule 5 of OMDA

(₹ crores)

Description	Additions FY15-18	Additions FY19	Total FY15-19
VIP Lounges	1.72	0.13	1.85
Total	1.72	0.13	1.85

12.1.2 NON-AERONAUTICAL ASSETS

Non-Aeronautical Assets are defined as all such assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Schedule 6 of the OMDA.

Table 13 Summary of Non-Aeronautical Assets for the period FY15 to FY18

(₹ crores)

Asset Class	Classification	Additions FY15-FY18
Development of the Retail Stores	Non-Aeronautical	39.11
Cargo Assets	Non-Aeronautical	9.59
Metro Station Development	Non-Aeronautical	0.18
Assets for CPD	Non-Aeronautical	0.45
Other Non-Aeronautical Assets	Non-Aeronautical	1.92
Total		50.84

Note: Also Refer Item 3 of Table 12

12.1.3 RE-SEGREGATION OF THE ASSETS

Table 14 Re-Segregation of Aeronautical Assets to Non-Aeronautical Assets for the period FY 15 to FY18

(₹ crores)

Block of Assets	Asset	Purpose as per the NFA	Asset Description	FY15 Addition
Plant and Machinery	150077005562	This is an upgradation of software majorly for the purpose of monitoring of retail sales. The objective is to plug revenue leakages from Retail Stores	Implementation of CCTV EPOS Integration Technology	5.98

Since the below assets relate to the expansion of the entire terminal which may include the expansion of the retail areas, the Segregation of these expansion costs is re-classified from

“aeronautical” to “common assets” and are segregated on basis of the terminal floor space. Such Segregation from 100% aeronautical assets to 84.20% aeronautical assets have a total impact of ₹ 2.76 crores

Table 15 Re-Segregation of Aeronautical Assets to Common Assets for the period FY15 to FY18

(₹ crores)

Asset Number	Asset Description	Addition (100% Aeronautical)	Segregation percentage revised	Aeronautical Value	Impact on Aeronautical
150056000198	Civil Work for T2 Expansion	3.98	84.20%	3.35	0.63
150091033626	Finishes & Signage work for T2 Expansion project	1.22	84.20%	1.02	0.19
150065003047	Electrical Work for T2 Expansion	0.52	84.20%	0.44	0.08
150077005705	Mechanical work T2 Expansion (HVAC & other work)	0.39	84.20%	0.33	0.06
150031000028	Road work for T2 Expansion project	0.22	84.20%	0.19	0.03
150031000027	Re-carpeting of road at landside area	11.05	84.10%	9.29	1.76
Impact					2.76

12.2 SEGREGATION CRITERIA FOR COMMON ASSETS

12.2.1 MATERIALITY LEVEL FOR THE SEGREGATION OF ASSETS

For review of the assets up to FY 18 classified as Common, a materiality limit of assets valuing above ₹ 25 lakhs was adopted. Thus, for around 90% of the total assets with value greater than ₹ 25 lakhs classified under Common category, a thorough review at a line item level for the nature of assets was carried out for ensuring accuracy in the segregation of such assets into Aeronautical and Non-Aeronautical.

Table 16 Summary of Common Assets per Materiality Level for FY15 to FY18

(₹ crores)

Threshold	Amount
Less than and Equal to ₹5 lakhs	3.81
Less than and Equal to ₹ 10 lakhs, Greater than ₹ 5 lakhs	3.05
Less than and equal to ₹ 15 lakhs, Greater than ₹ 10 lakhs	2.63
Less than and equal to ₹ 20 lakhs, Greater than ₹ 15 lakhs	1.06
Less than and equal to ₹ 25 lakhs, Greater than ₹ 20 lakhs	2.02
Greater than ₹ 25 lakhs	113.70
Total Common Assets	126.28

12.2.2 SEGREGATION OF ASSETS WITHIN THE TERMINAL

For Common assets within the terminal, (used for providing Aeronautical and Non-Aeronautical services), we have used the demarcated terminal floor space as a basis for segregating such assets into Aeronautical and Non-Aeronautical.

Terminal Floor space measurement

The terminal floor space for each of the 3 terminals (T1, T2 and T3) were arrived on basis the CAD drawings in the year 2011 by an independent agency - M/s Jacob's Consultancy. The report details out the area demarcated for Aeronautical and Non-Aeronautical activities for each terminal building. The percentages derived (Aeronautical: Non-Aeronautical) as a result of the above exercise are provided in table 17 below

Table 17 Demarcated Floor Space Allocation as per 2011 report of Jacob's Consultancy

(In Sqm)

Terminal	Financial Year	Total Space	Allocated to Aero	Allocated to Non-Aero	Common Area Allocation	Total Non-Aero	Aero (%)	Non-Aero (%)
T1	FY11	64,146	53,820	10,057	269	10,326	83.90%	16.10%
T2	FY11	54,729	46,080	8,163	477	8,640	84.20%	15.80%
T3	FY11	5,41,541	4,55,255	61,882	24,404	86,286	84.07%	15.93%

Terminal	Financial Year	Total Space	Allocated to Aero	Allocated to Non-Aero	Common Area Allocation	Total Non-Aero	Aero (%)	Non-Aero (%)
		6,60,416				1,05,252		
Weighted Average							84.06%	15.94%

As part of our study we compared the above demarcated floor space for Non – Aeronautical activities with the actual area used for such activities at each terminal through the steps given below:

- Actual Handed Over/Taken Over (HOTO) retail area were identified for the 4 financial years based on an external auditor’s certification.
- Common areas like travellers, lifts, common seating areas outside the retail shops were apportioned to Non-Aeronautical based on the assumptions in the FY11 Jacob Report
- Order number 28 of AERA dated 14th November 2011 directed the elimination of 8652sqm from the gross area calculation and the total let-out area to the concessionaires at T3, which were not considered in the above Jacob’s report. Accordingly, 8652sqm was eliminated from our calculation to gauge the total let-out area to the concessionaires.
- The percentages applied are the weighted average of the 4 financial years.

The actual space let out for Non-Aeronautical activities have been provided in Table 18 and the detailed workings for the same can be referred to in **Exhibit 2**.

Table 18 Actual space used for Non – Aeronautical activities as on 31st March 2018 Vis-à-vis the demarcated space as per Initial plan (2011)

Terminal	Total Terminal Space	<u>Demarcated Space</u> for per the initial plan allocated for Aeronautical Activities	<u>Actual Space</u> allocated for Aeronautical Activities	<u>Demarcated Space</u> for per the initial plan allocated for Non- Aeronautical Activities	<u>Actual Space</u> Let out for Non- Aeronautical Activities (based on FY 18)
T1	64,146	53,820	56,591	10,326	7,555
T2	54,729	46,089	51,848	8,640	2,881

Terminal	Total Terminal Space	<u>Demarcated Space</u> for per the initial plan allocated for Aeronautical Activities	<u>Actual Space</u> allocated for Aeronautical Activities	<u>Demarcated Space</u> for per the initial plan allocated for Non- Aeronautical Activities	<u>Actual Space</u> Let out for Non- Aeronautical Activities (based on FY 18)
T3	5,41,541	4,55,255	4,70,825	86,286	79,368
Total Space	6,60,416	5,55,164	5,79,264	1,05,252	89,804

For the purpose of this Report, we have used the ratio of space demarcated for Aeronautical & Non-Aeronautical (as detailed in Table 17) for segregating the common assets within the terminal in to Aeronautical and Non - Aeronautical, as the actual space let out for Non-Aeronautical activities is lower than the space demarcated for the same.

12.2.3 SEGREGATION OF ASSETS OUTSIDE THE TERMINAL

Table 19 Summary of Common Assets Outside the Terminal for FY15 to FY19

(₹ crores)

Location of the Assets	FY15 - FY18	FY19	Total
Transit House Improvements (Refer Section 12.5.3.1.3)	14.08	9.24	23.32
NUB Improvements (Refer Section 12.5.3.1.1)	19.93	1.96	21.89
Senior Management Office (Refer Section 12.5.3.1.2)	9.57	1.04	10.61
Grand Total	43.58	12.24	55.82

12.2.3.1 SEGREGATION LOGIC APPLIED

12.2.3.1.1 NEW UDAAN BHAWAN (NUB)

The support functions for the management of the entire airport operations are looked after from the administrative office at New Udaan Bhawan near T3 of the DIAL Airport.

All the assets related the New Udaan Bhawan in the books of DIAL are currently allocated into Aeronautical/Non-Aeronautical based on the weighted average floor space of all the three terminals inside the airport. However, as the NUB premises are commonly utilized for the operations of the GMR group, this allocation is re-visited to exclude the total space and the

costs related to such spaces rented out to the group entities. The balance costs are segregated on the weighted average terminal space. The workings on the space allocated to the group entities and the segregation of costs (based on floor space) is given in the Section 13.2 of this Report.

Table 20 Revised Segregation for Assets at New Udaan Bhavan for FY15 to FY19

(₹ crores)

Particulars	Segregation	FY15-18	FY19	Total
Total Cost of NUB Improvements		19.93	1.96	21.89
Segregation Logic of DIAL (WA of Terminal Space)	Aeronautical	16.76	1.65	18.41
	Non-Aeronautical	3.17	0.31	3.48
Cost related to rented space excluded for segregation (19.53% of the total space)		3.89	0.38	4.27
Balance cost allocated into Aeronautical and Non- Aeronautical (Total cost less cost related to rented space)		16.03	1.57	17.6
Segregation after exclusion of the Floor space rented out (WA of Terminal Space)-	Aeronautical	13.48	1.32	14.8
	Non-Aeronautical	2.55	0.25	2.8
Difference in Aeronautical Allocation	Aeronautical	3.27	0.32	3.59

The total allocation as per the revised segregation logic moves ₹ 3.59 crores from Aeronautical to Non- Aeronautical.

12.2.3.1.2 COMMON OFFICES OF THE SENIOR MANAGEMENT

The NUB houses the senior management of the GMR Group, also on the board of DIAL and has a common office facility for the management in the NUB.

Since the total cost of these common group facilities are 100% accounted for in the books of DIAL segregated based on the weighted average floor space of all the terminals, the segregation basis is revisited, to exclude the proportion of expenditure that should have been borne by the other companies in the group.

Since, this proportion of expense cannot be computed, all assets for the development of office of the Senior Management are segregated in a 50:50 proportion.

Table 21 Revised Segregation for assets at the offices of the Senior Management for FY15 to FY19

(₹ crores)

Particulars	Segregation	FY15-18	FY19	Total
Total Cost		9.57	1.04	10.61
Segregation Logic of DIAL (WA of Terminal Space)	Aeronautical	8.05	0.87	8.92
	Non-Aeronautical	1.52	0.16	1.68
Revised Segregation Logic (50:50 Proportion)	Aeronautical	4.79	0.52	5.31
	Non-Aeronautical	4.79	0.52	5.31
Difference in Aeronautical Allocation	Aeronautical	3.26	0.35	3.61

Thus, the total impact of the revision in allocation from Aeronautical to Non-Aeronautical is ₹ 3.61 crores.

12.2.3.1.3 COMMON TRANSIT HOUSES

DIAL has taken 10 transit houses on lease in Delhi for use by the transiting corporate members of the company and for various meetings of the senior management. At these transit houses, DIAL has incurred improvement costs which were capitalized in the books of accounts and included in the RAB of Second Control Period.

Since the purpose of use of these transit houses cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the transit house is used in a 50:50 proportion for Aeronautical and Non-Aeronautical services.

Table 22 Revised Segregation for assets at the Transit Houses for FY15 to FY19

(₹ crores)

Particulars	Segregation	FY15-18	FY19	Total
Total Cost		14.08	9.24	23.32
Segregation Logic of DIAL (WA of Terminal Space)	Aeronautical	11.84	7.77	19.61
	Non-Aeronautical	2.24	1.47	3.71
Segregation Logic of DIAL (50: 50)	Aeronautical	7.04	4.62	11.66
	Non-Aeronautical	7.04	4.62	11.66
Difference in Aeronautical Allocation	Aeronautical	4.80	3.15	7.95

Thus, the total impact of the revision in allocation from Aeronautical to Non-Aeronautical is ₹ 7.95 crores

12.3 RESEGREGATION - COMMON TO AERONAUTICAL

The following assets classified as Common as per the submission to AERA, in our opinion may be classified as Aeronautical under Schedule 5 of the OMDA.

Table 23 Re-Segregation from Common Assets to Aeronautical Assets for FY15 to FY19

(₹ crores)

Asset Description	OMDA (Schedule 5)	Total	Impact ⁶
Approach Roads Improvement	Schedule 5 (16) - Airside and Landside Access Roads	0.61	0.09
Light Masts for the Approach/Common Roads	Schedule 5 (16) - Airside and Landside Access Roads	0.14	0.02
Improvement of the Look and Feel of the Airport	Required to maintain an ASQ rating of 3.9. One of the parameters of the rating is the Look and Feel of the Airport	0.50	0.08
Perimeter Intrusion Detection System	Schedule 5 (2) - Ensure Safe and Secure Operations of the Airport	0.19	0.03
Sign Boards at the Terminals	Schedule 5 (46) - Signage	0.03	0.005
Tetra Mobile Radio System (Walkie- Talkie)	Schedule 5(29) - Flight Information and Public address System	0.08	0.01
CISF Assets outside the Terminal		38.07	0.06
Grand Total		1.96	0.31

12.4 SUMMARY

Materiality level has been defined for review and segregation of common assets valuing above ₹ 25 lakhs in to Aeronautical and Non-Aeronautical.

For assets within the terminal buildings, segregation has been done in the ratio of Aeronautical and Non-Aeronautical activities determined based on initial floor space. As part of this Report, the actual space let out for Non-Aeronautical activities (89,804 sqm) was compared with the space demarcated for the same (105,252 sqm) as per the initial floor space

⁶ Increase proposed in RAB based on apportioning 100% of assets cost towards aeronautical instead of 84.10% weighted average terminal space

plan and was noted that the actual space let out was lower than the demarcated space. Hence, the demarcated space has been considered as the basis for segregation of assets.

For assets outside the terminal (such as New Udaan Building, Transit Houses, Common offices etc.), a reasonable ratio/ basis has been considered for segregation in to Aeronautical and Non-Aeronautical.

13 COMPUTATION OF ADJUSTED GROSS FIXED ASSETS RATIO

13.1 GROSS FIXED ASSET ALLOCATION RATIO (UP TO FY19)

Table 24 Final Gross Fixed Asset Allocation Ratio after the above adjustments as on 31st March 2019

(₹ crores)

Particulars	Aeronautical	Non-Aeronautical
Net Closing Gross Block (As on 31st March 2019)	12,436.69	1,483.86
Gross Fixed Asset before Adjustment	89.34%	10.66%
Adjustments during second control period - Gross Block (Refer Note 1)		
EPOS System (Integrated with CCTV, shifted from Aeronautical to Non-Aeronautical)	(6.00)	6.00
NUB Improvements (Adjusted based on Let out space in the Building)	(3.59)	3.59
BCM and GCM Office (Revenue Share of the Group Companies)	(3.61)	3.61
Common Transit Houses (50% Aeronautical and 50% Non-Aeronautical)	(7.95)	7.95
Movement from Common to 100% Aeronautical (Correction of errors)	0.31	(0.31)
Movement from Aeronautical to Common	(2.76)	2.76
Gross Block After Adjustments	12,413.09	1,507.46
Proportion of Aeronautical and Non-Aeronautical assets	89%	11%

13.2 NUB RENTAL SPACE

Table 25 NUB Rental Space and Own Space Proportion during Second Control Period

(In Sqm)

NUB BUILDING % with DIAL	Total	Area Let out					Area with DIAL				
		FY15	FY16	FY17	FY18	FY19	FY15	FY16	FY17	FY18	FY19
Ground	3250	-	1499	1499	1499	999	3250	1751	1751	1751	2251
First	3250	-	-	-	-	-	3250	3250	3250	3250	3250
Second	3250	-	-	-	-	-	3250	3250	3250	3250	3250
Third	2303	-	-	-	-	-	1535	1535	1535	1535	1535
Total	12053	-	1499	1499	1499	999	11285	9786	9786	9786	10286
							94%	81%	81%	81%	85%
PROJECT OFFICE % with DIAL	Total	FY15	FY16	FY17	FY18	FY19	FY15	FY16	FY17	FY18	FY19
Ground	1990	-	600	600	600	600	1990	1390	1390	1390	1390
First	1990	-	730	687	437	437	1990	1260	1303	1553	1553
Total	3980	-	1330	1287	1037	1037	3980	2650	2693	2943	2943
							100%	67%	68%	74%	74%
Average space utilised DIAL (Refer Note Below)							97%	74%	74%	78%	80%

Since the premises within New Udaan bhavan are commonly utilized for the operations of GMR Group, the segregation of common assets within NUB were revisited to exclude the average of actual let out space of 19.53% within NUB of the total space available. The details for the same are given as per Section 12.5.3.3.1 of this Report.

14 JOINT VENTURE ARRANGEMENTS WITH DIAL

For the purpose of sharing the risks and rewards of selected operations of the airport, to create synergies and provide passenger services more efficiently, DIAL had entered a Joint Venture with various companies in the field of operations as given below:

Table 26 Joint Venture arrangements with DIAL as on 31st March 2018

S. No	Name of the Joint Venture	Nature of Operations	DIAL Ownership Interest	Date of Incorporation	Arrangement with DIAL
1	CELEBI Delhi Cargo Terminal Management India Private Limited (CELEBI)	Cargo	26.00%	June 18 th 2009	Revenue Sharing
2	Delhi Aviation Fuel Facility Private Limited	Fuel Farm	26.00%	August 11 th 2009	No Revenue Sharing, No Cost Sharing
3	Delhi Airport Parking Services Private Limited	Vehicle Parking	49.90%	February 11 th 2010	Revenue Sharing
4	Delhi Aviation Services Private Limited	Bridge mounted equipment	50.00%	June 28 th 2007	Revenue Sharing
5	Delhi Duty Free Services Private Limited (DDFS)	Duty Free Shops	49.90%	July 7 th 2009	Revenue Sharing
6	Travel Food Services (Delhi T3) Private Limited (TFS)	Food and Beverages	40.00%	December 4 th 2009	Revenue Sharing
7	TIM Delhi Airport Advertising Private Limited (TIMDAA)	Advertising	49.90%	June 1 st 2010	Revenue Sharing
8	Wipro Airport IT Services Limited (WAISL)	Information Technology	26.00%	October 22 nd 2009	Cost Sharing Model

From the above table, it is perceived that with the exception to WAISL, all the other joint venture arrangements with DIAL are on a Revenue Sharing Model.

Since the arrangement with WAISL is a Cost Sharing Model, where DIAL agrees to fund WAISL for the additional costs incurred over and above the revenue earned, these IT costs of DIAL come under the ambit of regulatory books of DIAL and become eligible for inclusion in the tariff computation of the airport operator.

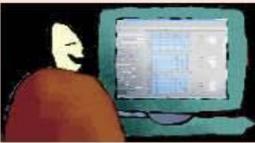
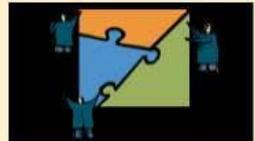
Hence, specific attention to the scope of work performed, funding structure and monitoring controls of DIAL is detailed out in the subsequent sections.

WIPRO AIRPORT INFORMATION TECHNOLOGY SERVICES LIMITED

15 INFORMATION TECHNOLOGY INFRASTRUCTURE AT DIAL

15.1 IT SERVICE LANDSCAPE AT DIAL⁷

The information technology architecture, comprising information systems deployed for Aeronautical and Non-Aeronautical activities of DIAL is illustrated below.

Geographical Scope for the IT Infrastructure 	Terminal 1, Terminal 2, Terminal 3	Air Service Building	Ancillary Buildings	
Application Management 	Core Systems UFIS, IMB, AODB, AMDB FIDS, CUSS & CUPPS	Airport Support Systems MDS, ACS, CCTV, BMS, EPOS, Telephony, PAVA, Master Clock, TMRS, MATV, INK, Helpdesk	Control Centers Support IT Systems AOCC, NOC, SOC	
Infrastructure Management 	Passenger Communication System IP Telephony, Digital / Analog Phone Antenna, MPAS, Amplifiers, Speakers, Mike, DOM, AV Digital, CCTV, Digital Signage, Displays, TVs, Handsets, Kiosks, Digital Clock	Passenger Handling Boarding Pass printer, Baggage Printer, Boarding Gate Reader, Ticketing Terminals, Passenger Self Service, Card Reader, Biometric, Barcode Printers, Document Printers	IT Systems Servers, Database, Networking, Application -COTS Application Non COTS, SAN System, Backup Management, EMS Tools, Security System, Middleware, BMS	
Backend IT Systems 	Service Desk Management	Data Center Management	Partner Management	Application Management

⁷Source: Management Information

Of the above, the core IT systems enable the most critical activities of managing the passenger and aircraft movements. The core IT systems deployed at DIAL⁸ are discussed in more detail below:

Common Use Passenger Processing Systems (CUPPS) enables the Airline Operators to share computing resources by providing them the common user interface and client software to connect to the system. This ensures the optimal usage of resources as the check-in counters can be used by different airline sectors at different times.

Common Use Self Service (CUSS) are shared kiosks offering airport check-in to passengers without the need for ground staff assistance. The CUSS can be used by several participating Airline Operator in a single terminal.

Public Address System (PAS) allows the AOC/Security agencies /DIAL to broadcast message to a larger number of people with the use of a microphone (or other audio source), a mixer, amplifier and loudspeakers within the airport.

Universal Flight Information System (UFIS) is a sophisticated traffic and resource planning and management system, providing a comprehensive tool for planning, daily operations, statistical processing, and data analysis.

Interface Message Broker (IMB) is a middle layer for the communication between UFIS and other sub-systems like VDGS, FIDS, BHS, BRS, INK, IVRS, Telephony, AFTN, ATC. IMB provides unidirectional/bi-directional communication between UFIS and other sub-systems to take input messages from UFIS, validates and transforms into the compatible format to distribute among all the subsystems and vice-versa. It also provides flight movement/updates messages to UFIS.

Flight Information Display System (FIDS) is a computer system used in airports to display flight information to passengers, in which a computer system controls mechanical or electronic display boards or TV screens in order to display arrivals and departures flight information in real-time. The displays are located inside or around an airport terminal at several locations

⁸ Source: Management Information

Airport Operational Database (AODB) is the "Airport Information Centre " and is the central database or repository for all operative systems and provides all flight-related data accurately and efficiently in a real-time environment.

Airport Mapping Database (AMDB) serves two main purposes. First it is a highly accurate and detailed map of aerodrome features. Second, the database contains elevation data of the local terrain and obstacles which is crucial information for airport planning activities. These databases are created using GIS software to extract 3D features in point, line or polygon format as layers inside GIS databases.

16 WIPRO AIRPORT INFORMATION TECHNOLOGY SERVICES (WAISL)

16.1 BACKGROUND

The Airports Authority of India (AAI) and DIAL had entered into an Operation, Maintenance and Development Agreement (OMDA) dated April 4th June 2006, whereby AAI had granted DIAL the exclusive right and authority during the term of the OMDA to operate, maintain, develop, design, commission, upgrade, modernise, finance and manage the Indira Gandhi International Airport (IGIA). Pursuant to this, DIAL was also entitled to grant rights to third parties for the execution of these purposes.

For the purpose of the fulfilment of the OMDA, DIAL issued a Request for Proposal dated 19th June 2009 to interested parties inviting tenders to undertake the concession of IT System Work at T3. The selected tender required the incorporation of a special purpose company, as Concessionaire for the purpose of performance, execution and implementation of the concession.

After evaluation of the tenders by DIAL, the concession agreement was awarded to Wipro Limited. Consequently, the special purpose company – WAISL, was formed to act as the Concessionaire.

The selected tenderer (Wipro), DIAL and the Concessionaire (WAISL) then entered into a **Master Service Agreement (MSA)** as on the 16th October 2009 for execution of the concession agreement. This agreement records the terms of grant to the Concessionaire by DIAL, the scope of services to be undertaken by the Concessionaire, the funding structure for the arrangement between DIAL and the Concessionaire, subject to and on the terms and conditions contained in the Agreement.

16.2 IT SYSTEMS OWNERSHIP STRUCTURE⁹

The IT architecture of DIAL, based on the ownership of the assets, is split into the following categories:

- Concessionaire/WAISL-owned IT systems
- DIAL-owned IT systems
- Terminal building systems
- Other airport assets at T1 and T2 and Cargo Terminal

16.2.1 Concessionaire IT Systems

As per the Annexure A of the Master Service Agreement, it was envisaged that the following information systems (referred to as Concessionaire IT Systems) are proposed to be owned, financed, operated, maintained, managed, upgraded, replaced and renewed by the Concessionaire at all the three terminals.

- Mobile Phone Antenna Systems (MPAS)
- System integration
- Master system integrator
- Network
- Telephony
- PAVA (Public Address System)
- BMS
- Flight information display system (FIDS)
- Control Centre Design
- CUSS/CUPPS
- Baggage reconciliation system (BRS)
- BMC Remedy
- BCP Implementation and Supply
- DR Drills
- Control centre

⁹ Source: Master service level agreement with WAISL

- Electronic Point of Sale (EPOS)
- Master Antenna TV (MATV)
- Tetra Mobile Radio Systems (TMRS)
- Other Software – Open-View Software, NMS tools, storage

16.2.2 DIAL-owned IT Systems

The information systems listed below are owned and financed by DIAL at all the three terminals:

- Access Control Systems (ACS)
- Control Centre television camera (CCTV)

16.2.3 Terminal IT Systems

Terminal IT systems are such assets which would interface with all the IT system of the Airport and cater to all the three terminals as well as cargo terminals. These systems are owned by DIAL and comprise:

- UFIS/AODB
- AMDB
- IMB (WebSphere)
- MCS (Master Clock Systems)

16.3 SCOPE AND SERVICE MONITORING PARAMETERS OF WAISL ¹⁰

16.3.1 Overview of DIAL's Master Service Level Agreement

- a) The five categories of services provided by WAISL are
 - Data Centre services
 - Application services
 - Network services

¹⁰ Source: Annexure B to the Master Service Agreement

- End User services
 - Common services
- b) Annexure B of DIAL's Master Service agreement with WAISL contains details with respect to service descriptions and service levels as applicable to all of the above categories. Any breach of the expected service level or the minimum service level that meets the criteria of a service level default will entitle DIAL for '**Service Level Credits**', which are calculated in terms of money using an agreed formula and are reduced by the Concessionaire in its monthly billing.
- c) The financial projections for the subsistence level setting out the projected charges for the IT systems and services and the receivables based on which the receivable and payable to DIAL is determined are detailed in Annexure J of the Master Service level Agreement

Therefore, a service level agreement ensures that the services quality of the Concessionaire meet the standard thereby increasing more effective and efficient use of computing resources and avoiding the cost of bad quality. The IT systems are also categorized below based on the Service Level grouping as per the Master Service Agreement:

16.3.1.1 Data Centre

The Service Level Agreement with WAISL for this category includes server availability, SAN/NAS availability, data backup, storage and retrieval, applications performance, system recovery and availability.

Table 27 Service Level Monitoring for Data Centre Operations as per MSA dated 16th October 2009

S. No	Service Description	Severity Level	Expected Service Level
1	Server Availability	30%	99.99% availability for network servers and other core system servers
2	SAN/NAS Availability	20%	99.99% availability
3	Database Availability	30%	99.99% availability of database for core systems

S. No	Service Description	Severity Level	Expected Service Level
4	Data Backup, Restore and Retrieval	5%	100% of the server backup are successful
5	Data Centre (IMACD) Timeline	15%	95% of the IMACD are completed in 24 hours and Urgent IMACD in 8 hours
6	End to End System Availability	0%	99.99% availability

16.3.1.2 Network Services

WAISL needs to ensure network availability and in time resolution of network related complaints

Table 28 Service Level Monitoring for Network Services as per MSA dated 16th October 2009

S. No	Service Description	Severity Level	Expected Service Level
1	Network Availability	60%	99.99% availability of critical active and passive network components
2	Network and Voice IMACD Timelines	20%	95% of the IMACD are completed in 24 hours and Urgent IMACD in 8 hours

16.3.1.3 Application Services

This includes application module availability and application quality enhancement

Table 29 Service Level Monitoring for Application Services as per MSA dated 16th October 2009

S. No	Service Description	Severity Level	Expected Service Level
1	Application Module Availability	40%	99.9% availability
2	Application Service Request	30%	100% service requests are responded
3	Application Quality Enhancement	30%	Not more than 1 L1 defects and not more than 2 L2 defects

16.3.1.4 End User Services

Under this vertical WAISL provides IT helpdesk service for user and resolution of IT related queries within stipulated time.

Table 30 Service Level Monitoring for End User Services as per MSA dated 16th October 2009

S. No	Service Description	Severity Level	Expected Service Level
1	Speed of Answer	5%	90% of the telephone inquiries are answered in 45 seconds
2	Call Abandonment	5%	Call Abandonment rate not to exceed 4%
3	<ul style="list-style-type: none"> • Level 1 – First Call Resolution (FCR) Service • Level 2 and 3 – FCR Service 	20%	<ul style="list-style-type: none"> • 90% resolution (Remote support) within 10 minutes post call without reassignment • 90% tickets are reassigned within 10 minutes post call (On-Site)
4	End User IMACD Timelines	10%	95% of the IMACD are completed in 24 hours and Urgent IMACD in 8 hours
5	Incident Response and Resolution	30%	95% acknowledgement and resolution of incidents
6	<ul style="list-style-type: none"> • Root Cause Analysis (RCA) Interrogation • Problem Logged within 2 days • Approved Problem Resolution execution • RCA identified within 15 days • Permanent fix in Known Errors DB (KEDB) 	10%	<ul style="list-style-type: none"> • 100% Incidents are subject to RCA • 90% of the problems are logged • 95% of problems resolved • For 90% of problems – RCA is identified in 15 days • 80% of known errors have permanent fix
7	Workstation availability	15%	99.9% availability

16.3.1.5 Common IT Services

Table 31 Service Level Monitoring for Common IT Services as per MSA dated 16th October 2009

S. No	Service Description	Severity Level	Expected Service Level
1	Timely Configuration Updates	5%	95% within <5 business days
2	Change Management	15%	99.0% or more of all changes are implemented correctly

S. No	Service Description	Severity Level	Expected Service Level
3	Asset Management	5%	98% of new installations are accurately entered in the DB
4	Virus Signature File Updates	5%	100% virus updates within 24 hours
5	Information Security Risk Event Notification and Mitigation	10%	100% escalation to appropriate DIAL contact within 5 minutes
6	Firewall Security	10%	100% firewall approval within 24 hours and implementation in 48 hours
7	Reporting Timeliness and Accuracy	10%	100% report delivery within specified time frames
8	Billing Timeliness and Accuracy	10%	100% invoices delivered accurately
9	Customer Satisfaction	20%	Average score is greater than 4 each quarter

16.4 SUBCONTRACTING BY WAISL

Any material sub-contract with a consideration above ₹1 crore or in respect of services relating to HR placement or identifying tools to evaluate the quality of services related information security, prior consent of DIAL is mandated as per the master service level agreement.

16.5 IT SYSTEMS REFRESH EVENTS

As per Annexure J of the Master Service Agreement, when a Concessionaire IT asset is due for refreshment, WAISL would inform DIAL and following steps are undertaken:

- DIAL shall invite tenders or quotes from suppliers at arm length and competitive prices for replacement or renewal of assets
- The Concessionaire shall also have the right to bid for the tenders invited by DIAL.
- In case the Concessionaire is not the successful bidder, they hold the right of first refusal by matching the first ranked bidder either in terms of technical or financial parameter.
- In case the Concessionaire is the successful bidder, the IT system shall be procured from the Concessionaire.

- DIAL reserves the discretion to determine whether the cost of replacement and renewal of the IT system shall be funded by DIAL or the Concessionaire. In case the cost is funded by the Concessionaire, the cost would be added to the total IT system costs.

17 FUNDING STRUCTURE FOR WAISL¹¹

17.1 CONCESSION FEE OR PREMIUM

1. As per terms of the Master Service Agreement, in case the receivables (refer section 17.3 below) of WAISL exceed the Subsistence Level (refer section 17.2 below) in the previous financial year, the Concessionaire shall pay to DIAL, a concession fee equivalent to any such excess of the receivables over the subsistence level.
2. In case the receivables of WAISL are less than the Subsistence Level of WAISL, DIAL shall pay a premium equivalent to such difference to the Concessionaire.

17.2 SUBSISTENCE LEVEL

The Subsistence Level for the Concessionaire shall be determined as the aggregate of the following elements:

1. The total cost of Concessionaire IT Systems payable under the Master Service Agreement along with the additional cost incurred from time to time upon the occurrence of the Asset Refresh Event for renewal and replacement of the IT Systems.
2. Charge for the performance, execution and implementation of the Services as detailed in the scope of WAISL under Annexure B of the Master Service Agreement.

17.3 RECEIVABLES

DIAL and the Concessionaire have identified the potential revenue streams from the provision of services to the users and arrived at the potential user charges collectible from the potential revenue streams. The Concessionaire has entered into agreement with the users for

¹¹ Source: Master Service Agreement with WAISL

provision of services and periodically invoices the user charges for such services. The details of the revenue streams are tabulated below:

Table 32 WAISL Revenue Streams as on 31st March 2018

Revenue Stream	Description of Revenue Stream	Service in detail	User of Service	Payer of the service to the Airport	Method of calculation
Communication & TMRS	Communication Services, Trunk Mobile Radio System service and maintenance	This is used by the Airlines for communication mainly related to operations.	Airline/Ground Handling staff	Airline/Ground Handler/Retailers	Fixed monthly Maintenance and Repair Charges per handset basis
Wi-fi	WIFI services provided by third party	WIFI is the service provided for better passenger experience	Access right to third party	Third party service provider	Service provided by third party and billing is made based on revenue sharing
Telephony	Telephony equipment support, maintenance	Telephony used by the Airlines Staff for communication inside the Terminal related to Flights and other office and retail services.	Retailers, government agencies, ground handling, airlines	Airlines and Concessioners	Fixed Monthly charges basis no. of instruments
Network	Data port connectivity, activation, maintenance service	Networking is a part of key IT infrastructure; it is the main pillar of overall IT system at airport. Networking enables IT system to communicate each other.	Airlines/Ground handling/retailer etc.	Airlines and Concessioners	Fixed monthly charge based on number of ports.
MPAS	Mobile Phone Antenna Services for boosting mobile connectivity	This infrastructure is provisioned for ISPs to broadcast the mobile signals for inside Terminal and considered under any Other activities related to passenger	Mobile users	ISPs	Fixed Monthly charges for using infrastructure

Allocation of Assets between Aeronautical and Non-Aeronautical Activities

Revenue Stream	Description of Revenue Stream	Service in detail	User of Service	Payer of the service to the Airport	Method of calculation
		services at the Airport.			
EPOS	Activation, support and maintenance service to EPOS	EPOS systems are used in facilitation of details in connection with retail sales of various concessionaire.	Retailers, F&B, Lounges	Retailers	Fixed monthly maintenance charge based on number of machines.
Co-location	Rack charges on monthly basis	Co-Location is part of data room facility and used by all stakeholders on need basis.	Airline/Retailer	Airlines and Concessioners	Monthly rental on usage basis
CUPPS	Infrastructure to provide CUTE services	Common User Passenger Passage System (CUPPS) is a part of facilitation of passenger movement.	Airline	Airlines and Ground Handler	Fixed monthly charge based on usage
CUSS	CUTE Revenue - Self Check in service	Customer Self Service (CUSS) is a part of facilitation of passenger movement.	Airline	Airlines	Per passenger basis

18 PREMIUM/CONCESSION FEE – COST DETAIL

18.1 ACTUAL SUBSISTENCE LEVEL AS PER ANNEXURE J AND SUBSEQUENT ADDENDUMS TO THE MSA WITH WAISL

Table 33 Subsistence Level of WAISL as per MSA dated 16th October 2009

(₹ crores)

Financial Year	IDFC Bank Loan Schedule	T1 Services	T2 Services	T3 Services	Total
FY15	112.40	9.50	-	46.89	168.79
FY16	112.40	9.36	-	36.88	158.64
FY17	112.40	9.64	-	50.93	172.97
FY18	84.30	9.72	2.19	47.25	143.47

Total Subsistence Level is primarily comprised of:

- Upfront capex value expenditure based on the borrowing terms with IDFC Bank and other financiers. The repayment period for the borrowings ended in December 2017
- Operating and maintenance cost which includes software, hardware, end-user devices and required spares
- UFIS's application support cost
- Amount payable to Wipro and other sub-contractors for execution of the Master Service Agreement

18.2 ACTUAL END USER REVENUE EARNED BY WAISL¹²

Table 34 Revenue Earned by WAISL for the period FY15 to FY18

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	Total
CUTE/CUSS Revenue (A)	81.9	104.85	131.23	156.1	474.08
Communication & TMRS	1.69	3.33	3.24	1.91	10.17
Wi-Fi	0.47	0.43	0.56	0.70	2.16
Telephony	1.36	-	-	-	1.36
Network	4.25	5.32	6.07	6.57	22.21
MPAS	16.27	17.49	19.29	17.51	70.56
EPOS	0.41	0.43	2.38	2.00	5.22
Co-location	2.19	2.66	2.6	2.74	10.19
Others	7.1	4.74	3.82	4.66	20.32
Non-CUTE/CUSS Revenue (B)	33.74	34.4	37.96	36.09	142.19
Total Revenue earned by WAISL (A+B)	115.64	139.25	169.19	192.19	616.27

From the above table it can be noted that for FY 15 to FY 18, WAISL earned a total revenue of ₹ 616.27 crores of which ₹474.08 crores pertained to revenue earned from CUTE and CUSS Services.

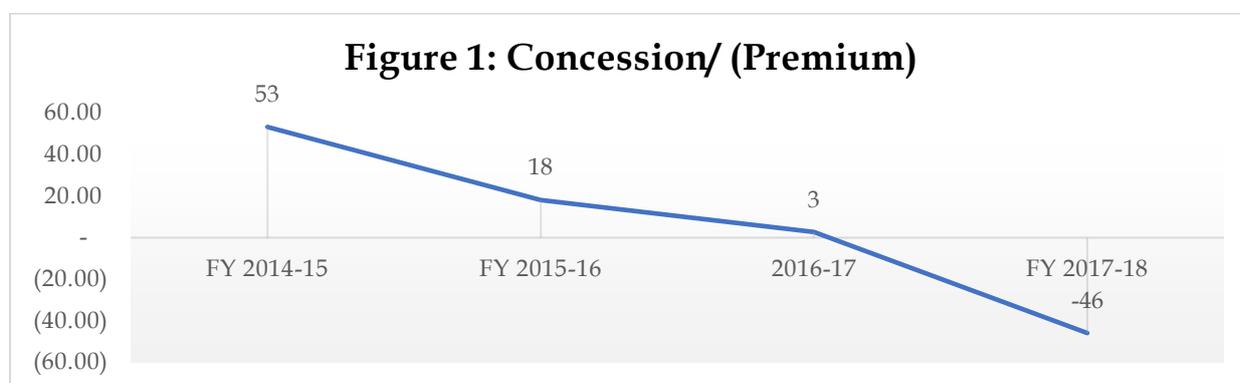
¹² Source: Management Information

18.3 CONCESSION FEE/PREMIUM PAYABLE BY DIAL

Table 35 Concession Fee/Premium Computation for the period FY15 to FY18

(₹ crores)

Particulars	FY 15	FY 16	FY17	FY18
Subsistence Level (A)	168.73	158.64	172.97	143.47
End-User Revenue* (B)	111.76	136.53	168.23	189.31
Difference (A-B)	56.97	22.11	4.74	(45.84)
UFIS/ISP Adjustment	(3.71)	(4.00)	(2.05)	-
(Concession Fee)/ Premium Payable	53.26	18.11	2.69	(45.84)



* The variance between the actual revenue earned by WAISL and the end-user revenue considered for the purpose of arriving at the concession fee receivable or premium payable is due to the concept of Estimated User Charges introduced through Addendum 14 to the Master Service Agreement effective from January 2017. Under this Agreement, it was determined that DIAL and WAISL would mutually agree on an estimated IT Revenue (Receivable) and IT Cost (Subsistence Level) and arrive at the concession fee receivable or premium payable. In the event of variations more than 10% of the actuals, adjustments to the fee would be made after mutual discussion.

19 SEGREGATION OF CONCESSION FEE AND PREMIUM

19.1 CONCESSION FEE (RECEIVABLES > SUBSISTENCE LEVEL)

The concession fee received by DIAL representing the excess of revenue earned by WAISL over costs, is entirely segregated as Non-Aeronautical revenue. This may be reasoned through the inference we draw from Table 34 above where 80% of the total revenue earned by WAISL are from CUTE and CUSS services.

As CUTE and CUSS services are Non-Aeronautical in nature (*refer discussion below*) and since the revenue shared with DIAL after adjustments to the costs incurred are remainders of such revenue, it is deemed appropriate to reflect the segregation of concession fee in line with the segregation of CUTE and CUSS income.

Why are CUTE and CUSS service income classified as Non-Aeronautical?

It may be noted that CUTE and CUSS revenue are accounted in the books of WAISL. Nevertheless, it is important to discuss the nature of segregation of such income generated from the corresponding IT assets in order to determine the classification of concession fee and premium.

In order to set the context, attention is drawn to the three references below:

1. The DGCA Circular defining Ground Handling Services issued in FY07
2. The AERA Act, 2008
3. OMDA entered between AAI and DIAL in FY06.

Since CUTE and CUSS services are neither defined in the AERA Act, 2008 nor the OMDA between DIAL and AAI, reference was made to Annexure B of the circular issued by the DGCA (Sl. No. 7/2007, File No. 9/1/2002-IR). As per the definition of Traffic Handling in Point 1.5 of Annexure B of the above circular, all passenger check-in services including the CUTE and CUSS services are part of Traffic Handling Services which are successively part of the Ground Handling Services.

Therefore, it was determined that CUTE and CUSS services were part of the Ground Handling Services as per the DGCA circular. Based on this determination, the segregation of Ground Handling services into Aeronautical and Non-Aeronautical was sought for by reference to the AERA Act, 2008 and OMDA.

AERA ACT, 2008

The definition of “Aeronautical Services” under Section 2(a)(iv) of the AERA Act, 2008 includes Ground Handling Services relating to aircraft, passengers and cargo. Hence for all airports under the ambit of the AERA Act, such revenue from CUTE and CUSS should be treated as Aeronautical Revenue.

OMDA between DIAL and AAI, 2006

Point 6 of Schedule 6 defining Non-Aeronautical Services, includes Ground Handling Services. Thus, as per the OMDA, CUTE and CUSS forming part of the Ground Handling services are also treated as Non-Aeronautical services.

Our Conclusion

We note that the AERA Act, 2008 and OMDA do not provide a consistent segregation of CUTE and CUSS service revenue. While such services may be construed as Aeronautical based on the AERA Act, 2008, they are classifiable as Non-Aeronautical as per the OMDA.

However, we take note of the following:

- The OMDA has been in force between DIAL and AAI since 2006, prior to the enactment of the AERA Act in 2008.
- There has been no explicit amendment to the OMDA in order to synchronize its clauses of agreement with the AERA Act, 2008.
- While AERA Act, 2008 is a statutory pronouncement that provides general principles guiding the segregation of certain assets and their derivative income as Aeronautical and Non-Aeronautical, OMDA specifically governs the terms of engagement of its constituent parties.

Specific attention may be drawn to section 13(a)(vi) of the AERA Act, 2008 which states that the function of AERA is “to determine the tariff for the Aeronautical services taking into consideration the concession offered by the Central Government in any agreement or memorandum of understanding or otherwise”. Accordingly, it is understood that the classification of Aeronautical Services as defined by the AERA Act, 2008 would have to be interpreted along with Schedule 6 of OMDA, and in the event of a variation, the classification as provided by OMDA Schedule would prevail.

Based on the above, in our opinion it is determined that excess revenue earned by DIAL from CUTE and CUSS services after setting off the costs incurred against the operations of other IT assets should be segregated as Non-Aeronautical.

Alternate Segregation Logic that may be adopted for segregation of concession fee earned by DIAL:

1. The concession fee may also be classified as revenue earned from Common activities and segregated in proportion to the Aeronautical and Non-Aeronautical revenue earned by WAISL. Considering the segregation of actual revenue earned by WAISL as per Table 36 below, it can be noted that 90% of the total revenue is purely Non-Aeronautical in nature.

Table 36 Segregation of Revenue earned by WAISL up to FY18

(₹ crores)

Particulars	Total up to FY18	Segregation of Revenue
CUTE/CUSS Revenue	474.08	Non-Aero
Communication & TMRS	10.17	Common
Wi-Fi	2.16	Non-Aero
Telephony	1.36	Non-Aero
Network	22.21	Common
MPAS	70.56	Non-Aero
EPOS	5.22	Non-Aero
Co-location	10.19	Common
Others	20.32	Common
Total Revenue earned by WAISL (Refer Table 34)	616.27	
Proportion of Non-Aeronautical Revenue	90%	

2. The concession fee may also be segregated in proportion to the Aeronautical and Non-Aeronautical IT assets held by WAISL. However, since the proportion of Aeronautical and

Non-Aeronautical IT assets operated and maintained by WAISL are not representative of the proportion of Aeronautical and Non-Aeronautical revenue earned by WAISL, segregation of concession fee in proportion to the IT assets may not be very appropriate.

In Decision no. 20 of Order 03/2012-13, AERA has determined that a part of the CUTE service revenue, viz. CUTE Counter charges are to be classified as Aeronautical services. Accordingly, AERA had also stipulated the CUTE Counter charges to be levied on each passenger.

19.2 PREMIUM PAYABLE (RECEIVABLES < SUBSISTENCE LEVEL)

Unlike in the above case, where the excess of revenue earned over the costs were predominantly from CUTE and CUSS and hence were treated as Non-Aeronautical, it cannot be interpreted that the excess of costs arising against the revenue are also predominantly costs related to the CUTE and CUSS services.

The costs incurred by WAISL are for the upkeep and maintenance of the entire IT infrastructure at the Airport which includes both Aeronautical Assets like FIDS, TMRS, AOCC, etc. and Non-Aeronautical assets like EPOS, CUTE and CUSS (*Refer Table 39 for the Mix of Aeronautical and Non-Aeronautical Assets*). It has been determined that approximately 78% of the total value of IT assets in WAISL are Aeronautical Assets (which are part of the Subsistence Level costs). Hence, any premium paid by DIAL to cover the excess costs is treated as Common Expense and segregated as per section 21 of this Report.

20 IMPLICATION OF THE JV FUNDING STRUCTURE FOR DIAL TARIFF COMPUTATION

In this section, we discuss whether the Joint Venture created for IT services management has been beneficial for optimizing passenger tariff.

As per the State Support Agreement, the computation of Aeronautical charges for airport tariff fixation is derived as per the below formula defined below:

$$= (RAB * \text{Weighted Average Cost of Capital}) + \text{Aeronautical Operating Expenses} + \text{Depreciation on RAB} + \text{Taxes} - 30\% \text{ of Non-Aeronautical Revenue}$$

For the purpose of gauging the impact of the IT-related capital expenditure funding and total operating costs (comprising Subsistence Level) and Non-Aeronautical revenue from the Airport IT Infrastructure on the tariff computation as per the above formula, the following assumptions were made to analyse two distinct scenarios, one where IT operations generate a surplus and another result in a deficit:

(₹, illustrative)

	Particulars	Scenario 1	Scenario 2
A	Total Cost of Operation and Maintenance of IT Infrastructure	350	500
B	Total Aeronautical Cost (78% of (A), segregated based on the proportion of IT Assets), <i>approx.</i>	275	390
C	Total Non-Aeronautical Cost (22% of (A), segregated based on the proportion of IT Assets)	75	110
D	Total Revenue Collection from the Operation of IT Infrastructure	500	350
E	Total Aeronautical Revenue (20% of (D), segregated based on the components of Revenue)	100	70
F	Total Non-Aeronautical Revenue (80% of (D), segregated based on the components of Revenue – Since 80% of the total revenue is from CUTE and CUSS, 80% of the total is considered Non-Aero (<i>refer Table 34 above</i>))	400	280
G	Net Non-Aeronautical Revenue for DIAL/ (Aeronautical Deficit to be funded by DIAL) from WAISL (D)-(A). <i>Refer discussion under section 20.1 and 20.2 for classification of Net revenue as Non-Aeronautical and Net Cost as Aeronautical</i>	150	(150)

It may be noted that the Master Service Agreement provides for the surplus to accrue entirely to, or the deficit to be entirely funded by, DIAL only.

20.1 SCENARIO 1: CONCESSION FEE PAYABLE TO DIAL - IF RECEIVABLES ARE HIGHER THAN SUBSISTENCE LEVEL OF WAISL

Table 37 Illustrative treatment for IT Revenue greater than IT Operation and Maintenance Cost

Particulars	Current Structure - With JV (A)	Alternate Structure - If there was no IT JV (B)
Total IT Aeronautical Operating Cost in DIAL's books	NA	300
Total IT Non-Aeronautical revenue from IT services in the books of DIAL	NA	400
Net Revenue contributing to lower Tariff as per formula OR	$150 * 30\% = 45$	NA
Net Cost contributing to incremental Tariff as per formula	NA	$275 - 30\% \text{ of } 400 = 155$

From the above table; in structure A as currently prevalent, it may be noted that the total IT cost is subsidized through the total IT Revenue and the benefit of excess revenue over cost is passed on to the passengers and airline in form of the 30% subsidization of such excess IT Non-Aeronautical revenue. This is more beneficial than alternate structure B where additional costs would be passed on passengers and airlines.

20.2 SCENARIO 2: PREMIUM PAYABLE TO DIAL - THE RECEIVABLE IS LESS THAN THE SUBSISTENCE

Table 38 Illustrative treatment for IT Revenue lower than IT Operation and Maintenance Cost

Particulars	Current Structure - With JV (A)	Alternate Structure - If there was no IT JV (B)
Total IT Aeronautical Operating Cost in DIAL's books	NA	390
Total IT Non-Aeronautical revenue in DIAL's books	NA	280
Net Revenue for Tariff Computation/ (Net Cost for Tariff Computation)	NA	NA
OR		
Net Cost contributing to incremental Tariff as per formula	$500-350= 150$	$390-30\% \text{ of } 280 = 306$

From the above table, in structure A currently prevalent, it is noted that the total IT cost is subsidized through the total IT Revenue and only the excess IT costs over and above the IT revenue are added to tariff computation cost of passengers and airlines. Such costs passed over passengers and airlines are lower than costs applied for tariff computation in the alternate structure B.

21 ACTUAL PREMIUM/CONCESSION FEE OF DIAL - SEGREGATION INTO AERO AND NON-AERO

The premium received by DIAL or the concession fee paid by DIAL for funding the excess of cost incurred over the revenue earned is segregated into Aeronautical and Non-Aeronautical services basis the segregation of the information technology assets.

Disclaimer: Though the Gap Funding / Concession Fee are for the costs incurred by WAISL on the operating and maintenance of all assets including the assets held by DIAL, the segregation percentage derived and applied are only on the IT assets held by the concessionaire. Hence the assets held directly by DIAL are not considered while arriving at the percentage of proportion of Aeronautical and Non-Aeronautical Assets.

Following steps were applied in the segregation of the information technology assets to enable the segregation of the costs of gap funding paid to WAISL

1. As the first step, all the major assets held by WAISL were categorised to analyse the purpose and segregate the assets into Aeronautical, Non-Aeronautical, Common based on its purpose
 - Such assets which directly supported in rendering services listed under Schedule 5 of the OMDA were classified as Aeronautical.
 - Such assets which supported services listed under Schedule 6 of the OMDA were classified as Non-Aeronautical.
 - Such assets neither directly allocable to aero or non-aero services and had common usage for supporting the overall functioning of the airport like administrative laptops, networks, etc. were classified as "Common" and segregated into aero and non-aero basis the floor space determined in the Jacob's report 2011.

The broad category of IT assets with reference to the purpose and segregation into aero and non-aero is as per the below table:

Table 39 General Principals for the segregation of IT Assets into Aeronautical and Non-Aeronautical

S. No	IT System	Segregation and OMDA Reference	Purpose of the Asset
1	FIDS	Aeronautical- S. No 29 of the Schedule 5 of OMDA	Flight Information Display System (FIDS) is used to provide flight information to the passenger.
2	Computer and Laptops	Common	Computers are used for both aeronautical and Non-Aeronautical services such as AOCC, back offices, data center, CUPPS/CUSS etc. accordingly same is treated as Common assets.
3	Software License	Common	Various types of software used for networking, data centers, AOCC etc. for the purpose of aero and non-aero services. Accordingly considered as common asset.
4	Servers and Data Centre Operations	Common	Server are used for data backup and security and used by both Aeronautical as well Non-Aeronautical services. Hence, this has been considered as common asset.
5	Networking	Common	Networking is a part of key IT infrastructure; it is the main pillar of overall IT system at airport. Networking enables IT system to communicate each other. It is not linked to any services rather it is necessary for every IT support. Accordingly, same is treated as common asset.
6	CUTE, CUSS and CUPPS	Non-Aeronautical S. No 6 of Schedule 6 of OMDA	Common User Passenger Passage System (CUPPS) is a part of facilitation of passenger movement and in principal covered under Traffic Handling of Ground Handling Policy 2018 and it is part of Ground Handling Service. Ground Handling in case of DIAL is covered as Non-Aeronautical service. Accordingly, value of CUTE, CUSS and CUPPS Equipment has been considered as Non-Aeronautical

S. No	IT System	Segregation and OMDA Reference	Purpose of the Asset
7	TMRS	Common	Tetra Mobile Radio System - This is used by the Airport, Airlines and Ground Handling for internal communication mainly related to operations and hence treated as Common
8	MPAS	Non-Aeronautical S. No 35 of Schedule 6 of OMDA	Mobile Phone Antenna Services (MPAS) - This infrastructure is provisioned for ISPs to broadcast the mobile Signals for inside Terminal and considered under any Other activities related to passenger services at the Airport
9	PAVA	Aeronautical S. No 29 of Schedule 5 of OMDA	Public Address Voice Alarm system (PAVA) is necessary to make public announcement like flight departure, passenger related announcement etc. PAVA is also used in case of emergency and evacuation needs.
10	IBMS	Common	This is building management system which if for the purpose of overall building accordingly considered as common asset,
12	AOCC	Aeronautical S. No 1 of Schedule 5 of OMDA	Airport Operation Control Centre (AOCC) is vital part of airport operation at Delhi Airport. AOCC assist operation staff to oversee operation from a remote location outside terminal building which is essential from airport security perspective. AOCC ensure the safe and secure operations of the Airport
13	EPOS	Non-Aeronautical S. No 17 of Schedule 6 of OMDA	Electronic point of sale (EPOS) is a system used to record retail revenue and hence considered as Non-Aeronautical. EPOS systems are used in facilitation of details in connection with retail sales of various concessionaire.

S. No	IT System	Segregation and OMDA Reference	Purpose of the Asset
14	Administrative software like SCADA, SAP, etc.	Common	These assets are administrative assets, i.e. other than typical Aero/Non-Aero assets and used mostly for office purposes and all are not typically linked to any services, rather is catered to all services. In the absence of service, the same is treated as Common asset.
15	Telephony	Non- Aeronautical S. No 6 of Schedule 6 of OMDA	Telephony used by the Airlines Staff for internal communication inside the Terminal related to Flights and other office and retails services and in principal said activity is covered under communication system associated with Ground Handling at 2(7) of Schedule II of Ground Handling policy 2018. Ground Handling in case of DIAL is covered as Non-Aeronautical service. Accordingly, Value of Telephony Equipment has been considered as Non-Aeronautical
16	CCTV	Aeronautical S. No 2 of Schedule 5 of OMDA	Control Centre Television Camera (CCTV) is an important component of DIAL security system and essential for airport security. CCTV ensure the safe and secure operations of the Airport.
17	MATV	Aeronautical S. No 4 of Schedule 5 of OMDA	MATV stand for Mobile Antenna Television. This is mainly used by the Passenger as information system and not chargeable and is a part of general maintenance and upkeep of airport.
18	VDGS	Aeronautical S. No 15 of Schedule 5 of OMDA	Visual Docking Guidance Systems (VDGS) provide active guidance to pilots to support safe, efficient and precise automated aircraft parking during virtually all operating conditions.
19	CUTE/CUSS Counters	Aeronautical (Decision 20 of Order 03/2012-13)	The CUTE and CUSS kiosks offer check in support to the passengers without the support of the ground handling staff

S. No	IT System	Segregation and OMDA Reference	Purpose of the Asset
20	Baggage Management System	Aeronautical S. No 21 of Schedule 5 of OMDA	The Baggage Management system includes Baggage handling and Baggage Reconciliation systems
21	Access Control Systems at the Terminal	Aeronautical S. No 2 of Schedule 5 of OMDA	Access Control System recognizes authenticates and authorizes entry of a person to enter into the premise thereby giving complete protection ensuring security with the system.
22	Auto CAD	Common	AutoCAD is a commercial computer-aided design and drafting software application
23	Queue Management System	Aeronautical S. No 11 of Schedule 5 of OMDA	A queue management system is used to control queues to decrease passenger wait times and improve the service efficiency.

2. We reviewed the Asset base of WAISL (from FY11 till FY19) and segregated them in to Aeronautical and Non- Aeronautical assets. A segregation ratio of Aero and Non-Aero assets (78% and 22%) was arrived at and the same was used for segregating the Gap Funding expenses incurred by DIAL.

Table 40 Proportion of Aeronautical and Non-Aeronautical IT Assets of WAISL for the period FY15 to FY19

(₹ crores)

Particulars	FY15 (Opening Balance)	FY16	FY17	FY18	FY19	Total	% Segregation
Aeronautical Asset Base	390.84	0.33	4.47	0.08	16.93	412.65	78%
Non-Aeronautical Asset Base	108.75	0.01	1.87	0.01	4.16	114.8	22%
Total Asset	499.58	0.33	6.34	0.09	21.09	527.43	

3. By applying the above segregation ratio, ₹ 8.20 crores were moved from Aeronautical to Non-Aeronautical in computation of the target revenue.

Table 41 Segregation of premium payable by DIAL for the excess costs incurred by WAISL for period FY15 to FY18

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	FY19	TOTAL
IT JV Payment	53.00	18.14	2.75	-	-	73.89
% Split by DIAL	89.27%	89.20%	89.08%	89.04%	89.04%	
Aeronautical IT Expenses	47.31	16.18	2.45	-	-	65.94
Revised % on assets	78.15%	78.15%	78.15%	78.15%	78.15%	
Revised Aero IT Expenses	41.42	14.18	2.15	-	-	57.74
Re-segregation to Non-Aeronautical (Refer Note Below)	5.89	2.00	0.30	-	-	8.20*

*The adjustment of ₹ 8.2 crores towards the amount spent for Gap-funding by DIAL to WAISL are adjusted to the total operating and maintenance expenses under RFP No: 02/18-19. Refer item 4(i) to Table 2 of Section 4 of our report under for RFP No: 02/2018-19

22 SUMMARY OF IT-JV ARRANGEMENT

22.1 Overview of IT JV (WAISL)

- For fulfilling the requirements of OMDA, DIAL invited tenders to undertake the concession of IT System Work at T3. Post evaluation of the tenders, the concession agreement was awarded to Wipro Limited. Consequently, the special purpose company – WAISL, was formed to act as the Concessionaire. The selected tenderer (Wipro), DIAL and the Concessionaire (WAISL) then entered into a Master Service Agreement (MSA) for execution of the concession agreement.

22.2 IT Architecture of DIAL

- Based on the ownership of the assets, the IT architecture of DIAL is split into the following categories:

- Concessionaire/WAISL-owned IT systems
- DIAL-owned IT systems
- Terminal building systems
- Other airport assets at T1 and T2 and Cargo Terminal

22.3 Services provided by WAISL

- The following five categories of services are provided by WAISL:
 - Data Centre services
 - Application services
 - Network services
 - End User services
 - Common services.

22.4 Funding structure for WAISL

- As per terms of the Master Service Agreement, if the receivables of WAISL exceed the Subsistence Level in the previous financial year, the Concessionaire shall pay to DIAL, a concession fee equivalent to any such excess of the receivables over the subsistence level.
- In case the receivables of WAISL are less than the Subsistence Level of WAISL, DIAL shall pay a premium equivalent to such difference to the Concessionaire

22.5 Segregation of IT assets

- Based on the nature and description of IT assets, general principles have been defined for its segregation in to Aeronautical and Non-Aeronautical categories.

23 OVERALL SUMMARY OF THE STUDY

- DIAL has projected an increase in passenger traffic from 36.9 Million Annual Passengers (MAP) in FY14 to 109MAP in FY34 and increase in ATM from 281,034 in FY14 to 726,400 in FY34.
- Total investment in Gross Fixed Assets during Second Control Period was ₹ 1083.82 crores.
- Major investments during Second Control Period (of ₹ 767.74 crores) were refurbishment of T2, Rehabilitation of the Airside Pavements, Taxiways and Aprons, Solar Power Plant, ATC, T1 - Bus Gate Expansion, New Udaan Bhavan Improvements, Transit House Improvements, X-Ray baggage machines etc.
- ₹ 350 crores invested in ATC tower was funded through Development Fund (DF) collected from the passengers. Accordingly, the same was excluded from the above investment in Gross Fixed Assets of ₹ 1083.82.
- Based on the nature and description of the asset, the same was classified as Aeronautical and Non-Aeronautical in accordance with Schedules 5 and 6 of OMDA respectively.
- Segregation logics were determined for appropriate segregation of Common Assets in to Aeronautical and Non-Aeronautical categories.
- The net investment in Gross Fixed Assets (after excluding ₹ 350 crores invested in ATC tower) amounted to ₹ 733.82 crores, out of which DIAL had classified ₹ 628.14 crores as Aeronautical assets.
- By applying the above segregation logics, the RAB classified by DIAL (of ₹ 628.14 crores) was re-classified/ adjusted by ₹ 23.58 crores based on the Study and the adjusted RAB was ₹ 604.56 crores.
- RAB was further adjusted by ₹ 58.06 crores on account of sales/ deletions made during the Second Control Period. The net adjusted investment made to RAB and to Non - Aeronautical assets are as under:
 - Adjusted investment made to RAB (*net of adjustments as per the Study and of sales/ deletions etc*): ₹ 546.50 crores {₹ 628.14 crores (-) ₹ 23.58 crores (-) ₹ 58.06 crores}.
 - Additions to Non - Aeronautical assets: ₹ 129.26 crores
 - Total adjustment to the investment in RAB as per this Report: ₹ 23.58 crores

The ratio of Aeronautical assets and Non- Aeronautical assets derived after making all adjustments was 89:11.

- Based on the above methodology, the General principles have been defined for classification of each asset and logics have been established for apportionment of common assets in to Aeronautical and Non-Aeronautical categories (refer Table 1).
- The salient features of the Information Technology infrastructure of DIAL such as the Joint Venture arrangement with Wipro (WAISL), the funding pattern, the asset ownership models, parameters for monitoring services of WAISL was reviewed.
- Assets purchased by WAISL were capitalised in the books of WAISL. Review of the various components of revenue earned by WAISL showed that around 77% of such revenue was from CUTE and CUSS services.
- The various business scenarios were assessed in terms of profitability with/ without JV model and its implications on determination of tariff of DIAL. It was assessed that the cost incurred through IT JV model was comparatively lesser than a Non- IT JV model.
- The Fixed Assets register of WAISL was reviewed to determine the ratio of Aeronautical and Non-Aeronautical assets (78:22) for apportionment of cost on Gap Funding of ₹ 73.89 crores incurred by DIAL.

24 LIMITATIONS

- We have relied on the reports of internal auditors, statutory auditors, cost auditors and the verification reports with respect to physical verification of fixed assets. As part of our study, we have performed a sample verification of key assets within the terminal and tested the documents pertaining to RAB (for Second Control Period) on a sample basis.
- Our work procedures do not constitute an audit, examination or a review in accordance with generally accepted auditing standards or attestation standard as is expected under section 143 of the Company's Act, 2013.
- We have not audited the capital expenditure, or any other underlying data/assumption produced by DIAL. Consequently, we do not intend to express any opinion on the accuracy or appropriateness of such expenditures or underlying assumptions.
- Our study and development of basis of segregation of assets is based on the Fixed Assets Register (FAR), financial and business data, as well as audited financial statements of DIAL up to FY18. At the time of commencement of this engagement, the financial statements of DIAL for FY19 was under preparation and audit, hence, we determined that it would be prudent to rely on information available in full for and up to FY18.

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26 GLOSSARY

Table 42 Glossary

Abbreviations	Expansions
AAI	Airports Authority of India
ACI	Airports Council International
ACS	Access Control Systems
AERA	Airports Economic Regulatory Authority
AGL	Airfield Ground Lighting
AMC	Annual Maintenance Contract
AMDB	Airport Mapping Database
AOA	Airport Operator Agreement
AOCC	Airport Operation Control Centre
AODB	Airport Operational Database
AOP	Annual Operating Plan
ASQ	Airport Service Quality
ATC	Air Traffic Control
ATM	Aircraft Movement
ATR	Action Taken Report
BAA	British Airport Authority
BAC	Base Airport Charges
BCM	Business Chairman
BIAL	Bengaluru International Airport Limited
BID	Bill Inward Desk
BLIP	Bottom Line Improvement Plans
BRS	Baggage reconciliation system
CAA	Civil Aviation Authority
CAGR	Compound annual growth rate
CCMO	Corporate Chairman Office
CCTV	Control Centre television camera
CDM	Collaborative Decision-Making Module
CFT	Crash Fire Tenders
CIAL	Cochin International Airport Limited

Abbreviations	Expansions
CIP	Continuous Improvement Plans
CISF	Central Industrial Security Force
CMC	Comprehensive Maintenance Contract
CPSD	Corporate Strategic & Planning Department
CSR	Corporate Social Responsibility
CUPPS	Common Use Passenger Processing Systems
CUSS	Common Use Self Service
CUTE	Common Use Terminal Equipment
DIAL	Delhi International Airport Private Limited
EPOS	Electronic Point of Sale
FAR	Fixed Asset Register
FIDS	Flight information display system
FTE	Full Time Equivalent
FY	Financial year from 1 April till 31 st March
GADL	GMR Airport Developer Limited
GAL	GMR Airports Ltd
GCM	Group Chairman
GDP	Gross Domestic Product
GHB	GMR Holding Board
GHIAL	GMR Hyderabad International Airport Limited
GIL	GMR Infrastructure Limited
GOI	Government of India
GRN	Goods Receipt Note
HIAL	Hyderabad International Airport Limited
HVAC	Heating Ventilation and Air Conditioning
IATA	International Air Transport Association
IBLA	India Business Leader
ICWA	Institute of Cost and Works Accountants
IGIA	Indira Gandhi International Airport
IMB	(Interface Message Broker)
IOTY	Indian of the Year
IT JV	Information Technology Joint Venture (WAISL)

Abbreviations	Expansions
JVC	Joint Venture Company
KPI	Key performance indicators
LDA	Lease Deed Agreement
LLA	Land Lease Agreement
LLP	Limited Liability Partnership
MAP	Million Annual Passengers
MATV	Master Antenna TV
MCA	Ministry of Civil Aviation
MCD	Municipal Corporation of Delhi
MIAL	Mumbai International Airport Limited
MIS	Management Information System
MPAS	Mobile Phone Antenna Systems
MPPA	Million Passengers per annum
MRSS	Main Receiving Sub-Station
NFA	Notes for approvals
NUB	New Udaan Bhavan
OMDA	Operation, Management and Development Agreement
OTP	On Time Performance
PA	Public Assembly
PAVA	Public Address System
PAX	Passengers
PBB	Passenger Boarding Bridge
P DPR	Personal Development and Performance Review
PIDS	Perimeter Intrusion Detection System
PO	Purchase Orders
POS	Public Order and Safety
PPE	Plant, Property and equipment
PR	Purchase Requisition
PTB	Passenger Terminal Building
PSF	Passenger Service Fee
RAB	Regulatory Asset Base
ORFQ	Request for Quotation

Abbreviations	Expansions
RVR	Runway Visual Range
SA	Shareholders' Agreement
SE	Service entry
SGSA	State Government Support Agreement
SPG	Strategic Planning Group
SSA	State Support Agreement
STP	Sewage Treatment Plant
T1	Terminal 1
T2	Terminal 2
T3	Terminal 3
TDSAT	Telecom Disputes Settlement and Appellate Tribunal
TMRS	Tetra Mobile Radio Systems
UDF	User Development fee
UFIS	Universal Flight Information System
VDGS	Visual Docking Guiding System
VFD	Variable Frequency Drive
VHT	Vertical Horizontal Travellator
VIM	Vendor Invoice Management
WAISL	Wipro Airport IT Services Limited
WPI	Wholesale Price Index
YTD	Year to date

27 EXHIBITS

27.1 EXHIBIT 1 ON THE FINAL FIXED ASSET REGISTER WITH THE AERONAUTICAL AND NON-AERONAUTICAL SEGREGATION

[Exhibit 1- Final FA Annexure.xlsx](#)

27.2 EXHIBIT 2 ON THE HOTO CERTIFICATE WORKINGS ON THE ACTUAL LET OUT RETAIL SPACE

[Exhibit 2- HOTO Working.xlsx](#)

SUMMARY OF FIXED ASSET REGISTER AS ON 31ST MARCH 2019

Particulars		Total Investment in Gross Fixed Assets (Refer Item 1 of Table 2 to report of RFP 03/2018-19)	Total Assets (Net of Deletions/Adjustments/sale)	Aeronautical assets as per DIAL (Net of Deletions/Adjustments/sale) (Refer Item 2 of Table 2 to report RFP 03/2018-19)	Aeronautical Assets as per our study (Refer Item 4 of Table 2 to report RFP 03/2018-19)	Proposed Increase/Decrease to RAB (Refer Item 3 of Table 2 to report RFP 03/2018-19)
Additions to the Gross Block from FY 15 to FY 18	Tab 1B. FA Additions (Upto 17-18)	3,976,133,419	3,969,302,244	3,260,998,812	3,090,999,266	169,999,546
Additions to the Gross Block for FY 19*	Tab 1C. FA 18-19	6,862,149,166	6,862,149,166	6,520,505,597	6,454,678,857	65,826,739
Total Assets as on 31st March 2019		10,838,282,585	10,831,451,410	9,781,504,408	9,545,678,123	235,826,285
*ATC Tower included in the Aeronautical assets to be excluded for RAB		-	-3,500,000,000	-3,500,000,000	-3,500,000,000	-
Total Investment in RAB for Second Control Period		10,838,282,585	7,331,451,410	6,281,504,408	6,045,678,123	235,826,285
Total Investment in RAB as on 31st March 2019		10,838,282,585	7,331,451,410	6,281,504,408	6,045,678,123	235,826,285

FIXED ASSET REGISTER FOR FY 19

Block of Assets FY 17-18 Classification	Asset	Asset description	2018-19	Adjustments Sale/Debit	Net Assets	Type	Percentage Applied (%)	Location Description	Accounting-DIAL	Non-Accounting-DIAL	Accounting - Revised	Non-Accounting - Revised	Proposed Increase/Decrease in RAB
Plant and Machinery	1900730987	ATC - Tower P&M Work under A&C	99,93,47,007.72	0	99,93,47,007.72	Aero	100%	ATC	99,93,47,007.72	-	99,93,47,007.72	-	
Buildings & Roads	1900500111	Area Control Building ACC-2nd Work	84,66,41,803.09	0	84,66,41,803.09	Aero	100%	ATC	84,66,41,803.09	-	84,66,41,803.09	-	
Buildings & Roads	1900500112	ATC - Tower Civil Work	57,76,21,999.53	0	57,76,21,999.53	Aero	100%	ATC	57,76,21,999.53	-	57,76,21,999.53	-	
Electrical Fittings and Equipment	1900600062	Area Control Building (ACC)-Electrical Work	57,42,45,308.97	0	57,42,45,308.97	Aero	100%	ATC	57,42,45,308.97	-	57,42,45,308.97	-	
Buildings & Roads	1900730972	Area Control Building (ACC)-2nd Work	13,48,00,000.00	0	13,48,00,000.00	Aero	100%	ATC	13,48,00,000.00	-	13,48,00,000.00	-	
Plant and Machinery	1900730979	Area Control Building (ACC)-HVAC work	19,24,08,199.55	0	19,24,08,199.55	Aero	100%	ATC	19,24,08,199.55	-	19,24,08,199.55	-	
Runways & Taxiways	1900500043	Link system from Paup Taxiway to runway 1078P&A	18,08,78,294.70	0	18,08,78,294.70	Aero	100%	ATC	18,08,78,294.70	-	18,08,78,294.70	-	
Electrical Fittings and Equipment	1900600063	Tower Base Building (TBB)-Electrical Work	17,56,47,479.28	0	17,56,47,479.28	Aero	100%	ATC	17,56,47,479.28	-	17,56,47,479.28	-	
Plant and Machinery	1900730973	Area Control Building (ACC)-2nd Work	15,27,93,800.00	0	15,27,93,800.00	Aero	100%	PSE SE Funds Purchase	15,27,93,800.00	-	15,27,93,800.00	-	
Electrical Fittings and Equipment	1900600064	Area Control Building (ACC)-2nd Work	11,35,93,123.93	0	11,35,93,123.93	Aero	100%	ATC	11,35,93,123.93	-	11,35,93,123.93	-	
Roads	1900100027	Reconstrution of road at Airside area	11,04,75,277.66	0	11,04,75,277.66	Aero	100%	Other Common	11,04,75,277.66	-	11,04,75,277.66	-	1,28,65,577.00
Plant and Machinery	1900730982	Tower Base Building (TBB)-Electrical Work	7,64,31,879.76	0	7,64,31,879.76	Aero	100%	ATC	7,64,31,879.76	-	7,64,31,879.76	-	
Runways & Taxiways	1900500067	All other facilities work-Vietnam Unop 27	6,50,61,561.00	0	6,50,61,561.00	Mixed	84.30%	Other Common	5,85,24,913.21	1,10,66,648.29	5,85,24,913.21	1,10,66,648.29	
Runways & Taxiways	1900500068	Interior Work-T3 retail renovation Work-Departure	6,94,04,278.08	0	6,94,04,278.08	Non-Aero	0.00%	T3-PB1 Departure-Int-Retail	6,94,04,278.08	-	6,94,04,278.08	-	
Plant and Machinery	1900730980	Area Control Building (ACC)-P&M Work	6,89,66,649.94	0	6,89,66,649.94	Aero	100%	ATC	6,89,66,649.94	-	6,89,66,649.94	-	
Plant and Machinery	1900730991	Escalator Control System	6,83,94,448.51	0	6,83,94,448.51	Mixed	84.30%	Other Common	5,44,82,621.61	1,01,11,387.04	5,44,82,621.61	1,01,11,387.04	
Runways & Taxiways	1900500064	Renal Refresh-Interior depannage & domestic SHA T3	5,90,05,107.22	0	5,90,05,107.22	Non-Aero	0.00%	Terminal 3	5,90,05,107.22	-	5,90,05,107.22	-	
Runways & Taxiways	1900500044	Rehabilitation of Runway 09/27 & Taxiway A1 & A3	5,95,19,911.16	0	5,95,19,911.16	Aero	100%	Other Common	5,95,19,911.16	-	5,95,19,911.16	-	1,40,43,176.00
Lease Hold Improvements	1900100002	Lease Hold Improvements-Depannage from M-Management	5,73,06,066.27	0	5,73,06,066.27	Mixed	84.30%	Other Common	5,22,40,809.73	85,53,266.54	5,22,40,809.73	85,53,266.54	
Runways & Taxiways	1900500041	Rehabilitation-Airside Pavement-Associated work	4,90,12,570.66	0	4,90,12,570.66	Aero	100%	100% Aero	4,90,12,570.66	-	4,90,12,570.66	-	
Plant and Machinery	1900730975	ATC - Tower/HVAC work	4,83,70,285.98	0	4,83,70,285.98	Aero	100%	ATC	4,83,70,285.98	-	4,83,70,285.98	-	
Runways & Taxiways	1900500069	Interior Work-T3 retail renovation Work-Arrival	4,61,47,475.04	0	4,61,47,475.04	Non-Aero	0.00%	T3-PB1 - Arrival	4,61,47,475.04	-	4,61,47,475.04	-	
Plant and Machinery	1900730983	BHS CTX X-ray Machines - 01	4,40,48,042.00	0	4,40,48,042.00	Aero	100%	PSE SE Funds Purchase	4,40,48,042.00	-	4,40,48,042.00	-	
Plant and Machinery	1900730984	BHS CTX X-ray Machines - 02	4,40,48,042.00	0	4,40,48,042.00	Aero	100%	PSE SE Funds Purchase	4,40,48,042.00	-	4,40,48,042.00	-	
Plant and Machinery	1900730985	BHS CTX X-ray Machines - 03	4,40,48,042.00	0	4,40,48,042.00	Aero	100%	PSE SE Funds Purchase	4,40,48,042.00	-	4,40,48,042.00	-	
Plant and Machinery	1900730986	BHS CTX X-ray Machines - 04	4,40,48,042.00	0	4,40,48,042.00	Aero	100%	PSE SE Funds Purchase	4,40,48,042.00	-	4,40,48,042.00	-	
Plant and Machinery	1900730987	BHS CTX X-ray Machines - 05	4,40,48,042.00	0	4,40,48,042.00	Aero	100%	PSE SE Funds Purchase	4,40,48,042.00	-	4,40,48,042.00	-	
Plant and Machinery	1900730988	BHS CTX X-ray Machines - 06	4,40,48,042.00	0	4,40,48,042.00	Aero	100%	PSE SE Funds Purchase	4,40,48,042.00	-	4,40,48,042.00	-	
Buildings & Roads	1900500066	Civil Work for T3 Expansion	3,97,90,765.23	0	3,97,90,765.23	Aero	100%	Terminal 2	3,97,90,765.23	-	3,97,90,765.23	-	62,86,940.91
Electrical Fittings and Equipment	1900600065	AGL & Electric Work-P&M link system T3	3,64,38,524.41	0	3,64,38,524.41	Aero	100%	ATC	3,64,38,524.41	-	3,64,38,524.41	-	
Plant and Machinery	1900730999	T3 Non-Cabin Baggage X-Ray machines	3,59,24,826.25	0	3,59,24,826.25	Aero	100%	Terminal 3	3,59,24,826.25	-	3,59,24,826.25	-	
Plant and Machinery	1900730981	Area Control Building (ACC)-RPM Work	3,30,99,243.69	0	3,30,99,243.69	Aero	100%	ATC	3,30,99,243.69	-	3,30,99,243.69	-	
Runways & Taxiways	1900500063	800 Vira chain with accessories at terminal	3,21,73,631.81	0	3,21,73,631.81	Aero	100%	Terminal 3	3,21,73,631.81	-	3,21,73,631.81	-	
Electrical Fittings and Equipment	1900600067	AGL & Electric Work-AGL improvement work at Terminal 3	3,08,78,292.28	0	3,08,78,292.28	Aero	100%	ARBSIDE - COMMON	3,08,78,292.28	-	3,08,78,292.28	-	
Buildings & Roads	1900500011	Civil Work for ACLC II (Earth work & Boundary wall)	2,97,39,234.62	0	2,97,39,234.62	Non-Aero	0.00%	Airport Cargo Logistic Center (ACLC)	2,97,39,234.62	-	2,97,39,234.62	-	
Runways & Taxiways	1900500065	T3 International Immigration area expansion	2,97,02,715.52	0	2,97,02,715.52	Aero	100%	Terminal 3	2,97,02,715.52	-	2,97,02,715.52	-	
Electrical Fittings and Equipment	1900600068	AGL & Electric Work-P&M link system T3	2,84,51,971.91	0	2,84,51,971.91	Aero	100%	ATC - Runway 10/29	2,84,51,971.91	-	2,84,51,971.91	-	
Plant and Machinery	1900730992	Area Control Building (ACC)-Lifts work	2,91,34,401.97	0	2,91,34,401.97	Aero	100%	ATC	2,91,34,401.97	-	2,91,34,401.97	-	
Plant and Machinery	1900730974	X-RAY BAGGAGE SCREENING MACHINE	2,89,24,245.00	0	2,89,24,245.00	Aero	100%	PSE SE Funds Purchase	2,89,24,245.00	-	2,89,24,245.00	-	
Computing Equipment	1900800099	ATC-Tower/T3 Work	2,82,78,193.94	0	2,82,78,193.94	Aero	100%	ATC	2,82,78,193.94	-	2,82,78,193.94	-	
Vehicles	1900900042	Light Restroom (RB) Vehicles for OBT/CSA	2,75,17,729.20	0	2,75,17,729.20	Aero	100%	Terminal 3	2,75,17,729.20	-	2,75,17,729.20	-	
Runways & Taxiways	1900500042	Rehabilitation of Airside Pavement & Assesd work	2,70,23,734.67	0	2,70,23,734.67	Aero	100%	Other Common	2,70,23,734.67	-	2,70,23,734.67	-	
Plant and Machinery	1900730970	ESNs Explosive Trace Detectors with accessories	1,99,34,578.51	0	1,99,34,578.51	Aero	100%	Terminal 3	1,99,34,578.51	-	1,99,34,578.51	-	
Computing Equipment	1900800097	ESNs Explosive Trace Detectors with accessories	1,92,58,585.83	0	1,92,58,585.83	Aero	100%	TERMINAL 3A	1,92,58,585.83	-	1,92,58,585.83	-	
Runways & Taxiways	1900500061	Enhancement of Retail Area at T3 Domestic Depart	1,90,60,551.97	0	1,90,60,551.97	Non-Aero	0.00%	T3-PB1 Departure-Int-Retail	1,90,60,551.97	-	1,90,60,551.97	-	
Electrical Fittings and Equipment	1900600066	Light fixtures & Accessories, AGL improvement work	1,89,50,028.71	0	1,89,50,028.71	Aero	100%	Terminal 3	1,89,50,028.71	-	1,89,50,028.71	-	
Plant and Machinery	1900730978	ATC - Tower/Lifts work	1,82,26,551.17	0	1,82,26,551.17	Aero	100%	ATC	1,82,26,551.17	-	1,82,26,551.17	-	
Runways & Taxiways	1900500040	Retain P&M Work at DGA office at G-5 - P&A	1,79,07,824.64	0	1,79,07,824.64	Aero	100%	ATC	1,79,07,824.64	-	1,79,07,824.64	-	
Plant and Machinery	1900730989	Tower Base Building (TBB)-Lifts work	1,75,32,327.56	0	1,75,32,327.56	Aero	100%	ATC	1,75,32,327.56	-	1,75,32,327.56	-	
Computing Equipment	1900800000	Wireless Connectivity in Aids for Command Post	1,72,60,275.27	0	1,72,60,275.27	Aero	100%	New UB-IST Floor - Left Wing	1,72,60,275.27	-	1,72,60,275.27	-	
Plant and Machinery	1900730984	Tower Base Building (TBB)-P&M Work	1,71,36,569.09	0	1,71,36,569.09	Aero	100%	ATC	1,71,36,569.09	-	1,71,36,569.09	-	
Plant and Machinery	1900730982	Area Control Building (ACC)-2nd Work	1,58,71,215.00	0	1,58,71,215.00	Aero	100%	ATC	1,58,71,215.00	-	1,58,71,215.00	-	
Plant and Machinery	1900730985	BHS EDS X-ray Machines - 01	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730986	BHS EDS X-ray Machines - 02	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730987	BHS EDS X-ray Machines - 03	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730988	BHS EDS X-ray Machines - 04	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730989	BHS EDS X-ray Machines - 05	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730990	BHS EDS X-ray Machines - 06	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730991	BHS EDS X-ray Machines - 07	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730992	BHS EDS X-ray Machines - 08	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730993	BHS EDS X-ray Machines - 09	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730994	BHS EDS X-ray Machines - 10	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730995	BHS EDS X-ray Machines - 11	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730996	BHS EDS X-ray Machines - 12	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730997	BHS EDS X-ray Machines - 13	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730998	BHS EDS X-ray Machines - 14	1,52,73,633.00	0	1,52,73,633.00	Aero	100%	PSE SE Funds Purchase	1,52,73,633.00	-	1,52,73,633.00	-	
Plant and Machinery	1900730999	BHS EDS X-ray Machines - 15	1,52,73,633.00	0	1,52,73,633.00	Aero	100%						

Computing Equipment	1908000777	Supply & installation of AV Equip for Confer room	8,98,534.00	0	8,98,534.00	Mixed	84.0%	New Urban Bharu	7,55,607.00	1,42,866.91	6,08,085.31	2,90,448.00	1,47,581.78
Plant and Machinery	1900750996	ISO Nos of HMDM for all terminals (T1,T2,T3)	8,07,741.11	0	8,07,741.11	Aero	100.0%	TERMINAL-3	8,07,741.11	-	8,07,741.11	-	-
Computing Equipment	1900750985	10 Nos of Laptops 1400G72 for DBAL user	8,04,988.85	0	8,04,988.85	Aero	100.0%	TERMINAL-3	8,04,988.85	1,42,571.71	1,42,571.71	-	1,42,571.71
Plant and Machinery	1900750988	3 X Ray machines web 21 DPM2 at T1,T2,T3	8,92,382.20	0	8,92,382.20	Aero	100.0%	100 % Aero	8,92,382.20	-	8,92,382.20	-	-
Vehicles	1900930032	Mahindra TUV Vehicle-Aranda-6L, 10C X, 2001	8,79,086.92	0	8,79,086.92	Aero	100.0%	ARBSIDE - COMMON	8,79,086.92	-	8,79,086.92	-	-
Plant and Machinery	1900750992	Hydraulic Press Tool for ARBF Team	8,55,228.77	0	8,55,228.77	Aero	100.0%	ARBSIDE - FIRE STATION	8,55,228.77	-	8,55,228.77	-	-
Computing Equipment	1900750969	3 Nos. Transfer switches for IT network	8,40,000.00	0	8,40,000.00	Aero	100.0%	TERMINAL-3	7,06,100.00	1,33,812.00	7,06,100.00	-	1,33,812.00
Furniture & Fittings	190093037	S&T of automatic sliding door at T1, T2, T3	8,40,921.24	0	8,40,921.24	Aero	100.0%	TERMINAL-3	8,40,921.24	-	8,40,921.24	-	-
Electrical Fittings and Equipment	1900930044	Changeover switch for control lines programme at T3	8,00,247.00	0	8,00,247.00	Aero	100.0%	TERMINAL-3	8,00,247.00	-	8,00,247.00	-	-
Furniture & Fittings	1900750995	Furniture and Civil works for DBAL Canteen for Immigrants	7,88,070.00	0	7,88,070.00	Aero	100.0%	TERMINAL-3	7,88,070.00	-	7,88,070.00	-	-
Computing Equipment	1900840079	SCSI or additional memory upgrade in DBAL server	7,80,000.00	0	7,80,000.00	Aero	100.0%	TERMINAL-3	6,55,760.00	1,24,240.00	6,55,760.00	-	1,24,240.00
Furniture & Fittings	1900930343	Facshes work-offce room on 35 T1,PIA	7,66,111.68	0	7,66,111.68	Non-Aero	0.0%	Terminal 1	7,66,111.68	-	7,66,111.68	-	-
Computing Equipment	1900840077	MBS Server at T1D with accessories	7,60,500.00	0	7,60,500.00	Aero	100.0%	Terminal 1D	7,60,500.00	-	7,60,500.00	-	-
Plant and Machinery	1900750997	75 No. Injection Motors for mechanical system at T	7,51,936.40	0	7,51,936.40	Aero	100.0%	TERMINAL-3	7,51,936.40	-	7,51,936.40	-	-
Electrical Fittings and Equipment	1900800055	Comalated Energy management system,AGL & T2 Sub	7,45,534.44	0	7,45,534.44	Aero	100.0%	TERMINAL-3	7,45,534.44	-	7,45,534.44	-	-
Vehicles	1900930060	Mahindra Bolero Pick-up for Aranda-6L, 11, AA, 5949	7,41,444.00	0	7,41,444.00	Aero	100.0%	ARBSIDE - COMMON	7,41,444.00	-	7,41,444.00	-	-
Computing Equipment	1900800027	18 Nos. Dell Vostro 3480 Laptop with 4GB	7,26,200.00	0	7,26,200.00	Mixed	84.0%	TERMINAL-3	6,93,900.00	1,36,390.00	6,93,900.00	-	1,36,390.00
Electrical Fittings and Equipment	1900800074	EMS Upgradation for AGL improvement work aranda	7,21,106.00	0	7,21,106.00	Aero	100.0%	ARBSIDE - COMMON	7,21,106.00	-	7,21,106.00	-	-
Computing Equipment	1900840056	18 Nos. of Dell Vostro 3488, 7 Gen with backpacks	7,23,000.00	0	7,23,000.00	Mixed	84.0%	New Urban Bharu	6,08,547.00	1,15,052.40	4,89,698.25	2,33,911.75	1,18,849.35
Furniture & Fittings	1900930350	Shanki bus booths at T1, T2, T3 & PFC	7,20,000.00	0	7,20,000.00	Aero	100.0%	EG-Agriport	7,20,000.00	-	7,20,000.00	-	-
Furniture & Fittings	1900750989	Road Signage T1, T2, T3, PFC	7,05,000.00	0	7,05,000.00	Aero	100.0%	TERMINAL-3	7,05,000.00	-	7,05,000.00	-	-
Electrical Fittings and Equipment	1900800058	Steam Generator (11KW, 8K W for St. Manag. steam)	6,99,997.64	0	6,99,997.64	Mixed	84.0%	Other Common	5,55,085.02	1,04,939.62	3,29,998.82	3,29,998.82	3,25,205.00
Electrical Fittings and Equipment	1900930356	Refurbishment work in RFD Tea Meeting, NIB	6,50,000.00	0	6,50,000.00	Aero	100.0%	New Urban Bharu	5,56,060.00	1,03,900.00	4,39,899.25	2,10,110.75	1,06,760.75
Computing Equipment	1900800049	15 Nos. Dell Latitude E6400, 500G6, 4GB, 1TB	6,29,407.65	0	6,29,407.65	Aero	100.0%	New Urban Bharu	8,29,131.83	1,00,075.82	8,29,131.83	2,03,454.23	1,03,178.72
Plant and Machinery	1900750990	RFC T1 to 80000 Equips	6,20,000.00	0	6,20,000.00	Aero	100.0%	TERMINAL-3	6,20,000.00	-	6,20,000.00	-	-
Office Equipments	1900930372	22 No. In hand drivers for NUB & ASB	6,14,600.00	0	6,14,600.00	Mixed	84.0%	New Urban Bharu	5,16,985.88	97,744.12	4,15,996.35	1,08,605.65	1,00,499.31
Furniture & Fittings	1900930363	Furniture-Workshop office room on 35 T1,PIA	5,77,370.00	0	5,77,370.00	Non-Aero	0.0%	Terminal 1	5,77,370.00	-	5,77,370.00	-	-
Electrical Fittings and Equipment	1900800070	Control Equipment for Fan Gates for Immigrants	5,44,000.00	0	5,44,000.00	Aero	100.0%	TERMINAL-3	5,44,000.00	-	5,44,000.00	-	-
Furniture & Fittings	1900930369	40 no of mobile badge proof machines for CNIS Unit	5,41,500.00	0	5,41,500.00	0.0%	Other Common	4,51,500.00	85,000.00	1,05,446.45	1,74,535.54	88,693.54	
Computing Equipment	1900840094	Web Server rackware R40	5,40,000.00	0	5,40,000.00	Mixed	84.0%	New Urban Bharu	4,54,140.00	-	4,54,140.00	-	-
Plant and Machinery	1900750996	RO Plant a cargo station expansion Bay 100	5,34,000.00	0	5,34,000.00	Aero	100.0%	T1-PFC/PEP/CD Agriport	5,34,000.00	-	5,34,000.00	-	-
Electrical Fittings and Equipment	1900750993	LED Linear Light fixtures for mechanical system at T	5,27,000.00	0	5,27,000.00	Aero	100.0%	TERMINAL-3	5,27,000.00	-	5,27,000.00	-	-
Electrical Fittings and Equipment	1900800090	Electrical Work-room on 35 at ground floor T1D,PIA	5,21,325.00	0	5,21,325.00	Non-Aero	0.0%	Terminal 1	5,21,325.00	-	5,21,325.00	-	5,21,325.00
Plant and Machinery	1900750982	WEPs for STP and WP	5,08,475.00	0	5,08,475.00	Aero	100.0%	Other Common	5,08,475.00	-	5,08,475.00	-	-
Electrical Fittings and Equipment	1900800047	Control Equipment for Fan Gates for Immigrants	5,04,200.00	0	5,04,200.00	Aero	100.0%	TERMINAL-3	5,04,200.00	-	5,04,200.00	-	-
Computing Equipment	1900840084	Moduly Central Router (CISCO) for NMT stations	4,83,732.96	0	4,83,732.96	Aero	100.0%	TERMINAL-3	4,83,732.96	-	4,83,732.96	-	-
Computing Equipment	1900840064	DB Barcode reader for check in counters	4,60,000.00	0	4,60,000.00	Mixed	84.0%	TERMINAL-3	3,86,722.00	73,278.00	3,86,722.00	-	73,278.00
Computing Equipment	1900840034	Lenovo Thinkpad G41 NPS Dell laptop for St. Manag	4,51,800.00	0	4,51,800.00	Mixed	84.0%	New Urban Bharu	3,79,949.00	71,856.20	3,08,756.87	1,44,041.13	71,209.03
Plant and Machinery	1900750992	HTC of Control equipment for mechanical system at T	4,46,407.80	0	4,46,407.80	Aero	100.0%	New Urban Bharu	3,75,840.00	70,567.80	3,75,840.00	-	70,567.80
Capitalized Software	19005700178	Scanware Corel Draw and Adobe Creative cloud	4,43,000.00	0	4,43,000.00	Mixed	84.0%	New Urban Bharu	3,73,007.60	70,332.40	3,00,307.50	1,41,392.50	72,860.10
Computing Equipment	1900800098	Conference equipment-Home hubes, NUB, 1st floor	4,42,189.80	0	4,42,189.80	Mixed	84.0%	New Urban Bharu	3,71,881.62	70,308.18	3,21,094.90	1,50,776.92	1,50,776.92
Computing Equipment	1900840044	AD Printer for various printing for Finance, PIA	4,20,000.00	0	4,20,000.00	Mixed	84.0%	New Urban Bharu	3,53,200.00	66,780.00	3,42,361.11	1,35,361.87	68,881.87
Computing Equipment	1900840047	HP Printer & HP HP/ENT/5300/30/PS/MP/Printer	4,19,300.00	0	4,19,300.00	Mixed	84.0%	New Urban Bharu	3,52,621.20	66,678.20	3,25,721.42	1,35,179.58	68,688.20
Computing Equipment	1900840093	Kenexa attendance machines	4,05,000.00	0	4,05,000.00	Mixed	84.0%	TERMINAL-3	3,40,483.50	64,516.50	3,40,483.50	64,516.50	-
Furniture & Fittings	1900930367	Polys Knook at T3 arrival lounge	4,00,000.00	0	4,00,000.00	Aero	100.0%	TERMINAL-3	4,00,000.00	-	4,00,000.00	-	-
Computing Equipment	1900800087	Conference equipment-Home hubes, NUB, 1st floor	3,84,000.00	0	3,84,000.00	Mixed	84.0%	New Urban Bharu	3,13,544.00	70,456.00	1,97,624.00	1,97,624.00	1,34,524.00
Electrical Fittings and Equipment	1900800055	VLF for testing and substation of transformer	3,66,780.00	0	3,66,780.00	Mixed	84.0%	Other Common	3,28,281.98	61,498.02	3,28,281.98	-	61,498.02
Furniture & Fittings	1900930390	Permanent Shed for T1 Pknc Project Office at NUB	3,62,486.37	0	3,62,486.37	Aero	100.0%	Other Common	3,62,486.37	-	3,62,486.37	-	-
Computing Equipment	1900800095	SWP Racks and accessories for ARBF equipment	3,60,000.00	0	3,60,000.00	Aero	100.0%	Non-UE-1st Floor - Right Wing	3,60,000.00	-	3,60,000.00	-	-
Capitalized Software	1900750983	AutoCAD Software Licenses for various PIA	3,54,862.00	0	3,54,862.00	Aero	100.0%	TERMINAL-3	3,54,862.00	-	3,54,862.00	-	-
Computing Equipment	1900840076	Auto Dialer Facility for S&T Admin System at RGJ	3,50,742.00	0	3,50,742.00	Aero	100.0%	TERMINAL-2	3,50,742.00	-	3,50,742.00	-	-
Furniture & Fittings	1900930362	Finance&Furniture work-offce room on 35 T1,PIA	3,22,979.56	0	3,22,979.56	Mixed	84.0%	New Urban Bharu	2,71,209.41	51,790.15	2,18,395.59	1,04,277.97	52,982.82
Plant and Machinery	1900750971	Supply and installation of Fan Gates for Immigrants	3,18,000.00	0	3,18,000.00	Aero	100.0%	TERMINAL-3	3,18,000.00	-	3,18,000.00	-	-
Furniture & Fittings	1900930361	Side Tables, All Typo-Vatious, In-Opn,T2	3,16,200.00	0	3,16,200.00	Mixed	84.0%	Other Common	2,69,928.12	46,271.88	2,69,928.12	-	-
Office Equipments	19009002194	Industrial Dishwasher for NUB	3,12,000.00	0	3,12,000.00	Mixed	84.0%	New Urban Bharu	2,62,902.00	49,098.00	2,11,146.84	1,00,831.16	51,245.16
Plant and Machinery	1900750974	HVAC Work for modification of existing area at T3	3,06,278.30	0	3,06,278.30	Aero	100.0%	TERMINAL-3	3,06,278.30	-	3,06,278.30	-	-
Furniture & Fittings	1900930364	Office chair for head and on T2, Visting, PIA	3,00,800.00	0	3,00,800.00	Mixed	84.0%	Other Common	2,51,041.85	49,758.15	2,51,041.85	-	49,758.15
Computing Equipment	1900800015	Manent Admin Computer for 4th floor	2,99,500.00	0	2,99,500.00	Mixed	84.0%	TERMINAL-2	2,51,988.50	47,511.50	2,51,988.50	-	47,511.50
Plant and Machinery	1900750990	Mechanical Work (HVAC, Air Filter) for gates T3	2,97,188.82	0	2,97,188.82	Aero	100.0%	TERMINAL-3	2,97,188.82	-	2,97,188.82	-	-
Plant and Machinery	1900750992	Steel Shed for ARBF Equipment	2,93,600.00	0	2,93,600.00	Aero	100.0%	TERMINAL-3	2,93,600.00	-	2,93,600.00	-	-
Plant and Machinery	1900750999	13 nos Oxygen Analyzers for CNIS at check points	2,93,020.00	0	2,93,020.00	Aero	100.0%	TERMINAL-3	2,93,020.00	-	2,93,020.00	-	-
Computing Equipment	1900840063	MID ENTRY LEVEL SERVER (3 TB) for Finance team	2,88,870.00	0	2,88,870.00	Mixed	84.0%	TERMINAL-3	2,43,278.54	45,591.46	2,43,278.54	-	45,591.46
Computing Equipment	1900840049	Reference Library T1, T2, T3	2,84,422.79	0	2,84,422.79	Mixed	84.0%	Terminal 2	2,79,481.99	44,940.80	2,79,481.99	-	44,940.80
Computing Equipment	1900800047	18 Nos of Dell Vostro 3480 Laptop for ASB T1	2,81,400.00	0	2,81,400.00	Mixed	84.0%	TERMINAL-3	2,80,800.00	44,600.00	2,80,800.00	-	44,600.00
Furniture & Fittings	1900930328	Furniture for Post Office at T1, T2, T3	2,80,800.00	0	2,80,800.00	Aero	100.0%	TERMINAL-3	2,80,800.00	-	2,80,800.00	-	-
Electrical Fittings and Equipment	1900800097	Electrical work for enhancement of retail area at T3	2,77,288.00	0	2,77,288.00	Non-Aero	0.0%	TERMINAL-3	2,77,288.00	-	2,77,288.00	-	-
Plant and Machinery	1900750972	ESP Work Station Area at T3 International Arrival	2,63,900.00	0	2,63,900.00	Aero	100.0%	TERMINAL-3	2,63,900.00	-	2,63,900.00	-	-
Capitalized Software	19005700082	BCAS Examination and Training record software	2,51,250										

DETAILS OF ADJUSTMENTS TO RAB

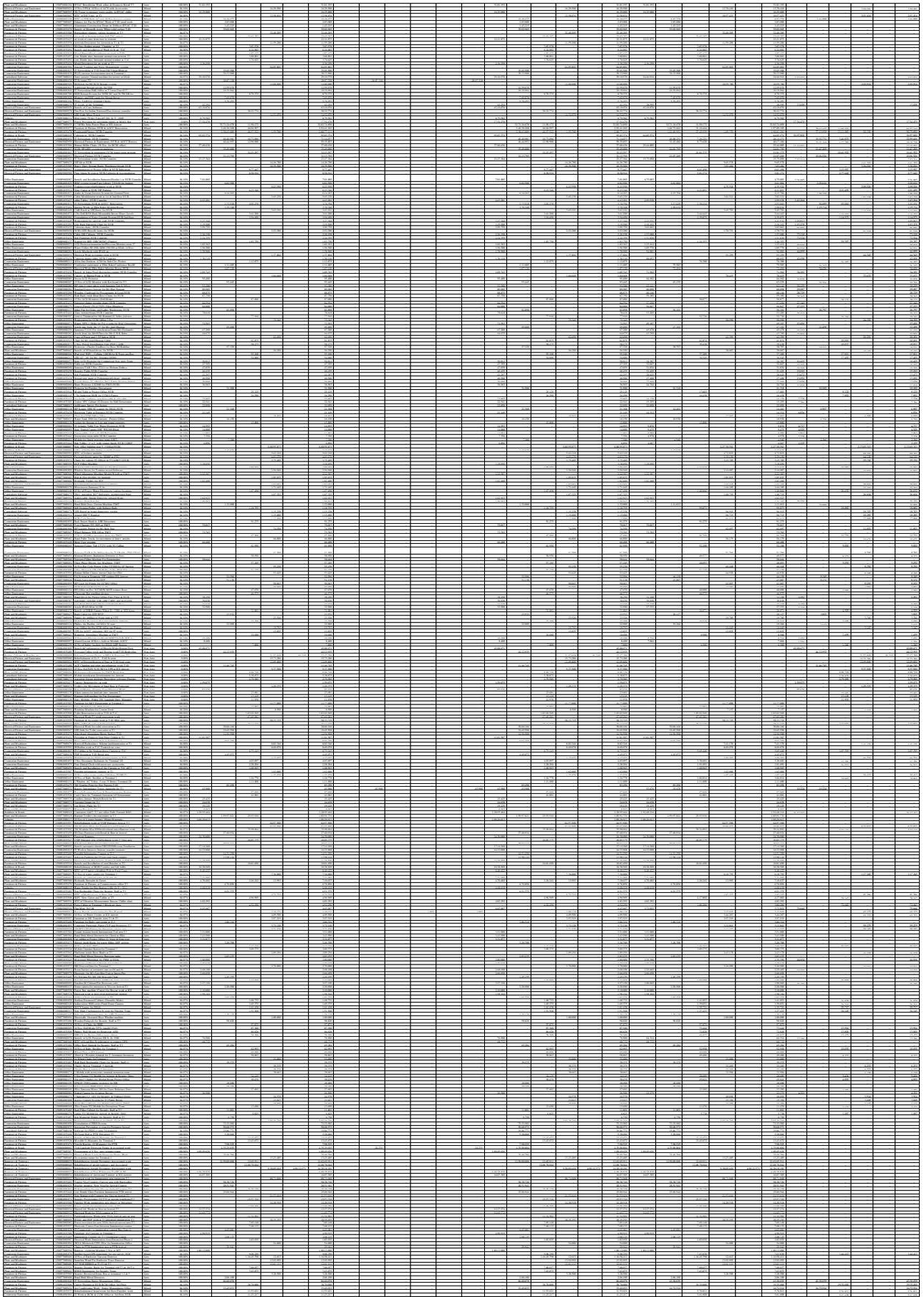
Block of Assets FY 17-18 Classification	Asset	Asset description	Total additions in control period 2	Type Description	Percentage Applied by DIAL	Aeronautical-DIAL	Non-Aeronautical- DIAL	Aeronautical - Revised	Non-Aeronautical- Revised	Proposed Increase/Decrease to RAB
New Udaan Bhavan Improvements (Refer adjustment 3(iii) of Table 3 and section 13.6.3.1.1 of the Report)										
Office Equipment	150089002099	CCTV camera at third floor terrace for security-NUB	2,70,937.50	Mixed	84.10%	2,15,243.44	40,694.06	1,73,206.39	97,731.11	42,037.04
Computing Equipment	150085000278	Dell Laptop (Model 3440) for CISF	48,000.39	Mixed	84.10%	40,368.33	7,632.06	32,484.39	15,516.00	7,883.93
Computing Equipment	150084001821	Samsung DB55 professional Display.Polycom VTX	4,54,875.00	Mixed	84.10%	3,82,549.88	72,325.13	3,07,837.88	1,47,037.12	74,711.99
Computing Equipment	150084001821	Supply & Installation of AVAYA IP phone - NUB Complex	2,63,769.70	Mixed	84.10%	2,21,830.32	41,939.38	1,78,506.86	85,262.84	43,232.46
Office Equipment	150089002075	Alcatel Lucent Digital Phone-4039	91,350.00	Mixed	84.10%	76,825.35	14,524.65	61,821.36	29,528.64	15,003.99
Office Equipment	150089002068	Koon Emergency Analog Phone KNZ D -10	88,620.00	Mixed	84.10%	74,529.42	14,090.58	59,973.82	28,646.18	14,555.60
Electrical Fittings and Equipment	150065003022	Supply and Installation of Changeover Panels NUB	9,77,029.25	Mixed	84.10%	8,21,681.60	1,55,347.65	6,61,207.18	3,15,822.07	1,60,474.72
Furniture & Fittings	150091033490	Permanent Shed for LT Panels-Project Office & NUB	1,39,519.85	Mixed	84.10%	1,17,336.19	22,183.66	94,420.44	45,099.41	22,915.76
Furniture & Fittings	150091033447	TV Panelling Dettails - 3' x 7' NUB Complex	80,456.68	Mixed	84.10%	67,664.07	12,792.61	54,449.28	26,007.40	13,214.79
Furniture & Fittings	150091033437	Ganesh Dity - Niche Panelling - NUB Complex	37,699.70	Mixed	84.10%	31,705.45	5,994.25	25,513.37	12,186.33	6,192.07
Office Equipment	150089002146	HP Laserjet 700 color MFP M775dn Printer	3,11,850.00	Mixed	84.10%	2,62,265.85	49,584.15	2,11,045.33	100,800.67	51,220.52
Office Equipment	150089002098	HP Colour Laserjet 5550 for Finishes Team	1,65,375.00	Mixed	84.10%	1,39,080.38	26,294.63	1,11,977.98	53,457.02	27,162.40
Computing Equipment	150085000313	Laptop-Vinod Jain,Vijay Sharma,Srikanth Bhandarka	1,49,799.30	Mixed	84.10%	1,25,981.21	23,818.09	1,01,179.08	48,422.22	24,604.13
Computing Equipment	150085000289	Lenovo X240 Laptop- Rrr Sebastian	1,48,785.00	Mixed	84.10%	1,25,128.19	23,656.82	1,00,690.65	48,094.35	24,437.53
Computing Equipment	150085000289	Laptop for CFO-GRK Babu-Dell	1,27,458.10	Mixed	84.10%	1,07,192.26	20,265.84	86,257.61	41,200.49	20,934.65
Computing Equipment	150085000308	Laptop for CEO-Apple	1,05,737.20	Mixed	84.10%	88,924.99	16,812.21	71,557.94	34,179.26	17,367.05
Computing Equipment	150085000277	MAC Book-Laptop for Shyam Sunder	98,595.00	Mixed	84.10%	82,918.40	15,676.61	66,724.43	31,870.57	16,193.96
Computing Equipment	150085000269	Laptop-Mac Book-Davesh Shukla	98,070.00	Mixed	84.10%	82,476.87	15,593.13	66,309.14	31,700.86	16,107.73
Computing Equipment	150085000286	Laptop for Vipin Malik	94,269.00	Mixed	84.10%	79,280.23	14,988.77	63,796.80	30,472.20	15,483.43
Computing Equipment	150085000319	EliteBook 820 G4 17-7500U- HP Laptop-for Kiran Sir	87,390.00	Mixed	84.10%	73,494.99	13,895.01	59,141.42	28,248.58	14,353.57
Computing Equipment	150085000280	Laptop with 8GB ram for Jitendra Singh	77,700.00	Mixed	84.10%	65,345.70	12,354.30	52,583.68	25,116.32	12,762.02
Computing Equipment	150085000288	Laptop for Mr.Jagmal Singh	74,707.50	Mixed	84.10%	62,829.01	11,878.49	50,558.50	24,149.00	12,270.51
Computing Equipment	150085000274	Laptop Lenovo Standard-Naveen Malik	73,710.00	Mixed	84.10%	61,990.11	11,719.89	49,883.44	23,826.56	12,106.67
Computing Equipment	150085000292	Laptop and Samsung Tabs for Devinder Kashyap	70,980.00	Mixed	84.10%	59,694.18	11,285.82	48,035.91	22,944.09	11,658.27
Office Equipment	150089002073	HP Laserjet Pro 500 Colour Printer BCM Office	69,300.00	Mixed	84.10%	58,281.30	11,018.70	46,898.96	22,401.04	11,382.34
Office Equipment	150089002088	Printer at BCM Office Delhi at NUB complex	63,985.75	Mixed	84.10%	53,812.02	10,173.73	43,302.53	20,682.22	10,599.49
Computing Equipment	150085000285	Laptop for Santarshi Sanyal	61,425.00	Mixed	84.10%	51,658.43	9,766.58	41,569.53	19,855.47	10,088.89
Computing Equipment	150085000305	Laptop for Rajesh Kumar Amanana	37,497.50	Mixed	84.10%	48,355.40	9,142.10	38,911.59	18,585.91	9,443.81
Computing Equipment	150085000299	Laptop for M.Jaijesh Singh Thakur	56,143.50	Mixed	84.10%	47,216.68	8,926.82	37,995.27	18,148.23	9,221.42
Computing Equipment	150085000304	Laptop for Dileep Dhat	56,143.50	Mixed	84.10%	47,216.68	8,926.82	37,995.27	18,148.23	9,221.42
Computing Equipment	150085000300	Laptop for Kiran Jain	52,468.50	Mixed	84.10%	44,126.01	8,342.49	35,508.20	16,960.30	8,617.81
Computing Equipment	150085000303	Lenovo Flex 2 Laptop for Rohit Lall	52,468.50	Mixed	84.10%	44,126.01	8,342.49	35,508.20	16,960.30	8,617.81
Computing Equipment	150085000296	Laptop for Akhil Baveja	52,468.00	Mixed	84.10%	44,125.59	8,342.41	35,507.86	16,960.14	8,617.73
Computing Equipment	150085000293	Laptop for Ramana Murthy	49,665.00	Mixed	84.10%	41,768.27	7,896.74	33,607.37	16,054.08	8,157.34
Computing Equipment	150085000294	Laptop for Brajesh Gupta	49,659.75	Mixed	84.10%	41,763.85	7,895.90	33,607.37	16,052.38	8,156.48
Computing Equipment	150085000306	Laptop for ETA Software	49,350.00	Mixed	84.10%	41,503.35	7,846.65	33,397.75	15,952.25	8,105.60
Computing Equipment	150085000312	Dell Laptop for Mr.Lalit Bishit	48,399.70	Mixed	84.10%	40,704.15	7,695.55	32,754.63	15,645.07	7,949.52
Computing Equipment	150085000273	Laptop for Anvita Kundra	48,000.39	Mixed	84.10%	40,368.33	7,632.06	32,484.39	15,516.00	7,883.93
Computing Equipment	150084001910	HP Laserjet Printer for CEO Office & Legal Team	47,500.00	Mixed	84.10%	39,947.50	7,552.50	32,145.75	15,354.25	7,801.75
Office Equipment	150089002048	Printer (HP MFP177FW) CZ165A (Mr.GBS-BCM Office)	44,000.00	Mixed	84.10%	37,004.00	6,996.00	29,777.12	14,222.88	7,266.88
Computing Equipment	150085000272	Laptop-Srila Rankumar - 6044	42,266.43	Mixed	84.10%	35,546.07	6,720.36	28,603.92	13,662.51	6,942.15
Computing Equipment	150085000271	Laptop-Adinava Acharya - 9452	42,253.71	Mixed	84.10%	35,535.37	6,718.34	28,595.31	13,658.40	6,940.06
Computing Equipment	150085000267	Laptop- Ravi Kaur	42,217.94	Mixed	84.10%	35,505.29	6,712.65	28,571.10	13,646.84	6,934.18
Computing Equipment	150085000268	Laptop- Adishosh Mehta	42,217.94	Mixed	84.10%	35,505.29	6,712.65	28,571.10	13,646.84	6,934.18
Computing Equipment	150085000287	Laptop Lenovo	42,210.00	Mixed	84.10%	35,498.61	6,711.39	28,568.73	13,644.27	6,932.88
Computing Equipment	150084001909	HP Laserjet Pro MFP M227SDN Printer for GCMO	20,312.00	Mixed	84.10%	17,082.39	3,229.61	13,746.20	6,565.80	3,336.19
Office Equipment	150089002139	Domatrix 136 C Printer-epson LQ-2090	20,265.00	Mixed	84.10%	17,042.87	3,222.14	13,714.39	6,550.61	3,328.47
Office Equipment	150089002067	HP Laserjet Pro MFPM1 28fw -CEO Office	17,850.00	Mixed	84.10%	15,011.85	2,838.15	12,080.04	5,769.96	2,931.81
Office Equipment	150089002111	Zebra Barcode printer for Finance Team	16,484.47	Mixed	84.10%	13,863.44	2,621.03	11,155.91	5,328.56	2,707.53
Office Equipment	150089002110	HP 1025 Printer for GCM Office	11,901.68	Mixed	84.10%	10,009.31	1,892.37	8,054.49	3,847.19	1,954.82
Office Equipment	150089002114	Printer HP 202N for finance	9,800.00	Mixed	84.10%	8,241.80	1,558.20	6,632.18	3,167.82	1,609.62
Computing Equipment	150084001923	Hard Disc for laptop at NUB	3,500.00	Mixed	84.10%	2,943.50	556.50	2,368.63	1,131.37	574.87
Plant and Machinery	150077005619	P&M- HVAC work-NUB & AOCC Renovation	44,78,127.99	Mixed	84.10%	37,66,105.64	7,12,022.35	30,580.21	14,47,542.78	7,35,524.78
Plant and Machinery	150077005621	HVAC work-NUB Complex	35,71,167.60	Mixed	84.10%	30,03,351.95	5,67,815.65	24,16,797.32	11,54,370.28	5,86,554.64
Computing Equipment	150085000270	IT Assets at the Terminals	42,253.71	Mixed	84.10%	35,535.37	6,718.34	28,595.31	13,658.40	6,940.06
Furniture & Fittings	150091033477	Furniture-Fittings-NUB & AOCC Renovation	2,92,41,265.31	Mixed	84.10%	2,45,91,904.13	46,49,361.18	1,97,89,105.25	94,52,160.06	48,02,798.88
Furniture & Fittings	150091033478	Furniture-Fittings-NUB Complex	2,80,77,111.14	Mixed	84.10%	2,36,12,850.47	44,64,260.67	1,90,01,260.27	90,75,850.37	46,11,590.76
Buildings & Roads	150055000105	Cafeteria in- NUB Complex	95,83,373.66	Mixed	84.10%	80,59,617.25	15,23,756.41	64,85,574.00	30,97,799.66	15,74,043.25
Computing Equipment	150084001832	Networking - NUB Complex	14,17,077.31	Mixed	84.10%	59,82,939.02	11,31,138.29	48,14,477.03	22,99,606.28	11,68,467.99
Electrical Fittings and Equipment	150065002950	Electrical Fittings & Equipments-NUB & AOCC Renova	59,35,852.53	Mixed	84.10%	49,92,051.98	9,43,800.55	40,17,104.23	19,18,748.30	9,74,947.75
Furniture & Fittings	150091033304	Herman Miller Chairs (56 Nos. for BCM Office)	37,60,435.93	Mixed	84.10%	31,62,526.62	5,97,909.31	25,44,885.17	12,15,550.76	6,17,641.45
Computing Equipment	150084001837	NUB- EPABX system upgradation	35,49,000.00	Mixed	84.10%	29,84,709.00	5,64,291.00	24,01,795.33	11,47,204.67	5,82,913.67
Computing Equipment	150084001863	IT Networking & equipment-GCM board room upgrade	32,23,297.32	Mixed	84.10%	27,10,793.05	5,12,504.27	21,81,375.16	10,41,922.16	5,29,417.82
Electrical Fittings and Equipment	150065002951	Electrical Fittings-NUB Complex	31,13,794.69	Mixed	84.10%	26,18,701.33	4,95,093.36	21,07,268.96	10,06,525.73	5,11,432.37
Computing Equipment	150084001822	IT Networking works - NUB Complex	25,27,363.95	Mixed	84.10%	19,57,313.08	5,70,050.87	15,75,049.84	7,52,314.11	3,82,263.24
Plant and Machinery	150077005675	VIP lift at NUB	14,26,780.43	Mixed	84.10%	11,99,922.34	2,26,858.09	9,65,577.51	4,61,202.92	2,34,344.83
Furniture & Fittings	150091033589	Heavy Duty Storage Racks Warehouse beside NUB	10,39,500.00	Mixed	84.10%	8,74,219.50	1,65,280.50	7,03,484.43	3,36,015.57	1,70,735.07
Electrical Fittings and Equipment	150065002963	Augmentation of Project Office & NUB Substation	9,77,447.25	Mixed	84.10%	8,22,033.14	1,55,414.11	6,67,490.07	3,19,597.18	1,60,543.07
Electrical Fittings and Equipment	150065002988	Firm Alarm System at NUB,Cafeteria & Accommodation	8,58,916.26	Mixed	84.10%	7,22,348.57	1,36,567.69	5,81,273.90	2,77,642.36	1,41,074.68
Office Equipment	150089002087	Supply and Installation-Samsung Display's at NUB Complex	7,01,885.00	Mixed	84.10%	5,90,285.29	1,11,599.72	4,75,507.52	2,26,882.43	1,15,282.72
Computing Equipment	150084001829	IBM system storage Tape Library TS3100 for backup	6,82,500.00	Mixed	84.10%	5,73,982.50	1,08,517.50	4,61,883.72	2,20,616.28	1,12,098.78
Furniture & Fittings	150091033595	Training room refurbishment work at NUB	6,43,550.00	Mixed	84.10%	5,41,225.55	1,02,324.45	4,35,524.20	2,08,025.80	1,05,701.35
Furniture & Fittings	150091033514	Vip Cutter at NUB VIP Parking	6,23,345.78	Mixed	84.10%	5,24,233.80	99,111.98	4,21,850.94	2,01,494.84	1,02,382.86
Computing Equipment	150084001833	Audio & Visual Devices System for Ground Floor	6,14,262.50	Mixed	84.10%	5,16,594.76	97,667.74	4,15,703.81	1,98,558.69	1,00,890.96
Furniture & Fittings	150091033569									

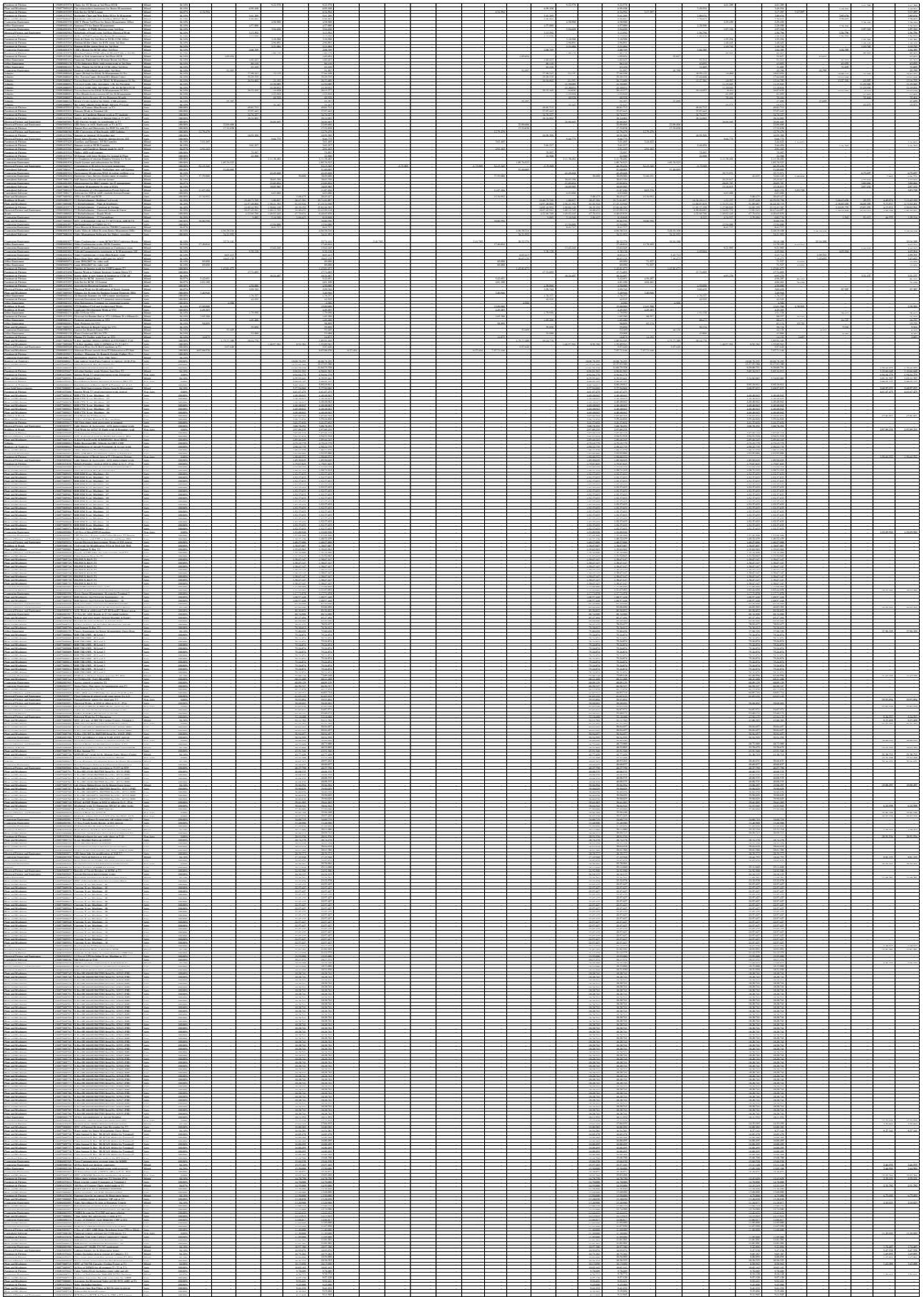
Office Equipment	150089002117	Inline Fan for Gents and Ladies Washrooms-NUB	82,898.00	Mixed	84.10%	69,717.22	13,180.78	56,101.45	26,796.55	13,615.77
Furniture & Fixings	150091033441	Glass writing board-NUB Complex	78,617.67	Mixed	84.10%	66,117.46	12,500.21	53,204.72	25,412.95	12,912.74
Computing Equipment	150085000307	Lenovo Thinkpad for Mr.Rommel JJ Velles-Advisor	77,910.00	Mixed	84.10%	65,522.31	12,387.69	52,725.80	25,184.20	12,796.51
Furniture & Fixings	150091033551	Workstation for CCM Office 3 Pcs	75,345.13	Mixed	84.10%	63,365.25	11,979.88	50,990.02	24,355.11	12,375.23
Office Equipment	150089002071	Blump NPS-1 (Mike for PA system for HAJ Operation)	72,562.50	Mixed	84.10%	61,025.06	11,537.44	49,106.87	23,455.63	11,918.19
Computing Equipment	150085000301	Apple mac book Air 13" for Mr.Anil Dhawan	69,600.00	Mixed	84.10%	58,533.60	11,066.40	47,101.99	22,498.01	11,431.61
Office Equipment	150090000259	Samsung T210 For ApplicationTeam (Mr.Nishanth)	67,200.00	Mixed	84.10%	56,515.20	10,684.80	45,477.78	21,722.22	10,542.42
Computing Equipment	150085000283	Apple Ipad Air M0697ha for Mr.G R K Babu	64,675.00	Mixed	84.10%	54,391.68	10,283.33	43,768.98	20,966.02	10,622.69
Computing Equipment	150084001920	2 nos of Printer and 3 TP link at NUB	62,650.00	Mixed	84.10%	52,688.65	9,961.35	42,398.56	20,251.44	10,250.89
Furniture & Fixings	150091033513	Chair for Mr.Anil Dhawan Cabin	61,875.00	Mixed	84.10%	52,036.88	9,838.13	41,874.07	20,000.03	10,162.80
Office Equipment	150084001873	2 Nos. Power Distribution Unit (PDU)-ASB	58,275.00	Mixed	84.10%	49,009.28	9,265.73	39,437.76	18,837.24	9,571.51
Office Equipment	150089002106	Projectors-Charles Lindberg 1st floor-301 Building	57,328.75	Mixed	84.10%	48,213.48	9,115.27	38,797.59	18,531.36	9,416.69
Plant and Machinery	150077005667	Supply of 05 hand driers for NUB	56,250.00	Mixed	84.10%	47,306.25	8,943.75	38,067.34	18,182.66	9,238.91
Office Equipment	150090000266	iPad Air2 Wifi + Cellular 128GB for K Narayana Rao	55,100.00	Mixed	84.10%	46,339.11	8,760.90	37,289.00	17,810.93	9,050.03
Computing Equipment	1500860000212	LED 42"-48" for Mr. Douglas(26580)	53,999.95	Mixed	84.10%	45,413.96	8,585.99	36,544.61	17,455.54	8,869.35
Office Equipment	150089002077	Sony LCD Projector for Commercial Non Aero Team	50,812.00	Mixed	84.10%	42,732.89	8,079.11	34,387.16	16,424.84	8,345.73
Furniture & Fixings	150091033430	Table top-NUB Complex	47,354.51	Mixed	84.10%	39,825.14	7,529.37	32,047.29	15,307.22	7,777.85
Office Equipment	150090000260	Samsung TAB 3 Nos (T211) to Nishant Dahiyia	47,039.00	Mixed	84.10%	39,559.80	7,479.20	31,833.77	15,205.23	7,226.03
Furniture & Fixings	150091033439	Security Table-NUB Complex	46,435.00	Mixed	84.10%	39,051.84	7,383.17	31,425.01	15,009.99	7,262.82
Furniture & Fixings	150091033431	Soft Furniture-NUB Complex	42,297.23	Mixed	84.10%	35,571.97	6,725.26	28,624.76	13,672.47	6,642.21
Furniture & Fixings	150091033418	Storage unit made of Prelaminated/Library Almirah	40,500.00	Mixed	84.10%	34,060.50	6,439.50	27,408.48	13,091.52	6,652.02
Office Equipment	150089002058	Google Nexus 7C+I0013A 2012 Tablet-Nishant Dahiyia	39,998.00	Mixed	84.10%	33,638.32	6,359.68	27,068.75	12,929.25	6,509.56
Office Equipment	150089002060	Sharp Projector-LX2000 for FMS (NUB)	36,562.50	Mixed	84.10%	30,749.06	5,813.44	24,743.77	11,818.73	6,005.29
Office Equipment	150089002105	Projector for Finishes Department	31,500.00	Mixed	84.10%	26,491.50	5,008.50	21,317.71	10,508.50	5,173.79
Furniture & Fixings	150091033544	Model Table at Project Office-NUB	25,125.00	Mixed	84.10%	21,130.13	3,994.88	17,003.41	8,121.59	4,126.71
Office Equipment	150089002145	1 No. Induction Hob for CCMO Pantry	24,290.00	Mixed	84.10%	20,427.89	3,862.11	16,438.32	7,851.68	3,999.57
Furniture & Fixings	150089002143	No height credenza, matching table & side table	23,907.13	Mixed	84.10%	20,105.90	3,801.23	16,179.21	7,727.92	3,924.68
Furniture & Fixings	150091033303	Godrej VPC Cabinet 02 Drawer for E&I Department	22,541.25	Mixed	84.10%	18,975.19	3,566.06	15,254.85	7,286.40	3,702.34
Office Equipment	150089002118	HP Scanjet 3000 S2 scanner for DIAL-NUB	21,367.50	Mixed	84.10%	17,970.07	3,397.43	14,460.51	6,906.55	3,509.55
Furniture & Fixings	150091033438	Reception Table at Entrance-NUB Complex	21,148.61	Mixed	84.10%	17,785.98	3,362.63	14,312.38	6,836.23	3,473.60
Furniture & Fixings	150091033552	Chair for CCM Office 3 Nos	18,562.50	Mixed	84.10%	15,611.06	2,951.44	12,562.22	6,000.28	3,048.84
Plant and Machinery	150077005633	Water Tank 2500 Ltr.Capacity -Project Office	16,150.00	Mixed	84.10%	13,582.15	2,567.85	10,929.56	5,220.44	2,652.59
Office Equipment	150089002064	02 Atlantis Table Top Water Dispenser-NUB	14,593.13	Mixed	84.10%	12,272.82	2,320.31	9,875.94	4,717.19	2,396.88
Office Equipment	150089002055	Sony Digital Camera DSC WX200-Black	14,000.00	Mixed	84.10%	11,774.00	2,226.00	9,474.54	4,525.46	2,299.46
Furniture & Fixings	150091033445	Centre table - 2'6" x 5'-NUB Complex	11,953.56	Mixed	84.10%	10,052.94	1,900.62	8,099.60	3,863.96	1,963.34
Furniture & Fixings	150091033442	Discussion room table-NUB Complex	7,356.04	Mixed	84.10%	6,186.43	1,169.61	4,978.22	2,377.82	1,208.21
Office Equipment	150090000263	Mobile for Quick response team (QRT)	7,300.00	Mixed	84.10%	6,139.30	1,160.70	4,940.29	2,359.71	1,199.01
Furniture & Fixings	150091033444	Side Tables - 2 x 2' with veneer finish, NUB Complex	6,896.29	Mixed	84.10%	5,799.78	1,096.51	4,667.08	2,229.21	1,132.70
Buildings & Roads	150033000077	New office building near T-3 Office(NUB)	6,60,95,873.35	Mixed	84.10%	5,55,86,629.49	1,05,09,243.86	4,47,30,560.73	2,13,65,312.60	1,08,56,068.74
Furniture & Fixings	150091033426	Graphics and Signages -NUB Complex	3,61,465.00	Mixed	84.10%	3,03,992.07	57,472.94	2,44,622.41	1,16,842.59	59,369.65
Furniture & Fixings	150091033543	Signages work at NUB Complex	3,61,216.88	Mixed	84.10%	3,03,783.40	57,433.48	2,44,540.50	1,16,762.38	59,328.90
Capitalized Software	150057000165	Development of e-Documentation Portal-Software	11,87,104.32	Mixed	84.10%	9,98,354.73	1,88,749.59	8,03,376.05	3,83,728.67	1,94,978.68
Office Equipment	150089002086	Video Conferencing works-NUB Complex	17,40,816.33	Mixed	84.10%	14,64,626.03	2,76,789.30	11,76,182.15	5,62,714.18	2,85,924.38
Computing Equipment	150089002085	STPC of Audio Visual equipment at Conference room	13,62,244.88	Mixed	84.10%	11,45,647.94	2,16,596.94	9,23,902.90	4,34,011.98	2,20,450.88
Computing Equipment	150084001824	Vide Conferencing system-Ellell Bakers room	8,03,412.50	Mixed	84.10%	6,75,669.91	1,27,742.59	5,43,711.58	2,59,700.92	1,31,958.33
Computing Equipment	150084001826	Barco Over View video wall Lamp for AODC	10,63,125.00	Mixed	84.10%	8,94,088.13	1,69,036.88	7,17,472.71	3,43,652.29	1,74,615.41
Furniture & Fixings	150091033596	Slider screen ad new lounge & furniture at CCM of	10,24,407.15	Mixed	84.10%	8,61,526.41	1,62,880.74	6,93,270.30	3,31,136.85	1,68,256.11
Buildings & Roads	150054000009	Refurb of warehouse sheds for Document control NUB	48,32,894.15	Mixed	84.10%	40,64,464.82	7,68,430.33	32,70,640.84	15,622.20	7,93,789.98
Computing Equipment	150084001968	DIAL Firewall Refresh at IGI airport	27,25,948.00	Mixed	84.10%	22,92,522.27	4,33,425.73	18,44,792.67	8,81,155.33	4,47,729.60
Furniture & Fixings	150091033610	400 Nos of chairs (340 mid back & 60 high back)	18,75,200.00	Mixed	84.10%	15,77,043.20	2,98,156.80	12,69,046.66	6,06,153.34	3,07,996.54
Computing Equipment	150084001977	Supply & Installation of AV Equip. for Confer room	8,98,534.00	Mixed	84.10%	7,55,667.09	1,42,866.91	6,08,085.31	2,90,448.69	1,47,581.78
Computing Equipment	150084001956	18 Nos of Dell Vostro 3468.7" Gen with backpacks	7,23,600.00	Mixed	84.10%	6,08,547.60	1,15,052.40	4,89,698.25	2,33,901.75	1,18,849.35
Furniture & Fixings	150091033656	Refurbishment work in JRD Tata Meeting-NUB	6,50,000.00	Mixed	84.10%	5,46,650.00	1,03,350.00	4,39,889.26	2,10,110.75	1,06,760.75
Computing Equipment	150085000349	15 Nos Dell Latitude laptop 3490 i5, 4GB/1TB	6,29,407.65	Mixed	84.10%	5,29,331.83	1,00,075.82	4,25,953.32	2,03,454.32	1,03,378.51
Office Equipment	150089002191	20 No Jet hand driers for NUB & ASB	6,14,680.00	Mixed	84.10%	5,16,945.88	97,734.12	4,13,986.35	1,98,693.65	1,00,959.53
Computing Equipment	150084001994	Dell Server powereedge R740	5,40,000.00	Mixed	84.10%	4,54,140.00	85,860.00	3,65,446.46	1,74,553.54	88,693.54
Computing Equipment	150085000334	Lenovo thinkpad & 03 XPS Dell laptop for Sr.Mang.	4,51,800.00	Mixed	84.10%	3,79,963.80	71,836.20	3,05,756.87	1,46,043.13	74,206.93
Capitalized Software	150057000178	Software Credit Draw and Adobe Creative cloud	4,43,600.00	Mixed	84.10%	3,73,067.60	70,532.40	3,00,207.50	1,43,392.50	72,860.10
Computing Equipment	150084001954	02 Plotter for layouts printing for Finishes- PFA	4,20,900.00	Mixed	84.10%	3,53,220.00	66,780.00	2,84,236.13	1,35,763.87	68,983.87
Computing Equipment	150084001947	01 HP Printer & 01 HP DNF72530 36" PPS MP Printer	4,19,000.00	Mixed	84.10%	3,52,630.00	66,360.00	2,85,762.41	1,35,537.59	68,868.89
Computing Equipment	150091033590	Permanent Staff for IT Panels-Project Office & NUB	3,62,486.37	Mixed	84.10%	3,04,851.04	57,635.33	2,45,313.61	1,17,172.74	59,277.40
Furniture & Fixings	150091033632	Finishes/Furniture work for IT meeting room at NUB	3,22,579.56	Mixed	84.10%	2,71,289.41	51,290.15	2,18,306.99	1,04,272.97	52,982.82
Office Equipment	150089002194	Industrial Dishwasher for NUB	3,12,000.00	Mixed	84.10%	2,62,392.00	49,608.00	2,11,146.84	1,00,853.16	51,245.16
Furniture & Fixings	150091033620	Chairs at breakout space at NUB 1st floor back sid	2,29,250.00	Mixed	84.10%	1,92,799.25	36,450.75	1,55,145.56	74,104.44	37,653.69
Office Equipment	150089002215	Taps at NUB wash basin	1,93,910.02	Mixed	84.10%	1,63,078.33	30,831.69	1,31,229.13	62,680.89	31,849.20
Computing Equipment	150085000345	02 No Laptop- Mr.Dharmendra Babu & Ravendra BCMO	1,76,600.00	Mixed	84.10%	1,48,520.60	28,079.40	1,19,514.53	57,085.47	29,006.07
Office Equipment	150089002214	Wash Basins at NUB	1,74,053.00	Mixed	84.10%	1,46,378.57	27,674.43	1,17,790.84	56,262.16	28,587.74
Computing Equipment	150085000332	04 Laptops for Arif, Rohit, Sezen,Sreenivas,Shubam)	1,70,000.00	Mixed	84.10%	1,42,970.00	27,030.00	1,15,047.96	54,952.04	27,922.04
Computing Equipment	150084001958	Laptop for Amanm Sir team (ALD)	1,48,900.00	Mixed	84.10%	1,25,224.90	23,675.10	1,00,768.48	48,131.52	24,456.42
Computing Equipment	150085000331	Laptop for BCM Office (HpElitebook-1030G2X360)	1,39,822.00	Mixed	84.10%	1,17,590.30	22,231.70	94,624.92	45,197.08	22,965.39
Furniture & Fixings	150091033612	11Nos water free urinals for Ground Floor NUB	1,37,500.00	Mixed	84.10%	1,15,637.50	21,862.50	93,053.50	44,446.50	22,584.00
Computing Equipment	150084001982	02 Nos of Printer	1,31,300.00	Mixed	84.10%	1,10,423.30	20,876.70	88,857.63	42,442.37	21,565.67
Computing Equipment	150084001993	Projector Epson X41	1,25,200.00	Mixed	84.10%	1,05,293.20	19,906.80	84,729.44	40,470.56	20,563.76
Computing Equipment	150085000340	Dell XPS 9370 Laptop for Mr. Shyam Sunder-CCO Aero	1,24,178.00	Mixed	84.10%	1,04,433.70	19,744.30	84,037.80	40,140.20	20,395.90
Computing Equipment	150085000347	Lenovo X1 Carbon Core i5 Laptop-Mr. Sumit Anand	1,21,461.13	Mixed	84.10%	1,02,148.81	19,312.32	82,199.15	39,261.98	19,949.66
Computing Equipment	1500840									

Furniture & Fittings	150091033575	Desk & Chairs for 3rd floor at NUB-CCM Office	3,10,587.50	Mixed	84.10%	2,61,204.09	49,383.41	1,55,293.75	1,55,293.75	1,05,910.34
Furniture & Fittings	150091033565	Herman Miller Chairs for BVN room 3rd floor	2,96,890.63	Mixed	84.10%	2,49,685.02	47,205.61	1,48,445.32	1,48,445.32	1,01,239.70
Furniture & Fittings	150091033574	Herman Miller Aeron Desk for 3rd floor	2,21,484.38	Mixed	84.10%	1,86,268.36	35,216.02	1,10,742.19	1,10,742.19	75,526.17
Computing Equipment	150084001879	CISCO Router for BCM office 3rd floor	2,08,769.46	Mixed	84.10%	1,75,575.12	33,194.34	1,04,384.73	1,04,384.73	71,190.39
Furniture & Fittings	150091033578	Wooden Cabinet CCM office & Model Table at 3rd Flo	1,90,125.00	Mixed	84.10%	1,59,895.13	30,229.88	95,062.50	95,062.50	64,832.63
Furniture & Fittings	150091033481	Blinds at Neil Armstrong at Meeting Room 3rd Floor	1,05,654.00	Mixed	84.10%	88,855.01	16,798.99	52,827.00	52,827.00	36,028.01
Office Equipment	150089002162	Panasonic Panboard for Meeting Room 3rd Floor	1,02,423.00	Mixed	84.10%	86,137.74	16,285.26	51,211.50	51,211.50	34,926.24
Office Equipment	150089002138	2 No. Induction Hobs with corian work at 3rd floor	86,110.20	Mixed	84.10%	72,418.68	13,691.52	43,055.10	43,055.10	29,363.58
Office Equipment	150089002161	2 Nos. Printer for GCM & CCM office 3rd floor	63,210.00	Mixed	84.10%	53,159.61	10,050.39	31,605.00	31,605.00	21,554.61
Computing Equipment	150086002028	Desktops with related accessories 3rd floor	51,497.00	Mixed	84.10%	43,393.08	8,203.92	25,798.50	25,798.50	17,594.58
Vehicles	150092000048	Canary Hybrid for DIAL Sr.Management 01 No.	37,66,108.00	Mixed	84.10%	31,67,296.83	5,98,811.17	18,83,054.00	18,83,054.00	12,84,242.83
Vehicles	150092000043	No. Toyota Canary Hybrid HV (Black Color)	35,29,335.00	Mixed	84.10%	29,68,170.74	5,61,164.27	17,64,667.50	17,64,667.50	12,03,503.24
Vehicles	150092000047	Toyota Innova Crysta for DIAL Sr.Management 01 No.	26,33,409.00	Mixed	84.10%	22,14,696.97	4,18,712.03	13,16,704.50	13,16,704.50	8,97,992.47
Vehicles	150092000054	Toyota Corolla Altis Automatic 1.8L for President	22,50,089.00	Mixed	84.10%	18,92,324.85	3,57,764.15	11,25,044.50	11,25,044.50	7,67,280.35
Vehicles	150092000055	Toyota Corolla Altis Automatic 1.8L for BCMO,NUB	22,20,032.00	Mixed	84.10%	18,67,046.91	3,52,985.09	11,10,016.00	11,10,016.00	7,57,030.91
Vehicles	150092000046	Toyota Innova for DIAL Sr.Management 01 NO.	20,15,277.00	Mixed	84.10%	16,94,847.96	3,20,429.04	10,07,638.50	10,07,638.50	6,87,209.46
Vehicles	150092000051	2 Nos Honda Activa scooter 4G for Sr.Management	1,23,910.00	Mixed	84.10%	1,04,208.31	19,701.69	61,955.00	61,955.00	42,253.31
Vehicles	150092000057	Honda Activa Scooter 4G for Hanuman Mandir	60,928.00	Mixed	84.10%	51,240.45	9,687.55	30,464.00	30,464.00	20,776.45
Vehicles	150093000116	Motor Cycle-(Activa) for DIAL -CSR activities	55,397.00	Mixed	84.10%	46,588.88	8,808.12	27,698.50	27,698.50	18,930.38
Vehicles	150092000052	Sky Lifter vehicles used (Brady Services Pvt.Ltd)	31,146.66	Mixed	84.10%	26,194.34	4,952.32	15,573.33	15,573.33	10,621.01
Computing Equipment	150084001839	Audio Video & Allied System-Senior-Management Office	4,96,38,215.56	Mixed	84.10%	41,745,739.29	78,638,476.27	2,48,19,107.78	2,48,19,107.78	1,69,26,041.51
Computing Equipment	150084001827	Video Conferencing system-BCM/CEO Conference Room	22,74,140.61	Mixed	84.10%	17,09,228.05	3,23,147.75	10,16,187.90	10,16,187.90	6,99,630.51
Computing Equipment	150084001884	Video Conferencing equipment at Sr.Management Off	9,30,128.00	Mixed	84.10%	7,82,237.65	1,47,890.35	4,65,064.00	4,65,064.00	3,17,173.65
Vehicles	150092000063	Toyota Fortuner 4x4 phantom brown for Senior Management	40,93,262.00	Mixed	84.10%	34,42,433.34	6,50,828.66	20,46,631.00	20,46,631.00	13,95,802.66
Computing Equipment	150084001935	IT System Upgradation various Sr.Management office	24,16,572.31	Mixed	84.10%	20,32,337.31	3,84,235.00	12,08,286.16	12,08,286.16	8,24,051.16
Furniture & Fittings	150091033618	Refurbishment work at third floor-NUB	21,82,181.59	Mixed	84.10%	18,35,214.72	3,46,966.87	10,91,090.80	10,91,090.80	7,44,123.92
Plant and Machinery	150077005706	SITC of hydropneumatic booster pump at NUB 3rd flo	4,46,497.80	Mixed	84.10%	3,75,504.65	70,993.15	2,23,248.90	2,23,248.90	1,52,255.75
Computing Equipment	150084001998	Conference equipment Howard Hughes-NUB 3rd floor	4,42,189.80	Mixed	84.10%	3,71,881.63	70,308.18	2,21,094.90	2,21,094.90	1,50,786.73
Computing Equipment	150084002007	Conference equipment Ellen Baker room NUB 3rd flo	3,94,000.00	Mixed	84.10%	3,31,354.00	62,646.00	1,977,000.00	1,977,000.00	1,34,354.00
Office Equipment	150089002208	02 Nos of Tower AC for Dining Room 3rd floor-NUB	2,12,666.88	Mixed	84.10%	1,78,852.85	33,814.03	1,06,334.44	1,06,334.44	72,519.41
Computing Equipment	150086002023	Desktop with accessories for BCM office - NUB	68,250.00	Mixed	84.07%	57,377.78	10,872.23	34,125.00	34,125.00	23,252.78
Office Equipment	150089002177	Ganasha Idol (Sandalwood) for BCM office entrance	44,655.36	Mixed	84.10%	37,555.16	7,100.20	22,327.68	22,327.68	15,227.48
Office Equipment	150089002182	Dyson hand Dvdr for BCM office/AirBlade V Nickle	43,000.00	Mixed	84.10%	36,163.00	6,837.00	21,500.00	21,500.00	14,663.00
Computing Equipment	150084001987	AV Equipments for Senior Management Office, NUB	30,100.00	Mixed	84.10%	25,314.10	4,785.90	15,050.00	15,050.00	10,264.10
Total						8,90,23,657.05	1,68,31,120.48	5,29,27,388.77	5,29,27,388.77	3,60,96,268.28

Transit Houses (Refer adjustment 3(v) of Table 3 and Section 13.6.1.1.3 of the Report)

Lease hold Improvements	15001300001	Lease Hold Improvement-Pushpanjali Farm House	7,67,67,883.76	Mixed	84.10%	6,45,61,790.24	1,22,06,093.52	3,83,83,941.88	3,83,83,941.88	2,61,77,848.36
Lease hold Improvements	15001300002	Lease Hold Improvement-Aurangzeb lane Guest House	2,14,67,904.83	Mixed	84.10%	1,80,54,507.96	34,13,396.87	1,07,33,952.42	1,07,33,952.42	73,20,555.55
Plant and Machinery	150077005623	Fitness Equipment-Senior-Management Office	1,02,14,133.37	Mixed	84.10%	85,90,086.16	16,24,047.21	51,07,066.69	51,07,066.69	34,833.01
Computing Equipment	150084001935	IT System Upgradation various Sr.Management office	81,19,887.68	Mixed	84.10%	68,28,825.54	12,91,062.14	40,59,943.84	40,59,943.84	27,68,881.70
Office Equipment	150089002156	Security equipment at Sr.Management guest house	44,55,309.56	Mixed	84.10%	37,46,915.34	7,08,394.22	22,27,654.78	22,27,654.78	15,19,260.56
Computing Equipment	150084001916	Security & Safety System-Sr.Management guest house	35,21,820.16	Mixed	84.10%	29,61,850.75	5,59,969.41	17,60,910.08	17,60,910.08	12,00,940.67
Furniture & Fittings	150091033600	Modification of Gym to Conference Room, 3rd Floor	31,50,055.25	Mixed	84.10%	26,49,196.47	5,00,858.78	15,75,027.63	15,75,027.63	10,74,168.84
Furniture & Fittings	150091033516	Total Furniture for Caltriona Guest House	28,72,003.75	Mixed	84.10%	24,15,355.15	4,56,648.60	14,36,001.88	14,36,001.88	9,79,353.28
Furniture & Fittings	150091033601	Water Feature & Fountain-Sr.Management guest house	20,82,353.08	Mixed	84.10%	17,51,258.94	3,31,094.14	10,41,176.54	10,41,176.54	7,10,082.40
Computing Equipment	150084001915	VC System and server at Sr.Management Guest House	9,11,736.98	Mixed	84.10%	7,66,770.80	1,44,966.18	4,55,868.49	4,55,868.49	3,10,902.31
Computing Equipment	150084001854	IT Work-Senior Leadership guest hose-Heritage City	8,90,000.63	Mixed	84.10%	7,48,490.53	1,41,510.10	4,45,000.32	4,45,000.32	3,03,490.21
Plant and Machinery	150077005561	Water Treatment Plant (RO)work at Aurangzeb lane	8,17,999.80	Mixed	84.10%	6,87,180.93	1,29,918.87	4,08,549.90	4,08,549.90	2,78,631.03
Office Equipment	150089002166	Gym Equipments BCMO	7,61,535.98	Mixed	84.10%	6,40,451.76	1,21,084.22	3,80,767.99	3,80,767.99	2,59,683.77
Furniture & Fittings	150091033581	Various Furniture & Furnishing items for Golf Link	7,07,030.52	Mixed	84.10%	5,94,612.67	1,12,417.85	3,53,515.26	3,53,515.26	241,097.41
Computing Equipment	150084001874	Polymyx Video Conferencing System for Golf Link	4,22,665.00	Mixed	84.10%	3,55,461.27	67,203.74	2,11,332.50	2,11,332.50	144,128.77
Office Equipment	150089002049	Life Fitness Signature Series-Dual Adjustable Pull	4,14,247.70	Mixed	84.10%	3,48,382.32	65,865.38	2,07,123.85	2,07,123.85	141,258.47
Office Equipment	150089002119	Home Appliance-Senior-Management Office	3,76,733.00	Mixed	84.10%	3,16,832.45	59,900.55	1,88,366.50	1,88,366.50	1,28,465.95
Computing Equipment	150084001917	CISCO telephones system-Sr.Management at Golf Link	3,45,329.44	Mixed	84.10%	2,90,422.06	54,907.38	1,72,664.72	1,72,664.72	1,27,573.34
Office Equipment	150089002050	Life Fitness Signature Series-Smith Machine-Platin	3,24,262.42	Mixed	84.10%	2,72,704.70	51,557.72	1,62,131.21	1,62,131.21	1,10,573.49
Computing Equipment	150084001921	Alcatel ONIX PCX Office Dect Phones CEO Residence	3,21,400.00	Mixed	84.10%	2,70,297.40	51,102.60	1,60,700.00	1,60,700.00	1,09,597.40
Vehicles	150093000122	Auto Mobility Scooter white	3,12,577.40	Mixed	84.10%	2,62,877.59	49,699.81	1,56,288.70	1,56,288.70	1,06,588.89
Office Equipment	150089002172	SITC of split (Dakin) in Sr.Management guest house	2,74,624.00	Mixed	84.10%	2,30,958.78	43,665.22	1,37,312.00	1,37,312.00	9,646.78
Office Equipment	150089002155	GYM Equipment for DIAL Sr.management	2,60,437.50	Mixed	84.07%	2,18,949.81	41,487.69	1,30,218.75	1,30,218.75	88,731.06
Office Equipment	150089002173	3 Split AC's with accessories Sr.Management Guest	1,61,301.70	Mixed	84.10%	1,35,654.83	25,646.87	80,650.85	80,650.85	55,003.85
Office Equipment	150089002143	Siemens Refrigerator for Sr.Management guest house	1,57,500.00	Mixed	84.10%	1,32,457.50	25,042.50	78,750.00	78,750.00	53,750.00
Office Equipment	150089002152	Telephone systems and Accessories-Catronia GH	1,23,247.50	Mixed	84.10%	1,03,651.15	19,596.35	61,623.75	61,623.75	42,027.40
Office Equipment	150089002165	Supply of split AC for Golf Link Guest House	84,499.88	Mixed	84.10%	71,064.40	13,435.48	42,249.94	42,249.94	28,144.46
Office Equipment	150089002053	Life Fitness Vanko Weight Plates-2 Set	79,236.48	Mixed	84.10%	66,976.28	12,260.20	39,818.24	39,818.24	27,156.04
Office Equipment	150089002051	Life Fitness Signature Series-2T for Dumbbell Rack	73,920.02	Mixed	84.10%	62,166.67	11,753.35	36,960.01	36,960.01	25,806.73
Office Equipment	150089002052	Caltrate-Rubber Dumbbell Exercise Mat/Gym Balls	69,681.94	Mixed	84.10%	58,602.51	11,079.43	34,840.97	34,840.97	23,761.54
Computing Equipment	150084001865	Apple Extreme Router for WiFi - Catronia GH	67,050.00	Mixed	84.10%	56,389.05	10,660.95	33,525.00	33,525.00	22,864.05
Vehicles	150092000044	Honda Activa Scooter 110cc for Pushpanjali Farm	59,042.00	Mixed	84.10%	49,654.32	9,387.68	29,521.00	29,521.00	20,133.32
Electrical Fittings and Equipment	150065002998	6KV UPS For Aurangzeb Lane Guest House	58,500.00	Mixed	84.10%	49,198.50	9,301.50	29,250.00	29,250.00	19,948.50
Office Equipment	150089002144	Portable AC for Sr.Management guest house	32,000.00	Mixed	84.10%	26,912.00	5,088.00	16,000.00	16,000.00	10,912.00
Office Equipment	150089002054	Life Fitness-EZ Curl Bar	23,851.44	Mixed	84.10%	20,059.06	3,792.38	11,925.72	11,925.72	8,133.34
Lease hold Improvements	15001300003	Lease Hold Improvement-Greens farm Sr.Management	5,37,94,066.27	Mixed	84.10%	4,52,40,809.73	85,53,256.54	2,68,97,033.14	2,68,97,033.14	1,83,43,776.60
Electrical Fittings and Equipment	150065003060	MEP(Electrical) work for Sr. Managt Guest House	92,06,606.08	Mixed	84.10%	77,42,755.71	14,63,850.37	46,03,303.04	46,03,303.04	31,39,542.67
Office Equipment	150089002199	Fitness Equipment for Senior Management Guest House	75,80,657.56	Mixed	84.10%	63,75,333.01	12,05,324.55	37,90,328.78	37,90,328.78	





Terminal	Financial Year	Total Space	Space Allocated to Aero	Directly Allocated to Non AERO as per HOTO (Relatable to Rental Income)	Directly Allocated to Non AERO as per HOTO (Incl 8652)	Common Area allocated to Non-Retail	Area Excluded by AERA	Total Non area	AERO %	NON-AERO %	Weighted Average Floor Space (AERO)	Weighted Average Floor Space (NON AERO)
Terminal 1	FY12	64146	58857	5020	0	269	0	5289	91.75%	8.25%		
	FY13	64146	58428	5449	0	269	0	5718	91.09%	8.91%		
	FY14	64146	56655	7222	0	269	0	7491	88.32%	11.68%		
	FY15	64146	56713	7164	0	269	0	7433	88.41%	11.59%		
	FY16	64146	55833	8044	0	269	0	8313	87.04%	12.96%		
	FY17	64146	56817	7060	0	269	0	7329	88.57%	11.43%		
FY18	64146	56591	7286	0	269	0	7555	88.22%	11.78%	88.11%	11.89%	
Terminal 2	FY15	Non-Operational										
	FY16											
	FY17											
	FY18	54729	51848	2404		477	0	2881	94.74%	5.26%	94.74%	5.26%
Terminal 3	FY12	541541	478596	38541	47193	24404	8652	71597	88.38%	11.62%		
	FY13	541541	476725	40412	49064	24404	8652	73468	88.03%	11.97%		
	FY14	541541	474398	42739	51391	24404	8652	75795	87.60%	12.40%		
	FY15	541541	475596	41541	50193	24404	8652	74597	87.82%	12.18%		
	FY16	541541	477863	39274	47926	24404	8652	72330	88.24%	11.76%		
	FY17	541541	476999	40138	48790	24404	8652	73194	88.08%	11.92%		
FY18	541541	470825	46312	54964	24404	8652	79368	86.94%	13.06%	87.63%	12.37%	
Average Terminal Space											90.16%	9.84%

Terminal	Financial Year	Total Space	Space Allocated to Aero	Directly Allocated to Non AERO (Relatable to Rental Income)	Common Area allocated to Non-Retail	Total Non area	AERO %	NON-AERO %
Terminal 1 Demarcated Area	2011	64146	53820	10057	269	10326	83.90%	16.10%
Terminal 2 Demarcated Area	2011	54729	46080	8163	477	8640	84.20%	15.80%
Terminal 3 Demarcated Area	2011	541541	455255	61882	24404	86286	84.07%	15.93%

**STUDY ON EFFICIENT OPERATION AND
MAINTENANCE COSTS**

(RFP No. 02/2018-19)

for

**DELHI INTERNATIONAL AIRPORT LIMITED
2014-2019**

by

**R. SUBRAMANIAN AND COMPANY LLP
CHARTERED ACCOUNTANTS**

initiated by

**AIRPORTS ECONOMIC REGULATORY AUTHORITY OF
INDIA**

March 2020

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1 STATEMENT OF CONFIDENTIALITY

This report has been prepared by M/s. R. Subramanian and Company LLP, Chartered Accountants, an Indian Limited Liability Partnership Firm as part of its deliverables under the engagement awarded as per RFP No. 02/2018-19 dated 27th November 2018 floated by the Airports Economic Regulatory Authority of India (AERA or the Authority). This document is being submitted to AERA for use in connection with the tariff determination of Delhi International Airport Limited (DIAL). This report or its contents may not be shared with anyone except with the consent of AERA. R. Subramanian and Company LLP shall not have any liability for the unauthorized use or distribution of this document.

2 OBJECTIVE OF THE ENGAGEMENT

Establishing efficient operation and maintenance costs and their reasonableness is pivotal to the effective execution of tariff determination for Aeronautical services. This expenditure has consistently been increasing, driven by investments in expanding, modernizing and sustaining airport efficiency and excellence.

Assessment of Operation and Maintenance cost requires AERA to periodically examine not only the financial information submitted by the airport operator, but also independently examine the baseline operating cost levels, cost reduction, efficiency initiatives and benchmarking exercises undertaken by the airport operator etc.

Additionally, the Authority observes the growing influence of IT as a cost driver owing to its deployment in almost all airport facilities and services. This has resulted in increase in costs driven by third party execution of IT products and/or services and various tangible and intangible expenses originating under innovative transaction methods with varying degrees of in-house and third-party involvement.

Given the above circumstances, AERA deemed it necessary to conduct an independent study in the area of determination of Efficient Operation and Maintenance costs, before considering these costs as part of tariff determination exercise.

The various statutes and documents which determined the scope of our study include:

1. The Airports Economic Regulatory Authority of India Act, 2008
2. Operation, Management and Development Agreement (OMDA) between Airports Authority of India and Delhi International Airport Private Limited (now Delhi International Airport Limited), dated 4th April 2006
3. State Support Agreement of the Delhi Airport between The President of India on behalf of The Government of India and Delhi International Airport Private Limited (now Delhi International Airport Limited), dated 26th April 2006
4. Orders of Telecom Disputes Settlement and Appellate Tribunal (TDSAT)
5. The Master Service Agreement between DIAL, Wipro and Wipro Airport IT Services Limited.
6. Documents and records of, and discussions with management of DIAL

3 TERMS OF REFERENCE AND OUR WORK PERFORMED

The detailed scope of this engagement as stipulated under the Schedule-1, Terms of Reference of RFP No. 2/2018-19 of AERA, have been provided below. The scope entails determination of efficient Operation and Maintenance costs and segregation into Aeronautical vs Non-Aeronautical costs for DIAL.

3.1 EXTRACT OF TERMS OF REFERENCE FROM PARAGRAPH 3 OF SCHEDULE - 1 OF RFP NO. 2/2018-19

- a) Examine the **Quality & Adequacy of Processes** employed by the Airport operator and establish that cost collection, recording, controlling processes & systems are adequate to ensure correct and complete capture of costs, in reference to internal & external reports including MIS and Budgets.
- b) Ensure that **Quality of Cost Capture process** is aligned with key project documents/agreements and do not violate philosophy, guidelines, directions, Orders stipulated by the Authority.
- c) Examine **Measurement & Quantification** processes employed, by conducting activities including
 - Identification and understanding of drivers of cost and determinants of cost *levels*
 - Study cost behaviour and patterns from perspectives such as ABC analysis, fixed vs variable costs, controllable vs uncontrollable costs, Recurring vs Non-recurring etc.,
 - Study cost segregation between Aeronautical and Non-Aeronautical costs from services/activities, revenues, assets perspectives, methods used to achieve segregation, the common pool of costs identified, the allocation ratios used to split common cost pool.
 - Peruse the periodic management reports that discuss cost reduction initiatives, cost variance reports and examine the Key performance indicators (KPIs) assessing cost productivity and efficiency.

- Study/Benchmark the KPIs both inter-airport and intra-airport including both domestic and international airports in the ambit of the study.
 - Ensure measurement and quantification of costs are aligned to methodologies, directions, guidelines stipulated by Authority and relevant project documents/agreements.
- d) **Assess reasonableness** in reference to scale of operations & **determine efficient** operating and maintenance costs by
- Incorporating learnings gained from 3 a) b) and c)
 - Relate the costs to cost constraints, cost advantages that operate in the airport operator's cost environment; strategic features in the airport operator's business environment; the significant infrastructural facilities; key customer and consumer touch points; primary Aeronautical and Non- aeronautical activities & principal revenue streams & service lines of the airport
- e) Detailed study and examination of the contractual arrangement and transaction/s between Delhi airport and the Information Technology Joint Venture (IT JV) *[clause 6.111 – 6.112 supported by 6.103 -6.110 in Order No. 40/2015-16 dated 8th December, 2015 issued 10th December, 2015 in the Determination of Aeronautical Tariffs in respect of Indira Gandhi International Airport, Delhi for the Second Control Period (01.04.2014 - 31.03.2019) issued by Airport Economic Regulatory Authority of India.*
- Study should establish an understanding of this joint business arrangement, the services envisaged under this contract, understand the transactions conducted, the costs incurred, the revenue streams earned due to the use of the services of such ITJV and segregation into Aeronautical and Non-Aeronautical, impact on the tariff / true up exercise.
- f) Prepare **Report and Recommendations** detailed as under

f.1) General application across Major Airports

A typical **efficient** operations and maintenance cost environment, the cost structure and customary cost line items and cost drivers. Define this in context of the size/volume, key infrastructural facilities, the primary Aeronautical and Non-Aeronautical activities, key customer and consumer touch points, the service lines and revenue streams of the airport that determine an airport's cost environment

- Recommendations that will serve as guide to ensure reliability and completeness of cost capture
- Recommendations to aid correct measurement and quantification of costs in reference to airport operator's scale of operations
- Recommendations for standards that would serve as guidelines for segregation into Aeronautical vs. Non-Aeronautical costs including allocation methodologies for common costs segregation into Aeronautical & Non-Aeronautical costs including illustrative cases in/ learnings from global scenario.
- Guidelines to establish optimal cost levels to Aeronautical & Non-Aeronautical activities, revenues and assets including illustrative cases in/learnings from global scenario.
- Recommendations to identify strategic influencers of an airport's cost environment such as cost advantages and cost constraints including illustrative cases in/learnings from global scenario.
- Any other factors that the consultant feels has significant bearing on the report

f.2) IT cost environment and guidelines for monitoring its effectiveness

- Optimal mix of outsourcing vs in-house servicing in IT tasks
- Systemic controls that airport operator must execute in IT cost and supplier management in general and especially in supplier concentration scenarios.
- Measurement and monitoring IT spend effectiveness, role of SLAs in reducing or controlling outsourced costs etc., and
- Any other matter that the consultant feels has significant bearing on comprehending IT cost environment of the airport operator.

f.3) Quality of cost capturing and its reasonableness

- The existing Operation and Maintenance cost environment, the quality of processes of cost capture, the reasonableness of costs.
- The Variances and/or inconsistencies prevalent with respect to present practices in determination of Efficient costs, suggestions for rectification/improvement of cost capture/measurement processes,

- Impact of such efficient costs on the tariff determination exercise specifically explaining short, medium- and long-term consequences if any.
- Determination of the revised Efficient operating and maintenance cost.

f.4) Detail observations on Aeronautical and Non-Aeronautical costs with respect to

- Existing segregation process and amount,
- Recommendations that would serve as guidelines for segregation into Aeronautical vs. Non-Aeronautical costs including allocation methodologies for common costs segregation,
- Determination of the revised Aeronautical and Non-Aeronautical costs

f.5) Any other factors that the consultant feels has significant bearing on the report including learnings from relevant airports operating in other countries

The above should include specific sections detailing IT cost environment and guidelines for the same including discussions on

- Existing Mix and optimal mix of outsourcing vs in-house servicing in IT tasks
- Existent Systemic controls and improvements that airport operator must execute in IT supplier management in general and especially in supplier concentration scenarios.
- Measurement and monitoring IT spend effectiveness, role of SLAs in reducing or controlling outsourced costs etc., and
- Any other matter that the consultant feels has significant bearing on comprehending IT cost and supplier environment of the airport operator.

f.6) Joint business arrangement with ITJV

- Set out an understanding of the business arrangement and the services contemplated under the same.
- Detail report on the costs incurred in this arrangement, the Aeronautical vs. Non-Aeronautical segregation and establish relation to the revenue streams earned and assets invested by DIAL owing to this arrangement.
- Revisions and Rectifications to the submissions made to the Authority for Tariff determination/True up exercises.

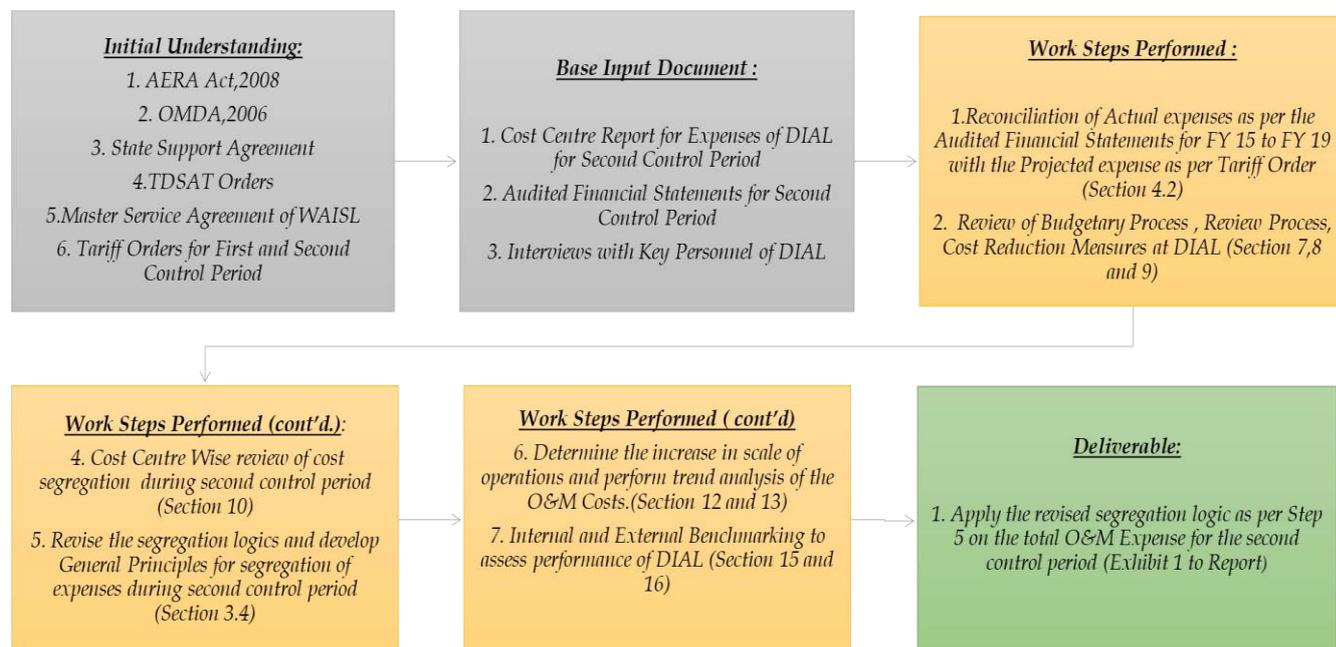
3.2 EXPENSE CLASSIFICATION

For the purpose of tariff determination and reporting the total operating and maintenance expenses of DIAL have been classified under the following categories:

- **Terminal Operating Expenses** such as Utilities, Consumables, Housekeeping, Insurance, Repairs and Maintenance, Security and Landside expenses, IT JV expenses (Gap Funding) etc.
- **Administration and General Expenses** such as Advertising and Sales Promotion, Charities and Donations, Consultancy, Office Maintenance, Rent, Traveling and Conveyance, Chartering expense, allocation of Corporate costs etc.
- **Manpower expenses**

3.3 STEPS FOR OUR WORK PERFORMED

The flowchart detailing the steps followed to complete the report is given below:



S. No	Work Steps Performed	Reference to TOR of RFP 02/2018-19	Reference to Report
1.	Our study on segregation and efficient operation and maintenance cost is based on the expense segregation workings provided by DIAL (FY15 to FY19), audited financial statements (FY15 to FY19), treatment adopted by AERA in respect of certain expenses for previous control periods and information provided to us by the management of DIAL	NA	NA
2	We initiated our Study by familiarizing ourselves with key documents and statutes described in section 2 of this report and DIAL approach to segregation of expenses into Aeronautical and Non-Aeronautical described in section 11.1 of the report. We assessed the nature of costs incurred based on parameters such as recurring vs. non-recurring, fixed vs. variable and controllable vs. uncontrollable costs	NA	NA
3	We interviewed Finance (CFO, Senior Manager etc) to understand the process followed for recording of costs and tested documents on a sample basis to ensure that the cost capturing process is adequate and complete	3a	Section 10.3: Cost Accounting Methodology at DIAL
4	We reviewed the budgetary process followed by DIAL (development of Annual Operating Plan at the beginning of the Financial Year) with respect to determination of budgets for the various cost categories, approval of budgets and the process followed for its monitoring.	3b	Section 7: Budgeting Process of DIAL
Section 8: CEO Review Mechanism			
5	We then interviewed various cross functional teams such as Projects & Engineering (P&E), Quality etc to understand the various cost savings measures/ continuous improvement plans developed and implemented by them to achieve efficiency/ Business Excellence in the overall operations of the Airport and the related costs.	3c	Section 9: Cost Reduction Measures and Improvement Plans of DIAL

S. No	Work Steps Performed	Reference to TOR of RFP 02/2018-19	Reference to Report
6	<p>We compared the total operating and maintenance expenses as considered in the true-up section of the MYTP for subsequent control period with the audited financial statement of the respective years of Second Control Period and the initial cost projection adopted by AERA as per the Tariff Order for the second control period.</p>	NA	<p>Section 4.2: Comparison to Projections</p>
7	<p>We reviewed the workings shared with us by DIAL relating to segregation of expenses and assessed the segregation of expenses by the narration of the cost centre in the workings provided to us.</p> <p>The transactional accounting for each of the above expense were pooled into 134 different cost center groups which were further grouped into 28 major cost center departments depending upon their nature. Assessment of all the 134 cost centers were made for segregation of expenses into Aeronautical and Non-Aeronautical.</p> <p>A basis for determining the proportion of segregation of Common costs into Aeronautical and Non-Aeronautical was derived.</p>	3d	<p>Section 10.4: Review of Cost Centre Segregation into Aero and Non-Aero</p> <p>Section 3.4: Basis for Segregation</p>
8	<p>We have segregated the expense item wherever we differed with DIAL on segregation. Additional information was sought from DIAL wherever needed to quantify the impact of a change in the segregation logic.</p>	3d	<p>Table 2: Summary of Adjustments to segregation of DIAL</p>
9		3d	<p>Section 6: Traffic Trend of the Airport</p>

S. No	Work Steps Performed	Reference to TOR of RFP 02/2018-19	Reference to Report
	<p>The increase in the annual expense for the second control period was compared to the increase in the scale of operations to eliminate its effect in the increase of total spend.</p> <p>The per PAX/per ATM costs year on year were then compared and for any increase/decrease beyond 25% of the immediate previous year, a root-cause analysis was performed to assess other factors like improvement plan implementation, increase in wage rates, one-time expenses, etc attributing to the upward trend or downward trend in expenses if any.</p>		<p><i>Section 12 and Section 13: Trend Analysis of the Costs</i></p>
10	<p>We performed internal and external benchmarking of the above cost categories to assess performance of DIAL over a period and against domestic and international airports.</p>	3d	<p><i>Section 15: Internal Benchmarking</i></p> <p><i>Section 16: International and Domestic Benchmarking</i></p>
11	<p>We studied the outsourcing contracts of DIAL and examined the IT JV costs incurred by them and the basis for appropriately segregating the IT JV costs in to “Aeronautical” and “Non-Aeronautical”.</p>	3e	<p><i>Report to RFP 03/2018-19, Section 16</i></p>

3.4 BASIS FOR SEGREGATION OF COSTS

As described in our work steps in paragraph 3.3 of this Report, we have reviewed the various cost centres and developed a basis for segregation into Aeronautical and Non-Aeronautical activities. We have also determined the appropriate proportion of Common Cost Centre that may be included in Aeronautical activity, in order to determine the total Aeronautical cost. Broadly, our principles for segregation of costs (also described as Segregation Logic in this Report) are as follows:

Aeronautical Costs

- Expense incurred for operation and maintenance of Aeronautical assets.
- All costs incurred for Aeronautical activities under Schedule 5 of OMDA are segregated as Aeronautical Costs.

Non-Aeronautical Costs

- Expense incurred for operation and maintenance of Non-Aeronautical assets.
- Costs incurred for Non-Aeronautical activities covered under Schedule 6 of OMDA are treated as Non-Aeronautical expenses. Examples are Cargo, Ground Handling and Retail Spaces.

Common Costs

- Costs for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical are segregated as Common Costs.
- Costs primarily incurred for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are segregated as Common Costs. Examples are costs for Civil and Electrical Maintenance for Terminal Building.
- Costs which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Costs. Examples are Transit House and Corporate Headquarters.
- Common costs are apportioned to Aeronautical activity based on an appropriate cost driver. However, in the absence of any specific information regarding the purpose of incurring the cost, a reasonable ratio is determined based on discussions with management and our review of other records of the Airport.

Table 1 General Principles for Broad segregation of expenses incurred from FY15 – FY19

(₹ crores)

Expense	Aero Portion	Non-Aero Portion	Total	Segregation Logic
Utilities Cost (Power, Fuel and Water)	557.07	-	557.07	100% Aeronautical (Net of Recoveries)
Airside Operations	196.32	-	196.32	100% Aeronautical
Security and Vigilance Expenses	99.73	-	99.73	100% Aeronautical
Passenger Fee Collection Charges	20.31	-	20.31	100% Aeronautical
Fire Fighting Services	3.91	-	3.91	100% Aeronautical
Environment Maintenance Cost	14.03	-	14.03	100% Aeronautical
Commercial Airline Marketing	17.71	-	17.71	100% Aeronautical
Electrical Maintenance Expenses including R&M	61.46	11.73	73.19	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Mechanical Maintenance Expenses	77.85	14.77	92.62	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
System Maintenance Expenses	138.34	26.21	164.55	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Terminal Operations Costs	200.40	37.92	238.32	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Civil Maintenance Cost	21.35	4.06	25.41	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Support Business Functions like Finance, Information Technology, Central Stores and Procurement, Management Assurance, Senior Management Office, etc (Excluding HR and Legal)	530.91	66.02	596.93	Expenses related the support business functions are segregated into Aeronautical and Non-Aeronautical in proportion to the Adjusted Gross Fixed Assets (89:11). Refer Table 82 for details.
Advertising and Business Expenses	50.21	6.22	56.43	Expenses related the support business functions are segregated into Aeronautical and Non-Aeronautical in proportion to the Adjusted Gross Fixed Assets (89:11). Refer Table 82 for details.
Landscaping Expenses	23.41	4.42	27.83	Landscaping costs outside the Terminal are segregated into Aeronautical and Non-Aeronautical in proportion to the Adjusted

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Study on Efficient Operation and Maintenance Costs

Expense	Aero Portion	Non-Aero Portion	Total	Segregation Logic
				Gross Fixed Assets (89:11). Refer Table 82 for details.
Corporate Cost Allocation	321.03	39.77	360.78	Expenses distributed to group companies for central functions are segregated into Aeronautical and Non-Aeronautical in proportion of Adjusted Gross Fixed Assets (89:11). Refer Table 82 for details.
Chartering Cost Expenses	13.52	13.53	27.05	Assuming 50:50 proportion of Aeronautical and Non-Aeronautical usage, Chartering costs are segregated in 50:50 proportion
Expenses for Transit Houses	22.48	22.48	44.96	Assuming 50:50 proportion of Aeronautical and Non-Aeronautical usage, costs of transit houses are segregated in 50:50 proportion
Legal Consultancy Charges	40.31	13.55	53.86	These costs are segregated in proportion to the Aeronautical and Non-Aeronautical value of Legal Cases (74.84: 15.16).
Corporate Social Responsibility	30.07	3.65	33.72	The Authority may take its own view in this regard. Refer Note 2 at Page 19.
Charities and Donation	-	8.16	8.16	100% Non-Aeronautical
Gap Funding for IT JV	57.74	16.15	73.89	The funding for the IT JV to cover the excess costs over revenue is segregated in proportion to the IT assets owned by the IT JV
Employee Cost	657.83	81.43	739.28	1. Employee cost of departments engaged in Aeronautical activities have been considered as Aeronautical 2. Employee cost of departments engaged in Non-aeronautical activities have been considered as Non-Aeronautical 3. Employee cost of common departments have been segregated in proportion of the Adjusted Gross Fixed Asset ratio (89:11) defined in Table 82. Refer Note 3 at Page 19.
HR Consultancy and Outsourcing Cost	276.51	34.24	310.75	1. Employee cost of departments engaged in Aeronautical activities have been considered as Aeronautical 2. Employee cost of departments engaged in Non-Aeronautical activities have been considered as Non-Aeronautical 3. Employee cost of common departments have been segregated in proportion of the Adjusted Gross Fixed Asset ratio (89:11) defined in Table 82. Refer Note 3 at Page 19

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Expense	Aero Portion	Non-Aero Portion	Total	Segregation Logic
Commercial Property Development	-	29.15	29.15	Expenses Related Commercial Property Development are classified as Non-Aeronautical
Retail Area Development	-	23.01	23.01	Expenses Related Retail Area Development are classified as Non-Aeronautical
Payment of VRS	78.42	9.72	88.14	1. Employee cost of departments engaged in Aeronautical activities have been considered as Aeronautical 2. Employee cost of departments engaged in Non-Aeronautical activities have been considered as Non-Aeronautical 3. Employee cost of common departments have been segregated in proportion of the Adjusted Gross Fixed Asset ratio (89:11) defined in Table 82. Refer Note 3 at Page 19
Property Tax	66.93	8.98	75.91	Expenses towards Property taxes have been apportioned in the ratio of adjusted Aeronautical expenses to Non-Aeronautical expenses of DIAL for the Second Control Period (88.15%:11.85%)
Finance Charges (Refinancing Charges, Bank Charges and Amortisation Costs)	234.34	29.17	263.51	Finance Charges (other than Forex losses) are segregated in proportion of the Adjusted Gross Fixed Assets ratio (89:11) defined in Table 82.
Foreign Exchange Gain/Loss on External Commercial Borrowings	-	-	646.43	Foreign exchange loss of ₹ 646.43 crores was incurred by DIAL (included as part of finance charges) on repayment of External Commercial Borrowings. The Authority may take its own view with regard to the foreign exchange loss.
Airport Operator Fee	427.17	259.24	686.41	Services of the Airport Operator are being used for both Aeronautical and Non-Aeronautical activities. Hence, as per the terms of agreement with the Airport Operator, 3% of the total Aeronautical Revenue is allocated towards Aeronautical expenses and 3% of total Non-Aeronautical revenue is allocated towards Non-Aeronautical expenses.
Grand Total (Refer Note 4)	4,239.36	763.58	5,649.36	

Note:

1. The proportion of the terminal space for Aeronautical and Non-Aeronautical activities has been arrived at, considering the space demarcated for the above activities at each terminal as per the initial floor plan. On comparing the actual space let out for Non-Aeronautical activities at the terminals (during Second Control Period) with the demarcated space, we noted that the actual space let out were lower than the demarcated space. *Refer Table 21 in this report for detailed workings.* Hence, the demarcated space has been taken as the basis for apportionment of Aeronautical and Non-Aeronautical activities within the terminals.
2. CSR Expenditure: Being a registered Company, CSR expenditure is a statutory requirement and a business expense required to be spent for the purpose of continuing and maintaining the operations of the Company. DIAL had spent ₹ 33.72 crores on CSR and claimed ₹ 30.07 crores as Aeronautical Expenses in the ratio of Gross Fixed Assets of the Company. The Authority may take its own view in this regard.
3. In our opinion, the most appropriate methodology to be adopted for the segregation of total costs related to manpower, HR consultancy and payment towards VRS would be to analyze the costs incurred department wise and segregate the expenses based on the nature of the department i.e. Aeronautical, Non-Aeronautical or Common. However, since at DIAL the data on costs per department was not available for our analysis, the above manpower costs have been segregated in the proportion of Aeronautical Gross Fixed Assets to Total Assets.
4. The total adjusted Aeronautical expense of ₹ 4,239.36 crores excludes foreign exchange loss of ₹ 576.30 crores on external commercial borrowings that was claimed by DIAL as part of aeronautical expenses. The Authority may take its own view with regard to the foreign exchange loss.

4 EXECUTIVE SUMMARY

4.1 ADJUSTMENT TO AERONAUTICAL EXPENSES IN SECOND CONTROL PERIOD BASED ON ADOPTED SEGREGATION LOGICS

Table 2 Summary of adjustments to the Aeronautical expenses in Second Control Period

(₹ crores)

Operation and Maintenance Expense	FY15 -FY18	FY19	Total
A. Expenses as per Audited Financial statements of Second Control Period (Refer Exhibit 1)	<u>3,656.51</u>	<u>1,043.96</u>	<u>4,700.47</u>
i. Operation and Maintenance Costs	2,984.23	904.74	3,888.97
ii. Airport Operator Fee	571.51	114.90	686.41
iii. Property Tax	29.11	7.84	36.95
iv. Payment of VRS	71.66	16.48	88.14
B. Additional O&M Expenses Claimed by DIAL on actual Payment	<u>915.44</u>	<u>33.45</u>	<u>948.89</u>
i. Finance Charges (Refinancing Charges, Bank Charges and Amortisation Costs)	252.12	11.39	263.51
ii. Forex Gain/ Loss on Foreign Currency Borrowings	624.37	22.06	646.43
iii. Additional Property Tax Paid on demand	38.95	0.00	38.95
C. Total O&M Expenses (A+B)	<u>4,571.95</u>	<u>1,077.41</u>	<u>5,649.36</u>
D. Aeronautical expenses as classified by DIAL (included in C above)	<u>3,959.82</u>	<u>920.63</u>	<u>4,880.45</u>
i. Aeronautical expenses (excluding Forex losses as per D(ii) mentioned below).	3,403.19	9,00.96	4,304.15
ii. Forex losses (claimed by DIAL as Aeronautical)	556.63	19.67	576.30
E Non-Aeronautical Expenses as classified by DIAL (included in C above).	<u>612.13</u>	<u>156.78</u>	<u>768.91</u>
F. Impact on (D) due to change in Segregation Logics			

Operation and Maintenance Expense	FY15 -FY18	FY19	Total
i IT JV Gap Funding (Refer Report on Allocation of Assets RFP 03/2018-19, Table 43)	(8.20)	0.00	(8.20)
ii T1 and T2 System Maintenance (Refer 4.3.1.1)	(1.31)	(0.95)	(2.26)
iii Landscaping Costs (Refer 4.3.1.2)	(2.97)	(1.45)	(4.42)
iv Quality Management Costs (Refer 4.3.1.3)	(1.20)	(0.40)	(1.60)
v T3 costs adjusted for the 8652Sq Meters (Refer 4.3.2)	6.22	1.89	8.11
vi Common Costs Outside the Terminal (Refer 4.3.3.1)	(1.64)	(0.41)	(2.05)
vii Chartering Costs (Refer 4.3.3.2)	(6.15)	(4.46)	(10.61)
viii Transit Houses (Refer 4.3.3.3)	(13.13)	(4.78)	(17.91)
ix Charities and Donations (Refer 4.3.3.5)	(6.32)	(0.95)	(7.27)
x Legal Consultancy (Refer 4.3.3.6)	(6.30)	(1.41)	(7.71)
xi DIAL Manpower Cost (Refer 4.3.3.7)	(4.81)	(1.16)	(5.97)
xii HR Consultancy Costs (Refer 4.3.3.7)	(2.03)	(0.48)	(2.51)
xiii Property tax (Refer Table 38)	(0.94)	(0.16)	(1.1)
xiv. Payment of VRS to AAI (Refer Table 34)	(0.62)	(0.10)	(0.72)
xv. Finance Charges (Refer Table 39)	(0.57)	(0.00)	(0.57)
G. Total Impact on Aeronautical expenses (Refer Point D above) due to change in segregation logics	(49.97)	(14.82)	(64.79)
H. Total Adjusted Aeronautical Expenses for Second Control Period (D(i)-G)	<u>3,909.85</u>	<u>905.82</u>	<u>4,815.67</u>
I. Total Adjusted Aeronautical Expenses for Second Control Period (Refer Note 1)	<u>3,353.22</u>	<u>886.14</u>	<u>4,239.36</u>

Note:

1. The total Adjusted Aeronautical expense of ₹ 4,815.67 crores (refer item H of table 2) includes the aeronautical costs claimed by DIAL towards foreign exchange loss of ₹ 576.30 crores incurred on external commercial borrowings. By excluding the above foreign exchange loss, the adjusted Aeronautical expense amounts to ₹ 4,239.36 crores (Refer Table 2B for Year wise adjustments). The Authority may take its own view with regard to foreign exchange loss.

Table 2B: Year Wise Adjusted Aeronautical Operating and Maintenance Expenses of Second Control Period:

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	117.48	111.45	116.11	146.26	166.53	657.83
Utilities	112.32	121.66	106.54	113.20	103.35	557.07
Operating Expenses	248.14	250.77	261.42	313.76	332.68	1,406.78
Admin and General Expenses	135.14	128.45	153.37	193.22	200.65	810.84
Payment to AAI for VRS	16.65	16.24	15.66	15.18	14.70	78.43
Property Tax	7.94	5.18	6.19	6.35	6.93	32.59
Additional Property Tax Paid	12.15	-	22.17	-	-	34.33
Airport Operator fee	80.15	84.56	97.97	113.33	51.16	427.17
Finance Charges	118.13	14.75	80.90	10.40	10.16	234.34
Total Expenses	848.10	733.06	860.33	911.70	886.16	4239.36

Note: Refer Table 1A& 2 of Exhibit 1 for details

4.2 COMPARISON OF ACTUAL EXPENSE TO THE PROJECTIONS SUBMITTED TO AERA (RELATED TO SECOND CONTROL PERIOD) ¹

The actual costs incurred during the Second Control Period were compared to the total expense projections submitted to AERA for tariff determination of DIAL for Second Control Period.

The projected expense considered by the authority as per Table 57 of the second control period tariff order are only the Aeronautical portion of the total O&M expenses. In order to compare the total actual O&M expenses to the projections in the tariff order, the Aeronautical expense as per Table 57 of the tariff order were grossed up with Aeronautical percentages considered

¹ Source: Tariff Order for second control period and Submission of DIAL for Tariff Proposal

in Table 53 of the second control period tariff order. The grossed-up expenses have been provided in Table 3 below:

Table 3 Grossing of the Aeronautical Expenses as per Table 57 of the Tariff Order for Second Control Period:

(₹ crores)

Particulars	Percentage as per Table 53 of tariff order for Second Control Period (used for grossing up expenses)	Total Projected Expenses as per Tariff Order of Second Control Period (after grossing up to 100%)					
		FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	89.79%	139.31	153.25	168.57	185.42	203.96	850.52
Utilities	100%	112.21	120.21	123.28	127.62	137.52	620.84
Terminal Operating Expenses	92%	311.59	336.14	362.64	391.25	391.25	1,792.87
Admin and General Expenses	70.28%	169.28	180.82	193.14	206.33	206.33	955.90
Payment to AAI for VRS	89.79%	18.72	18.25	17.61	17.06	16.47	88.12
Property Tax	87.54%	6.95	6.95	6.95	6.95	6.95	34.73
Airport Operator Fee	3% of Aero Revenue	84.21	89.70	75.01	14.64	16.18	279.74
Total Projected Expenses		842.27	905.32	947.20	949.27	978.66	4,622.72

The comparison of the total projected expense as per the Tariff Order to the actual expense incurred by DIAL is as per Table 4 below:

Table 4 Actual Expenses vis-à-vis Total Projected Expense as per Tariff Order for Second Control Period

(₹ crores)

Actual Expense as per DIAL's Audited Financials (A)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	132.12	125.34	130.58	164.48	186.76	739.28
Utilities	112.32	121.65	106.55	113.20	103.35	557.07
Operating Expenses	286.27	283.15	294.02	354.78	384.45	1,602.67
Admin and General Expenses	169.86	160.79	193.30	235.81	230.19	989.95
Payment to AAI for VRS	18.72	18.26	17.61	17.07	16.48	88.14
Property Tax	22.81	5.88	32.18	7.20	7.84	75.91

Actual Expense as per DIAL's Audited Financials (A)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Airport Operator fee	119.90	128.68	151.05	171.87	114.90	686.40
Finance Charges	661.86	30.51	172.89	11.23	33.45	909.94
Total Expenses	1,523.86	874.26	1,098.18	1,075.65	1,077.42	5,649.36
Projected Expense as per Table 57 of Second Control Period Tariff Order (B)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	139.31	153.25	168.57	185.42	203.96	850.52
Utilities	112.21	120.21	123.28	127.62	137.52	620.84
Operating Expenses	311.59	336.14	362.64	391.25	391.25	1,792.87
Admin and General Expenses	169.28	180.82	193.14	206.33	206.33	955.90
Payment to AAI for VRS	18.72	18.25	17.61	17.06	16.48	88.12
Property Tax	6.95	6.95	6.95	6.95	6.95	34.73
Airport Operator fee	84.21	89.70	75.01	14.64	16.18	279.74
Finance Charges	-	-	-	-	-	-
Total Expenses	842.27	905.32	947.20	949.27	978.67	4,622.72
Actual Expense over/(under) Projected Expense (A-B)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	-7.19	-27.91	-37.99	-20.94	-17.20	-111.24
Utilities	0.11	1.44	-16.73	-14.42	-34.17	-63.77
Operating Expenses	-25.32	-52.99	-68.62	-36.46	-6.80	-190.19
Admin and General Expenses	0.58	-20.03	0.16	29.48	23.86	34.05
Payment to AAI for VRS	-0.00	0.01	0.00	0.01	0.00	0.02
Property Tax (Refer Note 1)	15.85	-1.08	25.23	0.25	0.89	41.16
Airport Operator fee (Refer Note 2)	35.69	38.98	76.04	157.23	98.72	406.66
Finance Charges (Refer Note 3)	661.86	30.51	172.89	11.23	33.45	909.94
Total Expenses	681.58	-31.07	150.98	126.38	98.75	1,026.63

Note:

- Property tax is higher than the projected number as DIAL incurred an additional liability of ₹ 38.95 crores due to additional tax demand from Municipal Corporation of Delhi (MCD).
- The variance in Airport Operator fee of Rs 406.66 crores (between Actual expenses and that projected in the Tariff order) is on account of higher collection of tariff revenue. (Airport operator's fee is computed as 3% of Aeronautical revenue).

3. Finance charges totaling to ₹ 909.94 crores includes foreign exchange losses of ₹ 646.43 crores (*out of which ₹ 576.30 was claimed by DIAL as Aeronautical expenses and ₹ 70.13 crores as Non -Aeronautical expense*) incurred on repayment of External Commercial Borrowings and other bank charges (as also mentioned in Note 4 to Table 1 and Note 1 to Table 2). Also, it was noted that the forex loss for FY15 was higher than the other Financial Years of the Second Control Period due to repayment of external commercial borrowing of USD 350 million.

4.3 DETAILS OF THE ADJUSTMENTS MENTIONED IN SECTION 4.1 (TABLE 2)

4.3.1 SEGREGATION OF AERONAUTICAL TO COMMON EXPENSES

4.3.1.1 IT SYSTEMS MAINTENANCE COSTS FOR T1 AND T2

- *Refer Table 16 and Table 17*
- *Segregation by DIAL: 100% Aeronautical*
- *Issue:* These are common facilities used for both Aeronautical and Non-Aeronautical services. Hence, the total IT expense of ₹ 8.22 crores are segregated to “Common” and segregated in the proportion of the Adjusted Gross Fixed Assets ratio of 89:11 (*Refer Table 82 for segregation of assets for workings on Adjusted Gross Fixed Assets ratio*).
- *Impact:* The total impact of segregation from 100% Aeronautical to 88.92% reduces Aeronautical expense to the extent of **₹ 2.26 crores**.

4.3.1.2 LANDSCAPING COSTS

- *Refer Table 16 and Table 17*
- *Segregation by DIAL: 100% Aeronautical*
- *Issue:* It includes costs for entire Terminal, approach roads to Terminals and the admin office serving both Aeronautical and Non-Aeronautical facilities. Hence

this expense is segregated as “Common” and segregated in the proportion of the weighted average terminal space.

- **Impact:** The total impact of segregation from 100% Aeronautical to 84.10% reduces Aeronautical expense to the extent of ₹ 4.42 crores.

4.3.1.3 QUALITY MANAGEMENT COSTS

- *Refer Table 16 and Table 17*
- *Segregation by DIAL:* 100% Aeronautical
- *Issue:* Quality Management team, work towards the overall improvement of Airport operations and aren't specific to Aeronautical Operations. Hence the costs are segregated to “Common” and segregated in proportion of Adjusted Gross Fixed Asset Ratio of 89:11
- **Impact:** The total impact of segregation from 100% Aeronautical to 89:11 reduces Aeronautical expense to the extent of ₹ 1.60 crores.

4.3.2 SEGREGATION OF COMMON COSTS WITHIN THE TERMINAL

- *Refer Table 19 and Table 20*
- *Segregation by DIAL:* Proportion to Floor area measurement segregated into Aeronautical and Non-Aeronautical Space
- *Issue:* The total floor area measurement for the terminals were drawn from M/s Jacob's Consultancy report dated 14th June 2011 detailing the area measurements for each component into Aeronautical / Non-Aeronautical. However, Order number 28 of AERA dated 14th November 2011 directed the elimination of 8652sqm from the gross area calculation and the total let-out area to the concessionaires at Terminal 3 which were not considered in the 14th June 2011 report.
- Considering the impact of the adjustment of 8652sqm in line with the order number 28 of AERA, the proportion of Aeronautical floor space was revised from 82% to 84%.

- **Impact:** ₹ 8.11 crores of addition towards Aeronautical Expenses due to change in Aeronautical proportion from 82% to 84%.

4.3.3 SEGREGATION OF COMMON COSTS OUTSIDE THE TERMINAL

4.3.3.1 SUPPORT FUNCTIONS AND SENIOR MANAGEMENT COSTS

- *Refer Table 23 and Table 24*
- **Segregation by DIAL:** Costs related the office of the Business Chairman and Group Chairman, the allocated costs from its group companies and costs related the support business functions like IT, finance, etc. were segregated into Aeronautical/Non-Aeronautical in the proportion of Aeronautical/Non-Aeronautical Closing Gross Fixed asset base of the company which was in the range of 89.08%: 10.92% to 89.27% : 10.73% year on year for the Second Control Period.
- **Issue:** Owing to the revision in the segregation logics under RFP 03/2018-19 for assets related to the New Udaan Bhavan, the office development of the Business and Group Chairperson and the common guest houses (*Refer Table 82 for segregation of assets for workings on Adjusted Gross Fixed Assets ratio*), the Aeronautical proportion of the assets was reduced from 89.08% to 89.27% to 89 %. This decrease in proportion of assets were applied to the above costs resulting in decrease of Aeronautical proportion of expenses.
- **Impact:** The adjusted Gross Fixed Ratio (89:11) reduced the Aeronautical Expenses to the extent of ₹ 2.05 crores.

4.3.3.2 CHARTERING COSTS

- *Refer Table 25*
- **Segregation by DIAL:** Flying charges of charter used by the Business and Group Chairperson of DIAL have been currently segregated in proportion to the Gross Fixed Asset Base of the Company of 89:11.

- **Issue:** Since the purpose of these chartering services cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the chartering services are used by the senior management in a 50:50 proportion for Aeronautical and Non-Aeronautical services.
- **Impact:** Revisiting the segregation, reduced the proportion of Aeronautical expense from 89% to 50%, has an impact of ₹ 10.61 crores on Aeronautical Expenses.

4.3.3.3 TRANSIT HOUSE EXPENSE SEGREGATION

DIAL has taken guest houses on lease in Delhi for use by the transiting corporate members of the company and has incurred ₹ 45 crores for Second Control Period on rental and maintenance of the transit house.

- **Refer Table 26**
- **Segregation by DIAL:** Segregation of expenses is based on Gross Fixed Asset Ratio.
- **Issue:** Since the purpose of use of these guest houses cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the guest house is used in a 50:50 Proportion for Aeronautical and Non-Aeronautical services.
- **Impact:** Revisiting the segregation, reduced the proportion of Aeronautical expense from 89% to 50%, has an impact of ₹ 17.91 crores on Aeronautical Expenses.

4.3.3.4 CORPORATE SOCIAL RESPONSIBILITY (CSR) COSTS

- **Refer Table 28**
- **Segregation by DIAL:** Being a registered Company, CSR expenditure is a statutory requirement and a business expense required to be spent for the purpose of continuing and maintaining the operations of the Company. DIAL had spent ₹ 33.72 crores on CSR and claimed ₹ 30.07 crores as Aeronautical Expenses in the ratio of Gross Fixed Assets of the Company.

- **Issue:** The Authority may take its own view in this regard.

4.3.3.5 CHARITIES AND DONATIONS

- *Refer Table 27*
- **Segregation by DIAL:** Segregation based on Gross Adjusted Fixed Asset Ratio.
- **Issue:** As these expenses are not related to passenger or airline services, these costs are segregated as 100% Non-Aeronautical.
- **Impact:** Reduction of ₹ 7.27 crores from the total Aeronautical Expense base.

4.3.3.6 LEGAL COSTS

- *Refer Table 30*
- **Segregation by DIAL:** Segregation based on Gross Adjusted Fixed Asset Ratio (89:11)
- **Issue:** Review of legal cases for Second Control Period up to FY17-18, showed that 19% (₹ 8.52 crores) of the total legal cases were Non-Aeronautical in nature, while the remaining were either Aeronautical or Common in nature. The common legal cases were apportioned in the ratio of adjusted gross fixed assets (89:11) and the revised value of Aeronautical and Non Aeronautical legal costs were worked out (which was in the proportion of 74.84% to 25.16%) The above revised % of Aeronautical to Non Aeronautical cases (74.84%: 25.16%) were applied for apportionment of total legal costs (₹ 53.86 crores incurred up to FY19).
- **Impact:** Reduction of ₹ 7.71 crores from the total Aeronautical Expense base due to change in proportion from Adjusted Gross Fixed Assets ratio (89:11) to proportion of Aeronautical cases legal cost to Non-Aeronautical cases legal cost (74.84%: 25.16%)

4.3.3.7 COMMON HR/ MANPOWER COSTS

- *Refer Table 32 and Table 33*

- **Segregation of DIAL:** Manpower costs were segregated based on manpower count per department into Aeronautical and Non-Aeronautical costs.
- **Issue:** However, since the segregation is based on the manpower count per department aren't representative to the proportion of the associated cost of the department, the segregation logic has been revisited to ensure more accuracy. The segregation was revised from a proportion of 89.79% to 89% in the proportion of Aeronautical Gross Fixed Asset to the Total Gross Fixed Assets.
- **Impact:** The above revision reduces the Aeronautical expenses to the extent of ₹ 5.97 crores (manpower costs) and ₹ 2.51 crores (other HR related costs) towards Aeronautical Expenses.

4.4 INTERNAL BENCHMARKING

- *Refer: Section 15*

4.4.1 METHODOLOGY FOLLOWED FOR BENCHMARKING

- Following cost components of DIAL were analysed over the time period within DIAL:
 - i. Terminal Operating costs (like utilities, repairs and maintenance, housekeeping, consumables, security etc)
 - ii. Administrative & General expenses
 - iii. Manpower costs
- Data for first control period was collated from ICWAI report on "Assessment of efficient Operation and Maintenance costs".
- Data for second control period were collated from the respective years Audited Financial Statements of DIAL
- The percentage change in costs over control periods 1 and 2 were analysed and the probable factors affecting the change in costs were noted.
- Trend analysis of above costs were performed based on factors such as passenger traffic, air traffic movement (ATM), terminal and runway capacity utilisation, management structure and contract outsourcing practices.

4.4.2 RESULTS:

- Referring to the growth pattern in various operating factors over the period (depicted in the charts in section 16.1) like steady increase in Passenger traffic from 26.13 million in FY10 to 65.69 Million in FY18 (please refer Table 88 of the detailed report) and extensive utilisation of DIAL's runway capacity (from 45% in FY11 to 75% in FY18) we contend that the airports must expand its operational capacity to accommodate the increased workload, which invariably will lead to increased operating cost for Airport Operator.
- However, with expansion, Airports benefit from economies of scale (i.e. expenditure per PAX) by enhancing the efficiencies in the operating and spreading out of the overhead costs along with marginal increase in cost due to administrative complexities. Refer figure 3 of section 16.1 which reflects that the CAGR of the total costs from FY10 to FY18 is higher than the CAGR of the costs per PAX/ATM from FY10 to FY18.

4.5 EXTERNAL BENCHMARKING

4.5.1 EXTERNAL BENCHMARKING - DOMESTIC AIRPORTS

- *Refer Section 16.1*

4.5.1.1 METHODOLOGY

- The Operation and Maintenance costs of DIAL were compared with the following airports:
 - i. Bengaluru Airport
 - ii. Hyderabad Airport
 - iii. Mumbai Airport
 - iv. Cochin Airport
- Benchmarking results were published on per passenger and per ATM basis.

4.5.1.2 RESULTS:

- Overall, DIAL Operation and Maintenance costs (per passenger and ATM) were reasonable in comparison with other airports. However, it is important to be mindful of the numerous uncontrollable factors that vary between the airports since these variable factors are generally consistent with costs.
- A comparison of Operation and Maintenance and Administration costs of DIAL and MIAL showed that on an average both the airports operate at the same levels of operating and non-operating costs

4.6 EXTERNAL BENCHMARKING - INTERNATIONAL AIRPORTS

- *Refer Section 16.2*

4.6.1 METHODOLOGY

- DIAL's operating costs and staff costs were benchmarked with 15 international airports (which includes Amsterdam, Melbourne, Sydney, London, Beijing, Hongkong, Changi)
- The benchmarking results were expressed on per Passenger basis; on per ATM basis and in relation to airport capacity.

4.6.2 RESULTS:

- Delhi ranks in 15th position out of 16 airports (*in order of highest to lowest cost*) in terms of total costs per passenger
- Delhi ranks in 16th and 15th positions in terms of staff costs and non-staff costs per passenger, respectively (*in order of highest to lowest cost*)
- Overall analysis indicates that Delhi's costs are comparatively lower than its peers in the sample.

Reiterating the fact that the chosen comparable airport only broadly meets the criteria of comparable airport size, it is interpreted that the Operating and Maintenance cost levels at the Delhi Airport are comparatively lower than its peer airports. However the

scale of difference between the variation from the average for maintenance costs compared to the variation from the average for the other three metrics reinforces doubts relating to the comparability of maintenance costs on the grounds of differing approaches in allocating costs to the maintenance category at the various airports.

4.7 SUMMARY

The total Operational and Maintenance costs incurred by DIAL during Second Control Period is ₹ 5,649.36 crores. Of this cost and as classified by DIAL, Aeronautical Expenses (other than Forex Losses of ₹ 576.30 crores) are ₹ 4,304.15 crores and Non-Aero Expenses are ₹ 768.91 crores. Based on this Study, we have made an adjustment to the Aeronautical Expense for ₹ 64.79 crores (as mentioned in section 4.1) and the total expenses have been re-segregated (refer Table 2 of this section) as under:

- Adjusted Aeronautical expenses: ₹ 4,239.36 crores.
- Non-Aeronautical expenses: ₹ 833.70 crores.
- Forex losses: ₹ 576.30 crores. This has been classified as Aeronautical expense by DIAL. However, the Authority may take its own view with regard to the above foreign exchange loss.

DIAL's Operation and Maintenance costs (per passenger and ATM) were reasonable in comparison with other domestic airports. A comparison of Operation and Maintenance and Administration costs of DIAL and MIAL showed that on an average both the airports operate at the same levels of operating and non-operating costs.

On benchmarking DIAL with 15 international airports, it was noted that:

- *Delhi ranks in 15th position out of 16 airports (in order of highest to lowest cost) in terms of total costs per passenger.*
- *Delhi ranks in 16th and 15th positions in terms of staff costs and non-staff costs per passenger, respectively (in order of highest to lowest cost).*

Overall analysis indicates that Delhi's costs are comparatively lower than the other international airports reviewed.

5 PROFILE OF DELHI INTERNATIONAL AIRPORT PRIVATE LIMITED (DIAL)

In the year 2003, the Airports Authority of India Act, 1994, was amended to enable setting up of private Airports and leasing of existing airports to private airport operators. The Amendment Act of 2003 was brought into effect on 01.07.2004. In pursuance thereof, the Government of India (GOI) had approved the modernization, up-gradation and development of the Delhi and Mumbai airports through private sector participation. Airports Authority of India (AAI) initiated the process of selecting a lead partner for executing the modernization projects and undertook a competitive bidding.

In so far as DIAL Airport, New Delhi is concerned a consortium led by the GMR Group was selected for modernisation of the Airport. Post selection of the private consortium a special purpose vehicle, namely Delhi International Airport Private Limited (DIAL), was incorporated on 01.03.2006 with AAI retaining 26% equity stake and balance 74% of equity capital acquired by other members of consortia. The GMR consortia comprised GMR group entities, Fraport AG, Malaysia Airports Holdings BHD and India Development Fund (which exited the consortium subsequently). On 04.04.2006, DIAL signed the Operation, Management and Development Agreement (OMDA) with AAI and took over the operations of DIAL Airport on 03.05.2006.

In addition to the OMDA, DIAL entered into various agreements (as listed below) with AAI, GOI and the Government of National Capital Territory of Delhi to give effect to the process of transactions:

1. State Support Agreement (SSA)
2. Shareholders' Agreement (SHA)
3. CNS-ATM Agreement
4. Airport Operator Agreement (AOA)
5. State Government Support Agreement (SGSA)
6. Lease Deed Agreement (LDA)
7. Substitution Agreement

8. Escrow Agreement

Currently, **INDIRA GANDHI INTERNATIONAL AIRPORT (IGAI)** serves as a major hub or a focus destination for several Indian Carriers including Indigo, SpiceJet, Go Air, Air Asia and Vistara. It serves 56 International airlines and is directly connected to 62 international destinations across the world.

5.1 SALIENT FEATURES OF THE INDIRA GANDHI INTERNATIONAL AIRPORT²

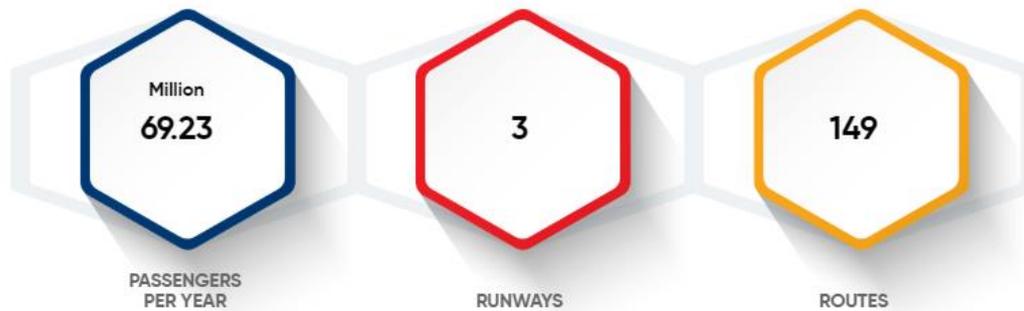
- Advanced 5 level in-line baggage handling system with explosive detection technology for greater efficiency and security.
- Terminal 3 has state-of-the-art complex featuring Common Use Terminal Equipment (CUTE)
- The arrival hall features both standard and wide-body baggage reclaims belts.
- Two tier terminal building featuring the departure complex on the upper level and the arrivals at the lower level.
- New terminal can be accessed by a 6-lane approach road and a dedicated high-speed Metro line from the city centre.
- Access to the aircraft from the terminal is provided by 4 piers.
- For International passengers more than 95 desks for fast and smooth immigration procedures.
- 78 Aeronautical bridges
- Over 168 counters in the check-in area to speed up check-in and security clearances unobtrusively.

The roof of the building has stylized incisions to allow daylight and angled to protect the interior from direct sunlight creating an ambience maximizing the

²Source: GMR DIAL Website

sense of volume, space and light inside. Optimal use of natural light in daytime reduces dependence on artificial light.

5.2 GROWTH IN AIRPORT OPERATIONS³



Delhi's DIAL serves as the primary international aviation hub of the Indian state of Delhi. The airport, spread over an area of 5,106 acres, is the busiest airport in India in terms of passenger traffic since 2009, the 12th busiest airport in the world and 6th busiest airport in Asia by passenger traffic handling nearly 67 million passengers in FY18. It is also the world's busiest airport for Airbus A320 aircraft and the second busiest airport in the country in terms of cargo traffic after Mumbai.

The report, based on data from Airports Council International (ACI), the global body that monitors airport traffic, also puts Delhi's compound annual growth rate (CAGR) between FY14 and FY17 at 14.3%. This being the highest among airports handling at least 40 million passengers per annum, comfortably ahead of Incheon, South Korea (10.5%), Pudong Shanghai, China (10.4%), and Dubai, UAE (7.4%).

³ Source: GMR DIAL Website

5.3 PASSENGER RATING GROWTH⁴

In 2010, DIAL was conferred the fourth best airport award in the world in the 15–25 million category, and *Best Improved Airport* in the Asia-Pacific Region by Airports Council International. The airport was rated as the *Best airport in the world* in the 25–40 million passengers’ category in FY15, by Airports Council International. DIAL was also awarded *The Best Airport in Central Asia* at the Skytrax World Airport Awards 2015. DIAL also stood first in the new rankings for FY15 Airport Service Quality (ASQ) Awards conducted by Airports Council International. The DIAL was also awarded the "World's Best Airport" at Airport Service Quality Awards 2017 in the highest category of airports handling more than 40 million passengers annually.

The growth on the overall satisfaction score over the years is demonstrated in the below graph. The parameters chosen for the rating and scores per parameters obtained by DIAL for third quarter ended 30th September 2018 is attached in the below file:



⁴ Source: GMR DIAL Website

5.4 SUMMARY

- Delhi International Airport Private Limited (DIAL) was incorporated on 1 March 2006 with AAI retaining 26% equity stake and balance 74% of equity capital acquired by GMR consortia, which comprised GMR group entities, Fraport AG, Malaysia Airports Holdings BHD and India Development Fund (which exited the consortium subsequently). In 2006, DIAL signed the Operation, Management and Development Agreement (OMDA) with AAI.
- DIAL is the busiest airport in India in terms of passenger traffic since 2009, the 12th busiest airport in the world and 6th busiest airport in Asia by passenger traffic handling nearly 67 million passengers in FY18. The annual growth rate of DIAL (CAGR) between FY14 and FY17 based on data from Airports Council International (ACI) is at 14.3%.

6 TRAFFIC TREND AND CAPACITY UTILIZATION AT THE DIAL AIRPORT ⁵

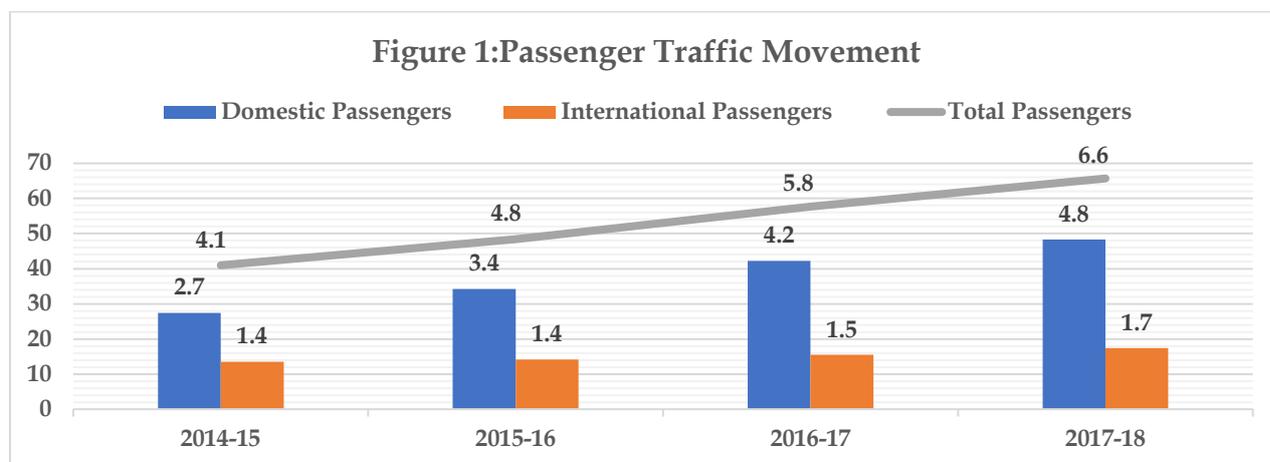
6.1 PASSENGER TRAFFIC MOVEMENT

Domestic and International Passenger traffic at DIAL during Second Control Period (FY15 to FY18) is indicated in **Table 5** below:

Table 5 Domestic and International Trend for Passenger Movement during Second Control Period

(In Crore passengers)

Particulars	FY15	FY16	FY17	FY18	CAGR
Domestic Passengers	2.75	3.43	4.22	4.83	20.73%
International Passengers	1.35	1.42	1.55	1.74	8.70%
Total Passengers	4.10	4.84	5.77	6.57	17.03%



The total passenger traffic at DIAL has achieved CAGR of 17.03% in the Second Control Period. Multiple factors like urban agglomerations, GDP, geographical location of the airport,

⁵ Source: Management Report
 R. Subramanian and Company LLP
 Chartered Accountants

population, age structure and education level has impacted the steady increase in the passenger traffic.

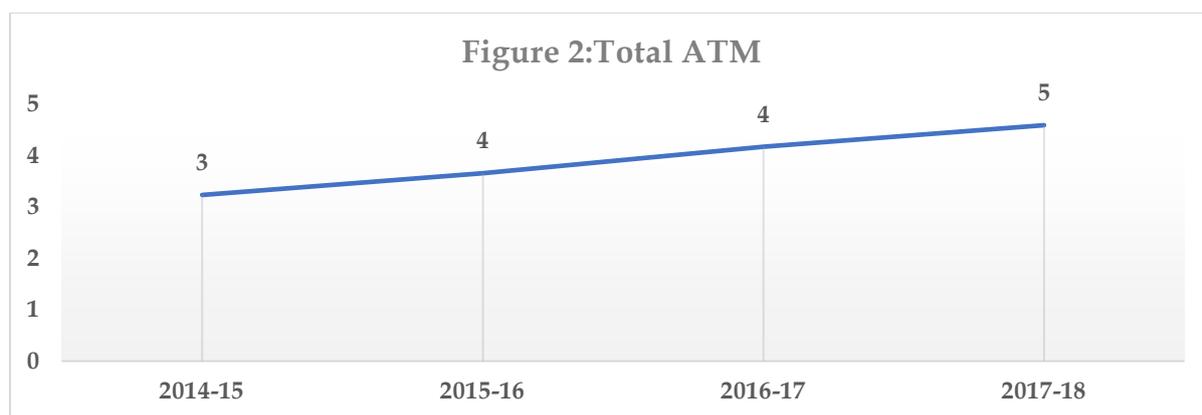
6.2 AIR TRAFFIC MOVEMENT

The total Air Traffic Movement (ATM) at DIAL (Landed Flights) during Second Control Period (FY15 to FY18) is indicated in **Table 6** below:

Table 6 Air Traffic Movement during Second Control Period

(laks)

Particulars	FY15	FY16	FY17	FY18	CAGR
Total ATM	3.23	3.66	4.17	4.59	12.39%



Air traffic at DIAL has achieved an overall CAGR of 12.39% in the Second Control Period.

6.3 CARGO MOVEMENT

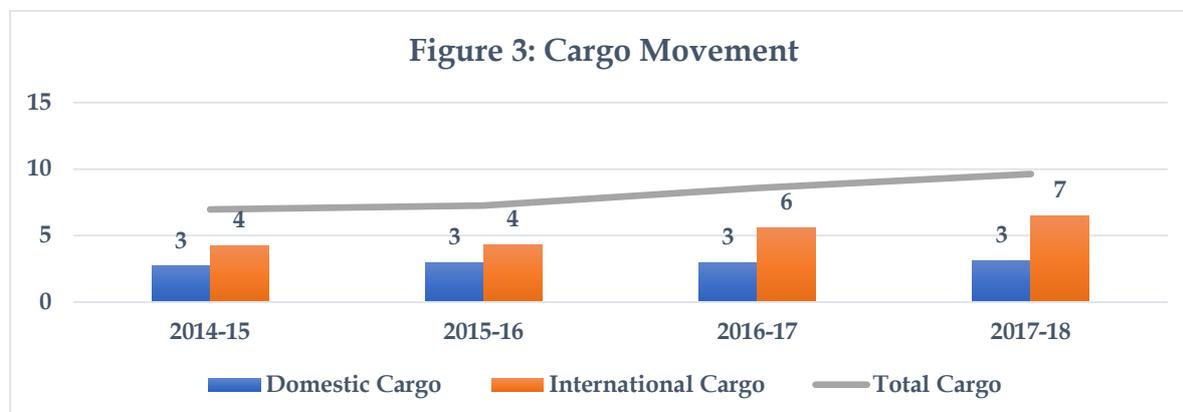
The Cargo at DIAL during Second Control Period (FY15 to FY18) is indicated in **Table 7** below:

Table 7 Cargo Movement During Second Control Period

(Laks)

Particulars	FY15	FY16	FY17	FY18	CAGR
Domestic Cargo	2.72	2.95	2.98	3.12	4.67%
International Cargo	4.25	4.31	5.59	6.51	15.32%

Total Cargo	6.97	7.26	8.57	9.63	11.40%
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Inventory build-ups, augmented export orders and strengthening of consumer demand, increase in online purchases, were important drivers that translated into CAGR of 11.40% in air cargo volumes.

6.4 CAPACITY UTILIZATION

6.4.1 PASSENGER TERMINAL

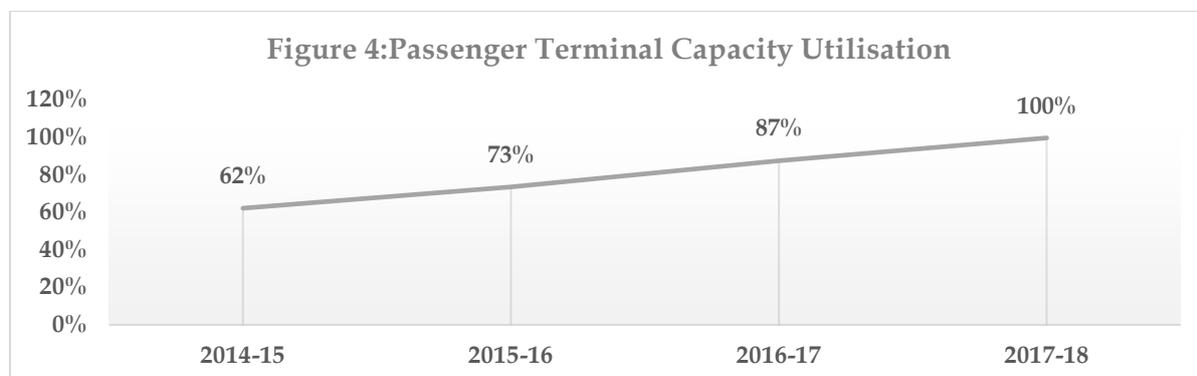
Passenger terminal capacity at DIAL Airport, New Delhi has been around 66 Million PAX per Annum (MPPA) from FY15 to FY18 including all the three operational terminals. Operational Passenger terminal capacity utilisation after the commissioning of the New International Terminal -3 is as below

Table 8 Terminal Building Capacity Utilisation during Second Control Period

(In crores)

Particulars	FY15	FY16	FY17	FY18
Total Passengers	4.10	4.84	5.77	6.57
Total Capacity	6.60	6.60	6.60	6.60
Capacity Utilisation	62%	73%	87%	100%

Note: 66M capacity per year for all three terminals includes the capacity built for T2 which was refurbished in Second Control Period to cater to the space currently under construction at T1.



It is observed that the passenger terminal capacity utilization has grown at DIAL Airport during Second Control Period. At the end of First Control Period, the operational passenger terminal capacity utilization is 100%. It implies that the operation cost (fixed capacity and committed costs) per passenger will go down with the increase in capacity utilization. Since major part of operation cost at an Airport is fixed cost (such as manpower cost, repair and maintenance cost), the overall operation cost per passenger will also go down with the increase in passenger capacity utilization.

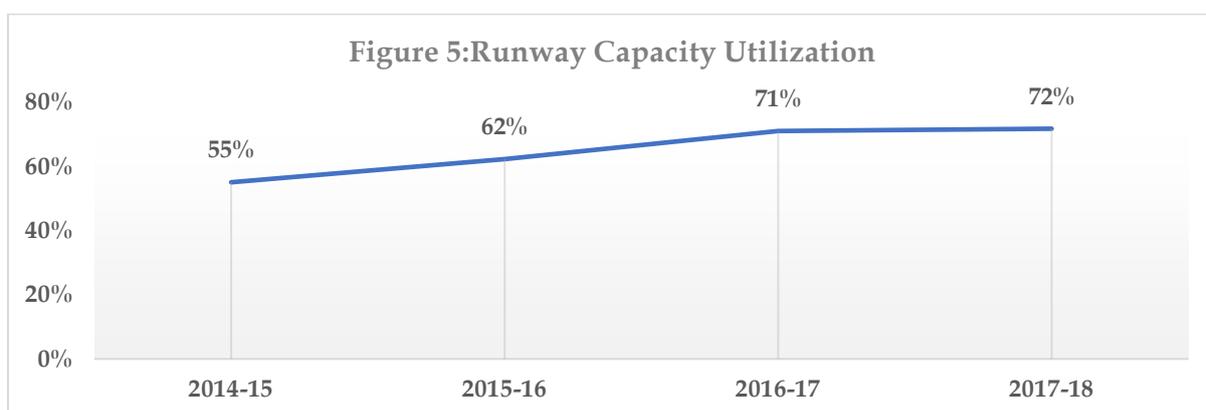
6.4.2 RUNWAY CAPACITY

PEAK HOUR MOVEMENT: DIAL has three runways in operation i.e. 09/27, 10/28 and 11/29. DIAL had achieved a peak hour utilisation of around 67 movements for a particular hour up to FY17 and had increased to 73 movements in a particular hour for FY18. Thus, for the purpose of arriving at the capacity of the runway, we have calculated the highest movement in the runway for FY18 (73 Movements) to 24 hours of the day to 365 days in the year. This is under the assumption that the runway can support such numbers at any given time.

Table 9 Runway Capacity Utilisation

(Lakhs)

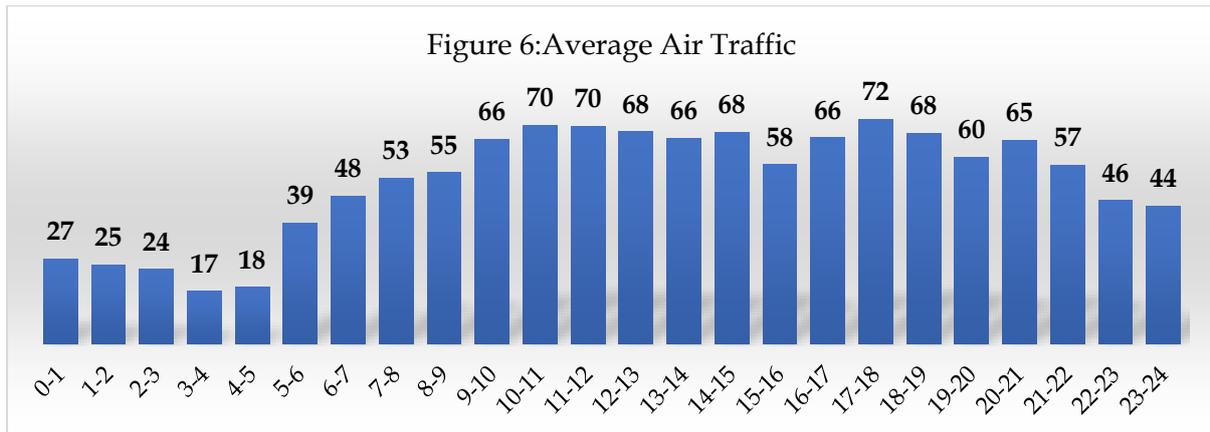
Particulars	FY-15	FY-16	FY-17	FY-18
Total ATM	3.23	3.66	4.17	4.59
Runway Capacity	5.87	5.87	5.87	6.39
Capacity Utilisation	55%	62%	71%	72%



Disclaimer:

The total runway capacity derived here is only for the purpose of comparing the increases in the variable cost associated to the runway’s capacity usage. These numbers aren’t representative of idle runway capacity as the slot allocation to the airlines are dependent on the requests received from such airlines. This can be represented in the below traffic analysis for the first week of January 2018.

On observing the traffic movement in 24 hours, it was noted that on an average, there were around 52 movements in an hour. Out of the 24 hours in the day, for around 15 hours the runway utilisation had been above the average of 52 movements. The average trend of hourly movements for the week is depicted in the below table. The traffic varies every hour due to the respective slot allocations requested by the airlines.



6.5 SUMMARY

The total passenger traffic at DIAL has achieved a CAGR of 17.03% in the Second Control Period and the growth of Air traffic is 12.39% and Cargo is 11.40%. The Passenger Terminal Capacity utilisation has increased from 62% to 100% and the Runway Capacity utilisation has increased from 55% to 72%.

7 BUDGETING PROCESS OF DIAL

Process followed by DIAL for preparation of their Annual Operating Plan (AOP) is as below:

- Development of AOP is initiated around three months before the commencement of the financial year,
- A Zero-based budgeting plan is prepared,
- Future estimates are based on:
 - OMDA standards,
 - Airport Service Quality (ASQ) rating requirements,
 - Airport Traffic (like number of passengers (PAX), Aircraft Movement (ATM), Cargo tonnage),
 - Inflation,
 - Deterioration in the infrastructure over the last period,
 - Additional mandates from regulatory agencies, etc.
- Corporate Strategic & Planning Department (CSPD) which is a department at the group level, meets with the all business heads for a macro level brainstorming,
- AOP process is driven by Strategic Planning Group (SPG) which is responsible for coordinating the process and to give the qualitative inputs,
- Each department shares the data in a pre-specified format under common expenditure heads,
- The expenditure is then reviewed by department heads and brainstorming takes place to rationalize and review the projections so that finalization can take place,
- Before consolidation takes place, there is a review by the CFO and CEO,
- Thereafter, there is a review by the Managing Director and Chairman,
- Finally, consolidated AOP is prepared and submitted to the Board for approval,
- The AOP is then monitored regularly by each department head, CFO, CEO and the Chairman. This also gets reviewed on a quarterly basis at the board level.

7.1 SUMMARY

Standardized process is followed at DIAL for setting up budgets in the form of an Annual Operating Plan (AOP). Inputs are obtained from each department, consolidated and reviewed by the CFO, CEO, Chairman and the Board of Directors, and subsequently the AOP is finalized and reviewed on a quarterly basis.

8 MONITORING OF BUDGET vs. ACTUALS

DIAL prepares Management Information System (MIS) and delivers to the board at regular intervals. It provides the data/information to help board and management to monitor and control the business decisions effectively and take strategic decisions. MIS is prepared in an appropriate Presentation/Excel spreadsheet and at a given time frame as desired by the Operations and the Senior Management.

MIS is reviewed periodically at various levels of Senior Management. A comparison is made between the Annual Operating Plan (AOP) and the actual performance on the following parameters and documented in the above MIS.:

- Operational parameters for the month/ quarter and year to date (YTD)
- Financial parameters for the month/ quarter and year to date (YTD), including the variance analysis.

8.1 MONTHLY CEO REVIEW

Some of the activities that are part of monthly CEO review at DIAL are as below:

Action Taken Report (ATR): During each of the review, minutes of the meetings are recorded by Strategic Planning Group (SPG) team. SPG team filters ATRs pertaining to each of the departments. These ATRs are sent to the MIS team for action and follow up. MIS team tracks these ATRs on monthly basis and ensures that the deadlines are achieved for the respective department. Input is provided by HOD Finance and CFO DIAL in cases where they are directly involved with some of the actions. It is ensured that the deadline is achieved and if in case it is not, then the reasons for the non-achievement are documented.

Personal Development and Performance Review (PDPR): PDPR is a tracking system for DIAL in terms of target key performance indicators (KPIs) and actual achievement on a monthly basis. MIS team tracks these KPIs like PAT, receivable days, BLIP initiatives, Kaizen, employee engagement etc.

Finance Department Expenses Analysis: Finance department expense analysis is done wherein the actual expenses incurred are compared against the projected expenses. Reasons for variances if any, are documented as part of the above analysis and presented to the CEO.

Cash Flow Statement: Treasury team provides cash flow statement which is bifurcated in two parts i.e. Project cash flow and Operational cash flow. A summary on cash flows is presented to the CEO along with detailed back up for project and operational cash flow.

8.1.1 CEO REVIEW OF OPERATIONS DEPARTMENT

- Hits and Misses
- Things that didn't go well
- Top Plan/Focus Area going forward
- Action Taken Record
- Environment Management Initiatives
- Other Business Updates
- Overall departure (On Time Performance) OTP Comparison

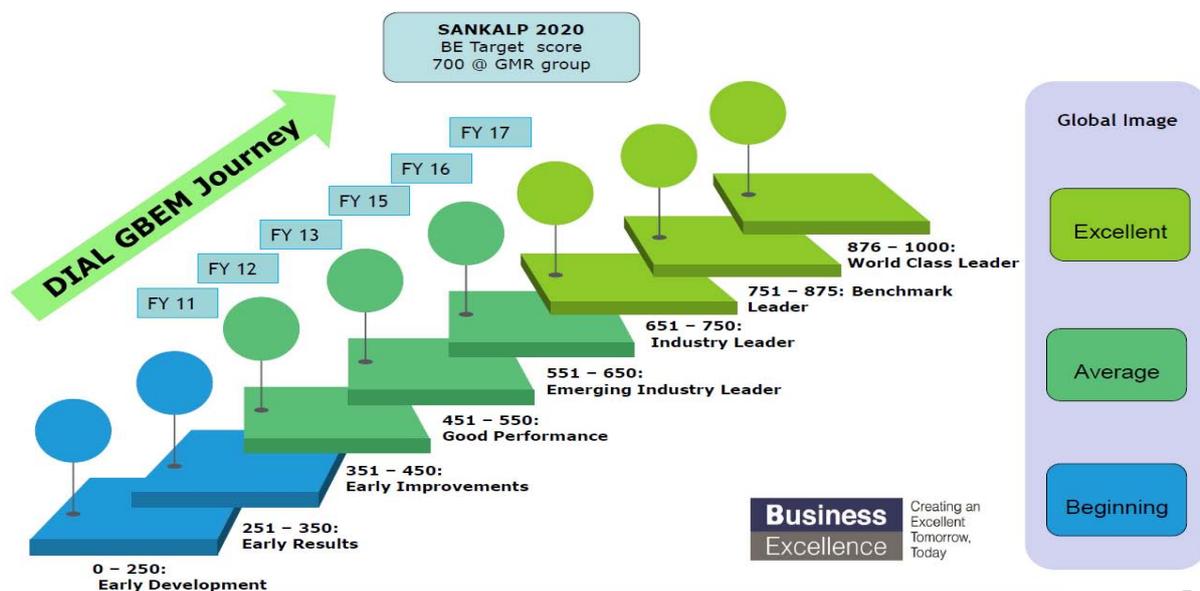
8.2 SUMMARY

MIS documenting the actual performance (operational and financial) vis-à-vis the Annual Operating Plan is documented and reviewed periodically by the Senior Management. Following reports are reviewed on a monthly basis by CEO:

- Action Taken Report (ATR)
- Personal Development and Performance Review (PDPR)
- Finance Department Expenses Analysis
- Cash Flow Statement

9 COST REDUCTION MEASURES AND IMPROVEMENT PLANS ADOPTED BY DIAL ⁶

In a relatively short time, DIAL has made a steady progress in the journey towards sustainable business excellence. With the Launch of the ACI-ASQ OMDA Schedule 3 Compliance Customer Response Management in 2007, DIAL has become world class leaders for Airport Operations in FY17.



Kaizens, 5S, Continuous Improvement Plans (CIPs), Bottom Line Improvement Plans (BLIP) have become part of every business process with implementation of more than 400 improvement projects across DIAL, with active participation of over 2000 employees. A summary of the process improvements undertaken at DIAL to ensure optimisation of cost and revenue generation is as below:

⁶ Source: Management Information
 R. Subramanian and Company LLP
 Chartered Accountants

Table 10 Total Recurring Cost Savings During Second Control Period

(₹ crores)

Financial Year	Recurring Cost Saved (CIP/BLIP)
FY15	33.00
FY16	28.36
FY17	17.89
FY18	13.40
Total	92.65

The projects and studies undertaken by DIAL for efficiency improvements are listed below:

Table 11 Major Cost Saving Projects Undertaken by DIAL

(₹ crores)

Year	Nature of the Project	Category	Audited Value
FY15	Optimization of Power Consumption per PAX	Recurring Cost Saving	7.17
FY15	Lower Tax Deduction Certificate @ - Rate (Interest Saving due to Non-deduction of TDS on receipt from Customers)	Recurring Cost Saving	4.83
FY16	Reduction of Water Consumption at the Terminals	Recurring Cost Saving	6.90
FY16	Consolidation of Airside Maintenance Contracts	Recurring Cost Saving	1.40
FY17	One Time Cost Saving by using reutilizing of T2 assets and Innovative Artworks	One Time Cost Savings	2.00
FY17	Energy Conservation in T3 HVAC	Recurring Cost Saving	2.85

Year	Nature of the Project	Category	Audited Value
FY18	Energy Conservation in T3 HVAC	Recurring Cost Saving	8.53
FY18	Reduction of Water Consumption at the T3	Recurring Cost Saving	1.43
FY18	Life Cycle Improvement of Chillers through Zero Breakdown	One-time Cost Saving	0.074
FY18	Reduction in Energy Consumption of STP/WTP by 1000KWH/day up to Dec -17	Recurring Cost Saving	0.078

9.1 SUMMARY

- DIAL has made a steady progress in the journey towards sustainable business excellence.
- Kaizens, 5S, Continuous Improvement Plans (CIPs), Bottom Line Improvement Plans (BLIP) have become part of every business process with implementation of more than 400 improvement projects across DIAL, with active participation of over 2000 employees.
- The total recurring cost savings (CIP/ BLIP) for the Second Control Period is ₹ 92.65 crores.

10 SEGREGATION OF COSTS INTO AERONAUTICAL AND NON-AERONAUTICAL

10.1 SEGREGATION LOGICS ADOPTED BY DIAL

Below is the brief of the procedures applied by DIAL for allocation of the expenses:⁷

- a. All the expenditure attributable directly to Aeronautical Services or Non-Aeronautical Services were allocated accordingly and
- b. Segregation of the expenditure is done based on the nature of the cost centre and respective expenditure incurred in the cost centre.
- c. For the remaining costs, which cannot be directly measured, the relevant drivers were used to bifurcate such costs.
- d. The main drivers that have been used for allocating operational and administrative costs as Aeronautical and Non-Aeronautical are as follows:

Table 12 Percentages Adopted for Segregation of Common Expenses

Particulars	FY15	FY16	FY17	FY18
Common HR Costs	89.79%	89.79%	89.79%	89.79%
Common Terminal 1 Expense	84.00%	84.00%	84.00%	84.00%
Common Terminal 2 Expense	84.20%	84.20%	84.20%	84.20%
Common Terminal 3 Expense	82.32%	82.32%	82.32%	82.32%
Common Administrative Expense (outside of terminals)	89.27%	89.20%	89.08%	89.04%

⁷ Source: Concept Note of DIAL for Second Control Period
 R. Subramanian and Company LLP
 Chartered Accountants

The basis for determining the above percentages are discussed below:

1. Common HR:

AERA Vide its Decision No. 15 of the Delhi Tariff Order 03/2012-13 considered allocation ratio of 89.79% is adopted for the entire Control Period - I in Order No. 40 This driver is being used for allocation of entire employee benefit expenses, cost centres which are allocable only based on manpower deployed included in operating and administration expenditure.

2. Common TI, T2 and T3:

The percentages mentioned in the above table are the extract from Aeronautical Terminal Area Ratio as certified by a consultancy firm, Jacobs Consultancy on 14th June,2011. The drivers are adopted for the allocation of operational and administrative expenditure incurred for the specific terminal and are allocated based on the terminal area proportionately.

3. Common:

The common percentage mentioned in the above table is arrived from the Gross Fixed Assets ratio between Aeronautical and Non-Aeronautical assets. This percentage is applied for the remaining cost centres.

4. Collection charges included in the expenses are segregated as Aeronautical:

DIAL is paying Collection Charges to the airlines relating to the User Development Fee collected from passengers and remitted to it. This has been disclosed as reduction to revenue from Aeronautical Services in the Statement of Profit and Loss up to FY17. For FY18, such Collection Charges are disclosed under Other expenses amounting to ₹ 3.60 crores and segregated as Aeronautical expenses

5. Others:

- Bad debts raised during Second Control Period are completely relating to Non-Aeronautical activities, hence segregated as Non-Aeronautical.
- Foreign Exchange Loss incurred for each financial year is segregated in proportion to the Gross Fixed Asset Ratio.

10.2 COST CENTRE SEGREGATION METHODOLOGY

The total Operating and Maintenance cost of DIAL were presented in the following manner:

- The Total Cost were segregated into Manpower, Operation and Maintenance, General and Administration and Corporate costs
- Each of the above category of expense were further segregated by the nature of expenditure (e.g., Repairs and Maintenance, Security, Housekeeping, etc.)
- The transactional accounting for each of the above expense were pooled into 134 different cost centers groups which were further grouped into 28 major cost center departments depending upon their nature
- For the Segregation of the total costs into Aeronautical, Common and Non-Aeronautical, the nature of each of these 134 cost center groups were analyzed and accordingly segregated into Aeronautical, Common and Non-Aeronautical
- The nature of each of 59 common cost centers out of the 134 cost centers were analyzed and a reasonable basis for segregation of the common cost centers into Aeronautical and Non-Aeronautical was derived.

Table 13 Distribution of Cost Centres at DIAL

(₹ crores)

Cost Centre Bifurcation DIAL	Amount (Up to FY18)	FY19	Total
Aeronautical Cost Centre	757.94	207.72	965.66
Common Cost Centre Outside the Terminal	955.09	285.08	1240.17
Common Cost Centre Inside the Terminal	436.69	143.21	579.9
Common HR Cost Centre	234.78	77.02	311.8
Manpower Costs	552.52	186.76	739.28
Non-Aeronautical Cost Centre	47.2	4.95	52.15
<i>Others:</i>			
Airport Operator Fee	571.5	114.9	686.4
Property Tax	29.12	7.84	36.96
Additional Property tax	38.95	0	38.95
Finance Costs	876.50	33.45	909.95
Payment of VRS	71.66	16.48	88.14
Total Expenses	4571.95	1077.41	5649.36

10.3 COST ACCOUNTING METHODOLOGY

As the first step toward

s segregation of costs into Aeronautical and Non-Aeronautical, it was ensured that a robust cost collecting process is in place within the organization ensuring accuracy in accounting of costs to the correct allocated cost center. In this regard, we verified the following process controls:

Q1: Ensure every Invoice booked in SAP can only be routed through a Purchase Order. For exceptions if any, is there a separate one-time vendor code created to exercise control?

All major Invoices booked in SAP are routed through Purchase Orders (PO) except invoices pertaining to the following nature of expenses:

Table 14 Expense accounting not routed through Purchase order

S No.	Nature expense	Examples	Control mechanism	Maker Checker Workflow
1.	Government/ Statutory Dues	Taxes, Revenue share and other payments to AAI, Airport Operator's Fee etc.	Based on Tax Laws, Valid agreement (OMDA), Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker
2.	Payments to Banks	Interest, Hedge Cost, other banking Charges etc	Based on Agreements with Banks, Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker
3.	Miscellaneous expenses and routine Petty expenses	Utility payments, Donations, Group Companies Debit Notes, membership fee and Employee Reimbursements for staff welfare, Travel, local radio taxi etc	Based on Agreements, Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker
4.	Other Urgent and One-Time vendors / Payments	Onetime, urgent and Non-Recurring Expenses	Based on Agreements, Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker

One Time Vendor Codes: There is a separate vendor code created for One Time Vendors.

Q2: Ensure the Cost Centre /Profit centre /Company Codes/GL details are all mapped to the PO on creation and are authorized by the Business Owners

Cost Centre /Profit Centre /Company Code/GLs are all mapped with the Purchase Requisition (PR) raised by the respective User Department and is linked to the Purchase Order (PO). PO is released only as per approval levels under DOP/SOP after due verification.

Q3: Is the process of capturing of invoices details in the system automated or manual?

Currently the process of capturing invoice details is partially manual but includes data validations from SAP. The process of matching of invoices with the relevant PO, verification and processing of invoices is completely driven by the SAP workflow and is supported by maker-checker both at Business User level and at Finance level. Further currently DIAL is exploring implementation of SAP Open Text, an inbuilt tool with OCR features for Vendor Invoice Management (VIM).

The Process is detailed below:

There is a Centralised Bill Inward Desk (BID) system for processing of all Vendor Invoices in DIAL. BID system is a workflow tool to manage flow of documents, approvals and storing documents in SAP. It is a customised SAP bolt on tool. This will also take care of tracking of payment status of invoices, rejection, re-submission, email alerts, auto escalations and reporting.

BID team is responsible for- Primary Verification of invoices like DIAL's address, GST format, GST No., PAN No. etc., Scanning of Invoices, Acknowledgement to Vendors, assigning of Bar Code and recording of invoice in BID system.

Post BID desk, invoices are processed through SAP Workflow and are forwarded through the above workflow to the respective Business Users, Labour Compliance Team and Finance Department along with scanned copies of invoices.

@ Business Users: Maker Checker Process ensures creation/approval of Service Entry Sheet/MIGO in SAP besides forwarding the Note for Payment (through BID).

@ Finance Department: Maker Checker Process ensures Posting in SAP and tracks the Parked Invoices

Mismatch resolution – For dealing with mismatch into rate, quantity or amount, there is a mechanism for reject, rectification and resubmission in SAP workflow system and BID process.

Q4: If the coding on the Purchase Order needs alteration after its creation, is there an approval workflow triggered in SAP

The unique PO No is generated for each service/Goods Receipt by the vendor and the Goods Receipt Note (GRN)/Service entry (SE) is made to the respective PO only after certification and verification of goods/services matching with PO.

The SAP-GRC access controls are maintained for each T-Code in SAP. Through this an automatic review of user access and role authorization are ensured, and risk of violations are minimised.

Thus, any amendment to PO is approved by the Procurement department (as per defined authority limits) any exceptions to the above process can be identified and monitored.

Q5: Procedures for review of long pending open purchase orders and closure of the same.

F&A department downloads the list of open POs from SAP then makes a table of inactive PO (based on delivery date is completed, no remaining value in PO, PO are old enough where no Service Entry or GRN is pending), that list will shared to Business Users and P&C for review/remarks. After response if any, the same will be Closed/Blocked in system.

Q6: Approval Matrix for Manual adjustments to shift costs from one cost centre to another through a journal voucher

Any change/shifting of expenses between cost centres is done with the concurrence of F&A along with approval of respective Business Users.

Q7 For accrual of expenses, who authorizes the costs and cost centre of booking:

At the period end F&A shares pre-defined templates to all major Business Users of respective cost centre's Provisions where Service Entries are not completed on PO's. The response from Business Users will be reviewed and entered in the system.

10.4 ANALYSIS OF COST CENTER ALLOCATION

10.4.1 AERONAUTICAL COST CENTRE:

The costs on the following cost centers are 100% allocated to 'AERONAUTICAL' based on the nature of costs either directly related to passenger facilities or Airside Operations

Table 15 Total Aeronautical Expenses during Second Control Period

(₹ crores)

Cost Centre Description	Up to FY18	FY19	Total
UTILITIES COST	453.72	103.40	557.12
DIAL Corporate Social Responsibility (Electricity Expenses)	0.24	0	0.24
Auxiliary Service	20.44	1.09	21.53
Technical Motor Transport	0.63	0	0.63
Not Assigned (Recoveries from the Concessionaires)	(430.65)	(138.04)	(568.69)
P&E Unbudgeted	0	2.06	2.06
Purchase Power	429.71	217.72	647.43
T1 Mechanical Maintenance	0.62	0.56	1.18
Water	18.41	18.86	37.27
T2 Electrical Maintenance	0	0.23	0.23
T3 Electrical Maintenance - Water Expenses	414.32	0	414.32
T2 Mechanical Maintenance	0	0.92	0.92
AIRSIDE OPERATIONS	148.88	47.48	196.36
Airport Operation Control Centre	1.28	0.22	1.5
Airside Air Ground Lighting	54.23	16.04	70.27
Airside Civil Maintenance	12.41	4.05	16.46
Airside Operations	35.08	12.06	47.14
Auxiliary Services	16.38	3.69	20.07
Safety & Enforcement	0.52	0.35	0.87
Slots	0.34	0.34	0.68
Sup-Aviation Services	0.58	0.01	0.59

Cost Centre Description	Up to FY18	FY19	Total
Technical Motor Transport	28.06	10.72	38.78
SECURITY AND VDIALLANCE COST	78.16	21.57	99.73
IT PSF Cost	9.7	3.09	12.79
Passenger Security Fee P&E	49.4	18.5	67.9
Security& Vigilance PSF Cost	19.06	(0.02)	19.04
LANDSIDE AND ENVIRONMENT MAINTENANCE COST	10.58	3.45	14.03
Environment Maintenance	4.52	1.03	5.55
Landside Works	6.06	2.42	8.48
COMMERICAL AERONAUTICAL - MARKETING COST WITH THE AIRLINES TO INCREASE THE NUMBER OF LANDING AND PARKING OF AIRCRAFTS	15.21	2.5	17.71
Commercial Aeronautical	14.08	2.5	16.58
Commercial Aeronautical Unbudgeted	0.71	0	0.71
Sup-Com-Airline Mar	0.42	0	0.42
COST FOR EFFICIENT AIRSIDE/AIRPORT OPERATIONS	3.04	0.87	3.91
Fire Fighting	3.04	0.87	3.91
FEE COLLECTION CHARGES	10.61	9.7	20.31
UDF Collection Charges	3.6	6.92	10.52
Finance & Accounts - IATA Collection Charges	7.01	2.78	9.79
OTHER SUPPLEMENTARY COST CENTRES	(0.08)	0	(0.08)
COSTS TO BE SEGREGATED TO MIX	37.83	18.75	56.58
Landscape Maintenance	17.92	7.94	25.86
Landscape Unbudgeted	0.78	1.19	1.97
T1 Airport Systems Maintenance	3.77	2.34	6.11
T2 Airport Systems Maintenance	4.45	3.63	8.08
Total Quality Management	10.82	3.71	14.53
Transit Houses*	0.09	(0.06)	0.03
TOTAL	757.94	207.72	965.66

*Transit House segregation considered independently

Notes:

1. Utilities Cost:

Utilities include cost towards power and water used at DIAL. The costs included in this head are net of recoveries made by DIAL from various retail tenants operating at DIAL. Accordingly, the Non-Aeronautical component has been excluded completely from these costs

2. Fee Collection charges:

IATA Collection Charges - DIAL appointed International Air Transport Association (IATA) for collection of the User Development fee (UDF) from Air India on its behalf. Thus, for acting as an intermediary between Air India and DIAL, administration charges are payable to IATA on a monthly basis.

Collection Charges for Other Airlines: The fee collection charges from FY18, are considered as operating costs instead of adjustment to the revenue in the target revenue computation.

Impact of change in accounting of the UDF Collection charges on the tariff calculations:

Background:

Beginning of every control period, projection of Target Revenue comprising operating costs and regulatory asset base is made by the airport operator.

This target revenue divided by the projected passenger traffic for the First Control Periods used to arrive at a per PAX cost broken down to a rate card comprising Landing, Parking, charges etc.

Thus, at this stage of defining the tariff for the control period, we can conclude that for the control period the projected Cost + RAB and projected Aeronautical revenue from passengers will be equal.

At the end of the control period, these projections based on which the rate card was determined is compared to the actual costs incurred on operation and infrastructure and the actual revenue earned from the passenger & the air traffic. Then, an exercise of true up is carried out for the differential for the subsequent control period.

Example of the true up exercise:

The target Revenue/Cost + RAB for the control period (for example) was set at ₹ 1000 based on the projections. With an estimated traffic of 100 passengers the per PAX rate was defined as ₹ 10. Thus Rate (Fixed) X Passenger/Air Traffic (Variable) = ₹ 1000.

Scenario 1:

If the actual operating cost + RAB is more than 1000, say 1100 (100% Efficient cost) and revenue earned is only 1000 (Because the traffic remained at 100passengers) à Then AAI reimburses this 100(1100-1000) as a true up to the next control period

In this case say if the UDF collection charges were ₹ 20, showing them as cost or adjustment to revenue would still result in a true up of ₹ 100 only.

Scenario 2:

If the actual (efficient)operating cost + RAB is less than 1000, say 900, then my eligibility for revenue collection is only ₹ 900 but I collected revenue of ₹ 1100 (Higher traffic) à Then AAI deducts excess 200 from the TR of the next Control period.

In this case say if the UDF collection charges were ₹ 20, showing them as cost or adjustment to revenue would still result in a true up of ₹ 200 only

Conclusion:

Thus, showing UDF collection charges as cost or revenue adjustment at the end of the period has no effect on tariff computation.

3. Aeronautical Cost Center Segregated to MIX:

A. Since the system maintenance costs for T1 and T2 are common facilities utilized for both Aeronautical and Non-Aeronautical services, in our opinion these costs of ₹ 8.22 crores should be treated as common expenditure and allocated to Aeronautical services accordingly. This stand has also been taken to ensure parity in treatment of system Maintenance expense of all the 3 terminals. The total impact of this segregation would be a negative **₹ 2.25 crores** on Aeronautical Expenses.

B. The Landscaping costs includes costs for the entire Terminal, Approach roads to the Terminals and the admin office which serves both Aeronautical and Non-Aeronautical facilities, the costs are treated as Common. The total impact for the same is negative

₹. 4.41 crores on Aeronautical Expenses

C. The Total Quality Management team works towards the overall improvement of the Airport Operations and aren't specific to Aeronautical Operations. Hence the costs are segregated to Common. The total impact for the same is negative ₹ 1.59 crores on Aeronautical Expenses.

Table 16 Segregation of Expenses from Aeronautical to Common up to FY18

(₹ crores)

Particulars	Segregation of Expense	Amount	Revised Segregation Logic	Impact on Aeronautical if segregated to MIX
T1 System Maintenance	Aeronautical	3.77	Floor Space for T1	0.60
T2 System Maintenance	Aeronautical	4.45	Floor Space for T2	0.70
Landscape Maintenance	Aeronautical	17.92	Weighted Average Floor Space (84.10%)	2.85
Landscape Unbudgeted	Aeronautical	0.78	Weighted Average Floor Space (84.10%)	0.12
Total Quality Management	Aeronautical	10.82	Adjusted Gross Fixed Asset Ratio (89%) *	1.20
Total Negative Impact on Aeronautical Assets				5.48

* Refer Table 82 for Adjusted Gross Fixed Asset Ratio

Table 17 Segregation of Expenses from Aeronautical to Common for FY19

(₹ crores)

Particulars	Segregation of Expense	Amount	Revised Segregation Logic	Impact on Aeronautical if segregated to MIX
T1 System Maintenance	Aeronautical	2.34	Floor Space for T1	0.37
T2 System Maintenance	Aeronautical	3.63	Floor Space for T1	0.57
Landscape Maintenance	Aeronautical	7.94	Weighted Average Floor Space (84.10%)	1.26
Landscape Unbudgeted	Aeronautical	1.19	Weighted Average Floor Space (84.10%)	0.19

Particulars	Segregation of Expense	Amount	Revised Segregation Logic	Impact on Aeronautical if segregated to MIX
Total Quality Management	Aeronautical	3.71	Adjusted Gross Fixed Asset Ratio (89%) *	0.40
Total Negative Impact on Aeronautical Assets				2.80

* Refer Table 82 for Adjusted Gross Fixed Asset Ratio

10.4.2 COMMON COST CENTRE

10.4.2.1 WITHIN THE TERMINAL

For expenses incurred at the respective terminals of DIAL for jointly providing Aeronautical and Non-Aeronautical services are classified as Common Terminal expenses. We have used the floor area measurement system for allocation into Aeronautical and Non-Aeronautical activities as the presence of Non-Aeronautical activities generates an additional requirement for space and hence an additional cost.

The initial demarcated total floor area measurement for the terminals were drawn from an Independent report drafted by M/s Jacob's Consultancy dated 14th June 2011 detailing the area measurements for each component at terminal and an Aeronautical / Non-Aeronautical allocation proportion at each level for every terminal building.

However, since these proportions were drawn in the month of June based on the available data and AutoCAD drawings, adjustment for order number 28 of AERA dated 14th November 2011 eliminating 8652sqm from the gross area calculation and the total let-out area to the concessionaires at T3 was not made. Hence this adjustment was carried out for the purpose of our calculations resulting in an impact of ₹ 8.11 crores of addition towards Aeronautical Expenses.

The reworking of the proportionate percentage is as per the below table:

Table 18 Total Demarcated Area with and without 8652Sqm in the Gross Calculations

Terminal	Financial Year	Total Space	Space Allocated to Aero	Directly Allocated to Non-Aero (Relatable to Rental Income)	Common Area allocated to Non-Retail	Total Non-Aero	Aero %	Non-Aero %
T3 Demarcated Area (including 8652Sqm)	FY11	550193	455255	61882	33056	94938	82.32%	17.68%
T3 Demarcated Area (Excluding 8652Sqm)	FY11	541541	455255	61882	24404	86286	84.07%	15.93%

Applying the revised percentage on the common costs inside T3, the impact of ₹ 8.11 crores (₹6.22 crores + ₹ 1.89 crores) is explained in the below tables (Table 19 and Table 20)

Table 19 Revision of Segregation Percentage for Expenses of T3 up to FY18 – Excluding 8,652Sqm

(₹ crores)

Particulars	Segregation of Expense	Total Expense	Allocation as per Jacob Report – June 2011(82.32%)		Allocation after considering T3 revision 84.07%	
			Aeronautical	Non-Aeronautical	Revised Aeronautical	Revised Non-Aeronautical
T3 Terminal Operations	Common T3	136.80	112.62	24.19	115.01	21.79
T3 Airport Systems Maintenance	Common T3	115.39	94.99	20.40	97.01	18.38
T3 Electrical Maintenance	Common T3	52.76	43.44	9.33	44.36	8.41
T3 Mechanical Maintenance	Common T3	34.06	28.04	6.02	28.64	5.43
T3 Civil Maintenance	Common T3	16.01	13.18	2.83	13.46	2.55
Finishes	Common T3	0.42	0.35	0.07	0.35	0.07
Sup-T3 Customer Relation	Common T3	0.01	0.00	0.00	0.00	0.00
Sup-T3 Facilities	Common T3	(0.09)	(0.07)	(0.02)	(0.08)	(0.01)
		355.37	292.54	62.83	298.76	56.61

Impact on Aeronautical expense ₹ 6.22 crores (₹298.76 crores - ₹292.54 crores)

Table 20 Revision of Segregation Percentage for Expenses of T3 for FY19 – Excluding 8652Sqm

(₹ crores)

Particulars	Segregation of Expense	Total Expense	Allocation as per Jacob Report - June 2011 (82.32%)		Allocation after considering T3 Revision to 84.07%	
			Aeronautical	Non-Aeronautical	Revised Aeronautical	Revised Non-Aeronautical
Finishes	Common T3	0.05	0.04	0.01	0.04	0.01
Sup-T3 Facilities	Common T3	0.14	0.12	0.03	0.12	0.02
T3 Airport Systems Maintenance	Common T3	34.99	28.80	6.19	29.41	5.57
T3 Civil Maintenance	Common T3	2.25	1.85	0.40	1.89	0.36
T3 Electrical Maintenance	Common T3	14.76	12.15	2.61	12.41	2.35
T3 Mechanical Maintenance	Common T3	10.32	8.49	1.82	8.67	1.64
T3 Terminal Operations	Common T3	45.65	37.58	8.07	38.38	7.27
Total		108.16	89.04	19.12	90.93	17.23

Impact on Aeronautical expense ₹ 1.89 crores (₹90.93 crores - ₹89.04 crores)

As part of our study we compared the above demarcated floor space for Non – Aeronautical activities with the actual area used for such activities at each terminal through the steps given below:

- Actual handed over/taken over (HO/TO) retail area were identified for the 4 financial areas through an external auditor certification
- The common areas like travellators, lifts, common seating areas outside the retail shops were apportioned to Non-Aeronautical as per the 2011 Jacob Report
- Order number 28 of AERA dated 14th November 2011 directed the elimination of 8652sqm from the gross area calculation and the total let-out area to the concessionaires at T3, which were not considered in the above Jacob's report. 8652sqm as per the order number 28 of AERA dated 14th November 2011 was eliminated from our calculation to gauge the total let-out area to the concessionaires.
- The percentages applied are the weighted average of the 4 financial years.

The impact on the Aeronautical expenses for T3 is computed from the revised percentage of 84.07% Detailed workings on the Actual area let out (HOTO) and the demarcated space, terminal wise have been provided in *Exhibit 2*.

On comparing the actual space let out for Non-Aeronautical activities with the demarcated space as per the initial floor space plan, we noted the following:

Table 21 Actual space used for Non – Aeronautical activities as on 31st March 2018 Vis-à-vis the demarcated space as per Initial plan (2011)

Terminal	Total Terminal Space	<u>Demarcated Space</u> for per the initial plan allocated for Aeronautical Activities	<u>Actual Space</u> allocated for Aeronautical Activities	<u>Demarcated Space</u> for per the initial plan allocated for Non- Aeronautical Activities	<u>Actual Space</u> Let out for Non- Aeronautical Activities (based on FY 18)
T1	64,146	53,820	56,591	10,326	7555
T2	54,729	46,089	51,848	8,640	2881
T3	5,41,541	4,55,255	4,70,825	86,286	79,368
Total Space	6,60,416	5,55,164	5,79,264	1,05,252	89,804

As shown in the above table, the actual space let out for Non -Aeronautical activities (89,804 sqm) is lower than the space demarcated for the same (1,05,252 sqm - as per the study done in FY11 based on CAD drawings).

For the purpose of this report, we have used the ratio of space demarcated for Aeronautical & Non-Aeronautical (as detailed in Exhibit 2) for segregating the common expenses within the terminal in to Aeronautical and Non – Aeronautical.

10.4.2.2 OUTSIDE THE TERMINAL

The costs collectors outside the terminal were segregated as detailed in the table below:

Table 22 Segregation of Common Expense Outside the Terminal for Second Control Period

(₹ crores)

Particulars	Total up to FY18	Total for FY19	Total	Segregation Logic by DIAL	Revised Segregation Logic
Support Business Functions of DIAL	450.69	143.03	593.72	Gross Fixed Asset Ratio	Adjusted Gross Fixed Asset Ratio (89:11)
Corporate Cost Allocation	269.34	91.44	360.78	Gross Fixed Asset Ratio	Adjusted Gross Fixed Asset Ratio (89:11)
Senior Management (Group Management)	38.06	6.35	44.41	Gross Fixed Asset Ratio	Adjusted Gross Fixed Asset Ratio (89:11)
Chartering Cost	15.72	11.33	27.05	Gross Fixed Asset Ratio	50:50 Proportion
Transit Houses	32.8	12.16	44.96	Gross Fixed Asset Ratio	50:50 Proportion
Legal	44.12	9.74	53.86	Gross Fixed Asset Ratio	Aeronautical/Non-Aeronautical Case Wise
IT JV	73.89	0	73.89	Gross Fixed Asset Ratio	IT JV Asset Base Proportion
Charity and Donations	7.09	1.07	8.16	Gross Fixed Asset Ratio	100% Disallowed
CSR	23.75	9.97	33.72	Gross Fixed Asset Ratio	None
Total	955.46	285.08	1240.55		

*Refer Table 82 for Adjusted Gross Fixed Assets Ratio

10.4.3 SUPPORT BUSINESS FUNCTIONS AND SENIOR MANAGEMENT OFFICE

The following cost centers related the support business functions and the office of the senior management are segregated into Aeronautical/Non-Aeronautical based on the proportion of Aeronautical/Non-Aeronautical closing Gross Fixed asset base of the company.

However, owing to the revised segregation logics for assets related the New Udaan Bhavan, the office development of BCM and GCM and the common guest houses, there has been a change in the proportion of the Aeronautical/Non-Aeronautical asset base to the total asset base. This change in proportion had been applied on the common costs of the company incurred outside the terminal and this resulted in decrease in Aeronautical costs to the tune of ₹ 2.04 crores (₹ 1.64 crores for period up to FY 18 + ₹ 0.40 crores for FY 19) (Refer table 23 & 24).

Table 23 Segregation of Corporate Cost, Support Business Function and Senior Management Office up to FY18

(₹ crores)

Particulars	Total	Allocation based on Gross Fixed Asset Ratio by DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio (based on this Report)	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
CORPORATE COST	269.34	240.06	29.28	239.50	29.87
Corp. Cost	262.95	234.37	28.58	233.82	29.16
Information Technology Department	6.39	5.69	0.7	5.68	0.71
SENIOR MANAGEMENT GROUP	38.06	33.93	4.14	33.84	4.22
Business Chairman	22.91	20.43	2.48	20.37	2.54
Business Chairman Unbudgeted	1.23	1.1	0.13	1.09	0.14
CCMO	12.74	11.35	1.39	11.33	1.41
GCM Office	0.01	0.01	0	0.01	0
Group Chairman Office	1.17	1.04	0.13	1.04	0.13
SUPPORT BUSINESS FUNCTIONS	450.69	401.74	48.94	400.75	50.52
Allocation Buss Support	0.04	0.03	0	0.04	0
CAG-Common	0.03	0.03	0	0.03	0
Central Stores Department	0.82	0.73	0.09	0.73	0.09
Chief Executive Officer's Office	1.17	1.05	0.13	1.04	0.13
Chief Executive Officer's Office Unbudgeted	0	0	0	-	0
Chief Operating Officer Unbudgeted	4.72	4.21	0.52	4.20	0.52
Chief Operating Officer's Office	1.15	1.02	0.13	1.02	0.13
Commercial Aeronautical	0	0	0	-	0
Corporate Common	0.01	0.01	0	0.01	0
Corporate Communication	14.93	13.31	1.62	13.28	1.66
Corporate Communication Unbudgeted	10.19	9.08	1.11	9.06	1.13
Corporate Relations	5.11	4.55	0.55	4.54	0.57
DIAL Corporate Social Res. Unbudgeted	0	0	0	-	0
DIAL Corporate Social Responsibility	0.61	0.54	0.07	0.54	0.61
ED Cost Centre	0.03	0.03	0	0.03	0
Facilities & Administration	19.36	17.26	2.1	17.21	2.15

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Particulars	Total	Allocation based on Gross Fixed Asset Ratio by DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio (based on this Report)	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
Facilities & Administration Unbudgeted	4.13	3.68	0.45	3.67	0.46
Finance & Accounts	35.41	31.56	3.85	31.49	3.93
Finance & Accounts - Project Finance	50.15	44.73	5.42	44.59	5.56
Finance & Accounts Secretarial	1.37	1.23	0.15	1.22	0.15
Finance & Accounts Unbudgeted	3.84	3.43	0.42	3.41	0.43
Finishes	10.46	9.33	1.14	9.30	1.16
GCCL Corporate Development	0.03	0.03	0	0.03	0
GCCL GBC HR	0	0	0	-	0
GCCL-Learning and Development	0	0	0	-	0
Guest Relations	10.85	9.67	1.18	9.65	1.2
Human Resource (HOD)	0.06	0.05	0.01	0.05	0.01
Information Technology Department	125.04	111.46	13.58	111.19	13.87
Information Technology Dept. Unbudgeted	6.51	5.8	0.71	5.79	0.72
Information Technology Joint Venture	0.08	0.07	0.01	0.07	0.01
Management Assurance Group	1.85	1.65	0.2	1.65	0.21
Management Assurance Group Unbudgeted	0.1	0.09	0.01	0.09	0.01
Marketing Communication	0	0	0	-	0
Not Assigned	2.43	2.16	0.26	2.16	0.27
NUB & Project Office	0.83	0.74	0.09	0.74	0.09
P&E Unbudgeted	44.13	39.34	4.78	39.24	4.89
Procurement	0.99	0.89	0.11	0.88	0.11
Property Development	0	0	0	-	0
Purchase Power	0.02	0.02	0	0.02	0
Security & Vigilance	91.21	81.29	9.92	81.10	10.12
Security & Vigilance Unbudgeted	0	0	0	-	0
Solar Power	0.44	0.39	0.05	0.39	0.05
Strategic Planning for Group	0.34	0.3	0.04	0.30	0.04
Strategic Planning for Group Unbudgeted	0.5	0.45	0.05	0.44	0.06
Sup -Corporate Chartering	0	0	0	-	0
Sup-Corporate It	0.14	0.12	0.01	0.12	0.02

Particulars	Total	Allocation based on Gross Fixed Asset Ratio by DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio (based on this Report)	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
Sup-Terminal	1.23	1.1	0.13	1.09	0.14
Sup-Terminal Standard	0.01	0.01	0	0.01	0
Total Quality Management	0	0	0	-	0
Total Quality Management Unbudgeted	0.36	0.32	0.04	0.32	0.04
TOTAL	758.09	675.73	82.36	674.09	84.62

Decrease in Aeronautical expenses for period up to FY18 is ₹ 1.64 crores (A-C above)

Table 24 Segregation of Corporate Cost, Support Business Function and Senior Management Office for FY19

(₹ crores)

Particulars	Total Expense	Allocation based on Gross Fixed Asset Ratio - DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
CORPORATE COST ALLOCATION	91.44	81.69	9.75	81.53	9.90
SUPPORT BUSINESS FUNCTION	143.03	127.78	15.25	127.54	15.49
Central Stores Department	0.33	0.29	0.03	0.29	0.04
Chief Executive Officer's Office	0.33	0.29	0.03	0.29	0.04
Chief Operating Officer Unbudgeted	10.29	9.19	1.10	9.18	1.11
Chief Operating Officer's Office	0.37	0.33	0.04	0.33	0.04
Corporate Common	0.02	0.01	0.00	0.01	0.00
Corporate Communication	6.33	5.66	0.68	5.65	0.69
Corporate Communication Unbudgeted	2.54	2.27	0.27	2.27	0.28
Corporate Relations	1.62	1.45	0.17	1.44	0.18
DIAL Corporate Social Responsibility	0.11	0.10	0.01	0.10	0.01
ED Cost Centre	0.25	0.22	0.03	0.22	0.03
Facilities & Administration	6.49	5.79	0.69	5.78	0.70
Facilities & Administration Unbudgeted	0.62	0.56	0.07	0.56	0.07
Finance & Accounts	2.31	2.06	0.25	2.06	0.25

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Particulars	Total Expense	Allocation based on Gross Fixed Asset Ratio - DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
Finance & Accounts - Project Finance	6.70	5.99	0.71	5.98	0.73
Finance & Accounts Secretarial	0.32	0.29	0.03	0.29	0.03
Finance & Accounts Unbudgeted	0.15	0.13	0.02	0.13	0.02
Finishes	6.48	5.79	0.69	5.78	0.70
Guest Relations	4.41	3.94	0.47	3.93	0.48
Information Technology Department	40.46	36.15	4.31	36.08	4.38
Information Technology Dept. Unbudgeted	1.05	0.94	0.11	0.94	0.11
Information Technology Joint Venture	0.41	0.36	0.04	0.36	0.04
Management Assurance Group	0.74	0.66	0.08	0.66	0.08
NUB & Project Office	0.13	0.12	0.01	0.12	0.01
P&E Unbudgeted	4.41	3.94	0.47	3.93	0.48
Procurement	0.23	0.21	0.02	0.21	0.03
Security & Vigilance	44.83	40.05	4.78	39.98	4.86
Security & Vigilance Unbudgeted	0.63	0.56	0.07	0.56	0.07
Solar Power	0.15	0.14	0.02	0.14	0.02
Strategic Planning for Group	0.10	0.09	0.01	0.09	0.01
Sup -Corporate Chartering	0.00	0.00	0.00	0.00	0.00
Sup-Airport Sector	0.00	0.00	0.00	0.00	0.00
Total Quality Management Unbudgeted	0.31	0.28	0.03	0.28	0.03
Recoveries	-0.10	-0.09	-0.01	-0.09	-0.01
SENIOR MANAGEMENT - GROUP	6.35	5.68	0.68	5.66	0.69
Business Chairman	4.57	4.08	0.49	4.07	0.49
CCMO	0.51	0.46	0.05	0.45	0.06
Group Chairman Office	1.28	1.14	0.14	1.14	0.14
TOTAL	240.82	215.14	25.67	214.74	26.08

Decrease in Aeronautical expenses for FY19 is ₹ 0.40 crores (A-C above)

10.4.4 CHARTERING COST SEGREGATION

Flying charges of charter used by the BCM and GCM of DIAL have been segregated based on the revenue share of DIAL to GIL. Since the purpose of use of these chartering services cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the chartering services are used by the senior management in a 50:50 proportion for Aeronautical and Non-Aeronautical services. The total impact of the same is decrease in Aeronautical expenses by **₹ 10.61 crores (Refer Table 25)**.

Table 25 Segregation of Chartering Cost Expenses for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	15.72	11.33	27.05
Segregation Logic of DIAL (Average Fixed Asset Ratio)	Aeronautical (A)	14.01	10.12	24.13
	Non-Aeronautical	1.71	1.21	2.92
Segregation on a 50:50 Proportion	Aeronautical (B)	7.86	5.66	13.52
	Non-Aeronautical	7.86	5.66	13.52
Difference in Aeronautical Allocation	Aeronautical (A-B)	6.15	4.46	10.61

10.4.5 TRANSIT HOUSE EXPENSES SEGREGATION

DIAL has also taken on lease 10 guest houses in Delhi for use by the transiting corporate members of the company and for various meetings of the senior management. At these guest houses, DIAL has incurred **₹ 45.68 crores** for Second Control Period on rental and maintenance of the transit house.

Since the purpose of use of these guest houses cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the guest house is used in a 50:50 Proportion for Aeronautical and Non-Aeronautical services. The total impact of the same is decrease in aeronautical expenses by **₹ 17.91 crores**.

Table 26 Segregation of Transit House Expenses for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	33.52	12.16	45.68
Segregation Logic of DIAL (Average Fixed Asset Ratio)	Aeronautical (A)	29.89	10.86	40.75
	Non-Aeronautical	3.63	1.3	4.93
Segregation on a 50:50 Proportion	Aeronautical (B)	16.76	6.08	22.84
	Non-Aeronautical	16.76	6.08	22.84
Difference in Aeronautical Allocation	Aeronautical (A-B)	13.13	4.78	17.91

10.4.6 DISALLOWED EXPENSES

10.4.6.1 CHARITIES AND DONATIONS

As these expenses are not related to passenger or airline services, these costs are segregated as 100% Non-Aeronautical. The impact of the above segregation results in decrease of Aeronautical expenses by ₹ 7.27 crores.

Table 27 Disallowance of Charities and Donations for Second Control Period.

(₹ crores)

		FY15 to FY18	FY19	Total
	Total Cost	7.09	1.07	8.16
Gross Fixed Ratio by DIAL	Aeronautical (A)	6.32	0.95	7.27
	Non-Aeronautical	0.77	0.12	0.89
100% Disallowed Costs	Aeronautical (B)	0	0	0
	Non-Aeronautical	7.09	1.07	8.16
Difference in Aeronautical Allocation	Aeronautical (A-B)	6.32	0.95	7.27

10.4.6.2 CSR EXPENSES

It is noted that the total CSR costs of ₹ 33.72 crores has been incurred by the company as mandated by the Companies Act 2013 and the same is segregated on basis of the Gross Fixed Asset Ratio by DIAL. The Authority may take its own view in this regard.

Table 28 Segregation of CSR Expenses for Second Control Period

(₹ crores)

		FY15 to FY18	FY19	Total
	Total Cost	23.75	9.97	33.72
Gross Fixed Ratio by DIAL	Aeronautical (A)	21.16	8.91	30.07
	Non-Aeronautical	2.59	1.06	3.65

10.4.7 LEGAL COSTS

We reviewed case wise legal costs incurred during the Second Control Period (of ₹ 44crores incurred up to FY18) and noted that out of the above total legal costs, 19% (₹ 8.52 crores) pertained to cases were 100% Non-Aeronautical in nature. The remaining cases were either Aeronautical or Common in nature.

The common legal costs were allocated in the ratio of adjusted gross fixed asset (89:11) and the revised value of Aeronautical and Non-Aeronautical cases were worked out which were in the proportion of 74.84% and 25.16% respectively (refer Table 29 for detailed workings).. The above percentage derived (74.84%: 25.16%) were applied on the total legal costs incurred for FY19 (₹ 9.74 crores). The total impact of the same is decrease in Aeronautical expenses by ₹ 7.71 crores as per Table 30 below

Table 29 Segregation of Value of Legal Cases during Second Control Period

(₹ crores)

Particulars	Total	Proportion	Aeronautical	Non-Aeronautical
Accounting for Provisions	(5.89)	(13.34%)	(5.23)	(0.65)
Value of Aeronautical Cases	12.33	27.96%	12.33	0.00
Value of Common Cases	29.15	66.08%	25.92	3.23
Value of Non-Aeronautical Cases	8.52	19.31%	0.00	8.52
Total	44.12		33.02	11.10
Proportion of Cases			74.84%	25.16%

Table 30 Segregation of Legal Expenses on basis of the Aeronautical/Non-Aeronautical cases for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	44.12	9.74	53.86
Gross Fixed Asset Ratio	Aeronautical (A)	39.32	8.7	48.02
	Non-Aeronautical	4.8	1.04	5.84
Proportion of Aeronautical/Non-Aeronautical Cases	Aeronautical (B)	33.02	7.29	40.31
	Non-Aeronautical	11.1	2.45	13.55
Difference in Aeronautical Allocation	Aeronautical (A-B)	6.3	1.41	7.71

10.4.8 COMMON HR COSTS/MANPOWER COST

On basis of the manpower strength/head count of each department as on March 31st, 2014, an allocation percentage has been derived for allocation of costs in to Aeronautical and Non-Aeronautical (which is in the ratio of 89.79% and 10.21% respectively).

Table 31 Segregation of HR Cost Departments into Aeronautical and Non-Aeronautical

Department/Function	Basis of allocation
Operations	Direct allocation to Aeronautical activities
APDE (Maintenance)	Pro rata to assets
IT	Pro rata to assets
Legal	Pro rata to assets
Finance & Accounts	Pro rata to assets
HR	Based on average deployment of other departments
Quality	Direct allocation to Aeronautical activities
Internal Audit	Pro rata to assets
Corporate Communication.	Pro rata to assets
Corporate Relations	Pro rata to assets
Commercial	50% manpower is assumed for airlines marketing and recoveries.
CEO	Pro rata to assets
Security	Direct allocation to Aeronautical activities
Property	Direct allocation to Non- Aeronautical activities

The above segregation percentage is derived by segregating the manpower count per department into Aeronautical and Non-Aeronautical. However, since the segregation on the basis of the manpower count per department aren't representative to the proportion of the associated cost of the department (Example: the headcount in operations may be higher to the head count of the Senior management office but the costs of the latter would be higher), the segregation logic has been revisited to ensure more accuracy in the segregation of the costs into Aeronautical and Non-Aeronautical.

The segregation was revised to the proportion of Aeronautical Gross Fixed Asset to the Total Gross Fixed Asset. The impact of the above revised segregation in costs is decrease in Aeronautical expenses by **₹ 5.97 crores** (Refer Table 32)

Table 32 Segregation of Manpower Costs of DIAL for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	552.52	186.76	739.28
Proportion of Aeronautical/Non-Aeronautical HR Department	Aeronautical (A)	496.11	167.69	663.8
	Non-Aeronautical	56.41	19.07	75.48
Adjusted Gross Fixed Asset Ratio	Aeronautical (B)	491.30	166.53	657.83
	Non-Aeronautical	61.22	20.21	81.43
Difference in Aeronautical Allocation	Aeronautical (A-B)	4.81	1.16	5.97

Applying the same logic as above to the other HR related costs (including consultancy services) at DIAL resulted in decrease in Aeronautical costs by **₹ 2.51 crores** (Refer Table 33).

Table 33 Segregation of Other HR Costs- Excluding Transit houses and CSR Costs for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	233.8	76.95	310.75
Proportion of Aeronautical/Non-	Aeronautical (A)	209.93	69.09	279.02
	Non-Aeronautical	23.87	7.86	31.73

		Up to FY18	FY19	Total
Aeronautical HR Department				
Adjusted Gross Fixed Asset Ratio	Aeronautical (B)	207.90	68.61	276.51
	Non-Aeronautical	25.90	8.33	34.23
Difference in Aeronautical Allocation	Aeronautical (A-B)	2.03	0.48	2.51

10.4.9 SEGREGATION OF EXPENSES CLAIMED ON PAYMENT BASIS

10.4.9.1 Payment to AAI for VRS

As per clause 6.1.1 of OMDA, the operation support period of 3 years has expired on 02.05.2009. AAI permitted DIAL to pay the retirement compensation in respect of employees who have not opted for absorption in terms of OMDA spread over a period of ten years from 1st May 2009. Accordingly, AAI had raised two invoices towards the total retirement compensation of ₹ 288.83 crores.

Table 34 Payment to AAI for VRS

(₹ crores)

Details	Reference	Amount
AAI supplementary Bill for retirement compensation claim - ONE TIME	Bill Number DIAL/co-ord. cell/VRS/2011-12/01 dated 0804-2011	103.39
Retirement Compensation Claim- Details of MONTHLY CLAIM- DIAL	Letter Number AAI/MC/JVC/14/VRS/2011-12/1267 dated 19 th July 2011	186.58
	Total	289.97
Less:	Amount Contested by DIAL	1.40
Amount capitalized in books of account		288.83
- Capitalised as on the 31.03.2011	₹ 250.88	

- Capitalised during second half year end 30.09.2011	₹ 37.94	
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Table 35 Actual Payment schedule

(₹ crores)

Particular	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	Total
Payment to AAI	80.00	32.72	48.18	19.38	19.07	18.72	18.26	17.61	17.07	16.48	1.36	288.83
Aeronautical Allocation (89.79%)	71.83	29.38	43.26	17.40	17.12	16.81	16.39	15.81	15.32	14.79	1.22	259.34

The invoice value of ₹ 288.83 crores had been recorded as an Intangible asset in FY12 and is amortised on straight- line basis over the extended period of OMDA (i.e. 60 years) in the financial books of DIAL.

However, for regulatory purpose, 89.79% of this invoice value was claimed for the purpose of target revenue computation on actual payment basis. The payment schedule of the invoice and the amount claimed in the MYTP submission of DIAL as is as per the below table.

The above segregation percentage is derived by segregating the manpower count per department into Aeronautical and Non-Aeronautical. However, since the segregation on the basis of the manpower count per department aren't representative to the proportion of the associated cost of the department (Example: the headcount in operations may be higher to the head count of the Senior management office but the costs of the latter would be higher), the segregation logic has been revisited to ensure more accuracy in the segregation of the costs into Aeronautical and Non-Aeronautical. The segregation was revised in the ratio of Adjusted Gross Fixed Asset Ratio (88.92%). The total impact of this revision in the allocation percentage is ₹ 0.72 crores.

Table 36 Segregation of Payments made to AAI for VRS for Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	FY19	Total
Payment to AAI	18.72	18.26	17.61	17.07	16.48	88.14
Aeronautical Allocation (89.79%)	16.81	16.40	15.81	15.33	14.80	79.14
Revised Aeronautical Allocation	16.65	16.24	15.66	15.18	14.70	78.42
Impact on Aeronautical	0.16	0.16	0.15	0.15	0.10	0.72

10.4.9.2 Airport Operator Fee

Under the terms of the OMDA, Schedule 8, DIAL was required to put in place an Airport Operator Agreement to ensure DIAL operates, maintains and manages the Airport in order to meet the stated service standards. The scope of services includes general services, manager services and consultancy services, that are related to the operation and maintenance of Aeronautical and Non-Aeronautical assets. Since the services of the Airport Operator are being used for the airport and not for specific sections or functions of the airport, there is no clear basis available for allocation of costs. Therefore, 3% of the total Aeronautical Revenue paid towards Airport Operator's fee is accounted as Aeronautical expense and 3% of total Non- Aeronautical revenue paid towards Airport Operator's fee is accounted as Non - Aeronautical expense.

Table 37 Segregation of Airport Operator Fee for Second Control Period

(₹ crores)

FY15			FY16			FY17			FY18			FY19		
Total	Aero	Non-Aero	Total	Aero	Non-Aero	Total	Aero	Non-Aero	Total	Aero	Non-Aero	Total	Aero	Non-Aero
119.90	80.15	39.75	128.68	84.56	44.12	151.05	97.97	53.08	171.87	113.33	58.54	114.9	51.16	63.74

10.4.9.3 Property Tax

DIAL is required to pay a property tax to Municipal Corporation of Delhi (MCD) on the entire airport property including land and buildings. This expense has been allocated on the basis of proportion of the asset base. However due to the changes in the segregation logics for the assets held outside the Terminal, the proportion of Aeronautical assets to the total assets changed resulting in an adjustment to the Aeronautical costs pertaining to property tax. The impact of the above change is shown in Table 38.

Table 38 Segregation of Property Tax Expenses for Second Control Period

(₹ crores)

	Overall Expense Ratio		Adjusted Overall Expense Ratio		Impact		
	Up to FY18	FY19	Up to FY18	FY19	Up to FY18	FY19	Total
Aeronautical	60.94	7.09	60.00	6.93	0.94	0.16	1.1
Non-Aeronautical	7.13	0.75	8.07	0.91			
Total	68.07	7.84	68.07	7.84			

10.4.9.4 Finance Charges

The following finance costs being one-time funding expenses and not a recurring cost of debt along with any foreign exchange losses incurred on actual repayment of foreign currency borrowings are claimed as Operation and Maintenance costs.

- Break Costs for IRS and ECB Loans
- Prepayment Charges on Rupee Term Loan
- Bank Charges
- Upfront and Processing Fees
- Foreign Exchange loss on repayment of External Borrowing

Since these costs are incurred for funding the capital investments of the company, the gross fixed ratio towards Aeronautical and Non-Aeronautical was adopted to segregate these costs.

However due to the changes in the segregation logics for the assets held outside the Terminal, the proportion of Aeronautical assets to the total assets changed resulting in an adjustment to the Aeronautical costs pertaining to these finance costs. The impact of the above change is shown Table 39.

Table 39 Segregation of Finance Costs for Second Control Period

(₹ crores)

Particular	Total Cost					Gross Fixed Asset Ratio		Adjusted Gross Fixed Assets Ratio (89:11)		Impact
	FY15	FY16	FY17	FY18	Total	Aero	Non-Aero	Aero	Non-Aero	
Refinance cost	101.05	0	48.97	0	150.02	133.74	16.28	133.40	16.62	0.35
Amortisation cost	27.15	14.17	38.10	8.83	88.25	78.67	9.58	78.47	9.78	0.20
Bank Charges	4.65	2.42	3.91	2.87	13.85	12.35	1.50	12.32	1.53	0.03
Forex Loss*	529.01	13.92	81.91	-0.47	624.37	556.63	67.74			
Total	661.86	30.51	172.89	11.23	876.49	781.39	95.10	224.07	27.93	0.58

* The Authority may take its own view with respect to the above forex loss of ₹ 624.37 crores.

The finance charges for FY15 are comparatively higher than the other FY's of the control period due to the repayment of USD 350 million loan. Since foreign currency fluctuations are claimed for regulatory purposes only on payment basis, on repayment of foreign borrowings in FY15, the claim for ₹ 529.01 crores were made. The working for the same are as per the table given below:

Table 40 Foreign currency Fluctuations as per Financial statements and claimed for Tariff

Computation for FY15

(₹ crores)

Particulars	Payable for FY15 at original borrowing rate	Forex Reinstatement for FY15- Capitalised with asset account (Not considered in RAB)	Repayment at actual INR value during FY15	Exchange difference on actual payment for FY15 (Claimed as Expense for Regulatory Purpose)
ECB- USD 350 Million				

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Particulars	Payable for FY15 at original borrowing rate	Forex Reinstatement for FY15- Capitalised with asset account (Not considered in RAB)	Repayment at actual INR value during FY15	Exchange difference on actual payment for FY15 (Claimed as Expense for Regulatory Purpose)
Opening as on 1st April 2014	1,412.72			
Repayment during period	(1,412.72)		1,912.58	499.86
Forex-restatement-AS11 for FY15		33.60		
Closing as on 31st March 2015	(0.00)			
Interest for the period	76.44		103.88	27.44
ECB- USD 100 Million				
Opening as on 1st April 2014	551.93			
Repayment during period	(11.97)		12.48	0.51
Forex-restatement-AS11 for FY15		23.70		
Closing as on 31st March 2015	539.96			
Interest for the period	28.59		29.81	1.22
Bond - USD 288.75 Million				
Opening as on 1st April 2014	NIL			
Borrowing during year	1,778.77			
Forex-restatement-AS11 for FY15		42.09		
Closing as on 31st March 2015	1,778.77			
Interest for the period	18.67			
Total Forex	-	99.39		529.02

10.5 SUMMARY

- At DIAL, there are 28 major departments/cost centers. These major cost centers are further divided into Sub-Cost Center and the segregation of all operation and maintenance costs into Aeronautical and Non-Aeronautical is based on the nature of the sub cost center.
- Common costs incurred within the Terminal have been segregated in the ratio of space demarcated within the terminals for Aeronautical/ Non-Aeronautical activities as per initial floor space plan, as it was noted that the actual space let out for Non - Aeronautical activities (89,804 sqm) is lower than the space demarcated for the same (1,05,252 sqm).
- For common costs incurred outside the Terminal such as Support Business Function costs, Corporate costs, Chartering, Legal costs etc. a reasonable basis (such as Adjusted Gross Fixed Assets ratio) has been determined for its appropriate segregation in to Aeronautical and Non - Aeronautical categories.

11 TREND ANALYSIS OF INFLATION ADJUSTED EXPENSES

To have a fair Trend Analysis, we have calculated and analysed the expenses after adjusting the nominal amount by general price level changes over time to remove inflationary effect.

Real amount of expenses can be derived by dividing the relevant nominal amount of expenses by the appropriate price index of the current year in relation to the price index of base year. By doing this, we get the amount of expenses net of any changes in the general price level and real increase or decrease in expenses over the period from the base year (base year taken FY15) can be worked out.

Wholesale Price Index (WPI) is used as the price index for this purpose and it is taken from the website of Office of the Economic Adviser - Government of India, Ministry of Commerce & Industry.

Formula for calculating the real amount (inflation adjusted) of expenses is mentioned below:

Formula for calculating inflation adjusted expense:

$$= \frac{\text{Nominal Expense of Current Year}}{\text{WPI of Current Year}} \times \text{WPI of Base Year}$$

The Index for the Years used are as under:

Table 41 Index used for adjustment of Inflation

Particulars	FY-15	FY-16	FY-17	FY-18
Index for the Year	100	109.7	111.6	114.9

The following work steps have been followed for this exercise:

1. The increase in the annual expense for the second control period was compared to the increase in the scale of operations to eliminate its effect in the increase of total spend

2. The per PAX/per ATM costs year on year were then compared and for any increase/decrease beyond 25% of the immediate previous year, a root-cause analysis was performed to assess other factors like improvement plan implementation, increase in wage rates, one-time expenses, etc attributing to the upward trend or downward trend in expenses if any.

11.1 SUMMARY

- For a fair trend analysis, the expenses have been adjusted with any general price level changes over time to remove inflationary effect.

12 REVIEW OF THE ACTUAL EXPENSES INCURRED BY DIAL FOR SECOND CONTROL PERIOD

The actual expenses incurred by DIAL for the second control period, was analyzed at the MIS grouping and Profit and Loss grouping level.

12.1 MANPOWER COST

The total manpower count at DIAL per department is detailed in the below table:

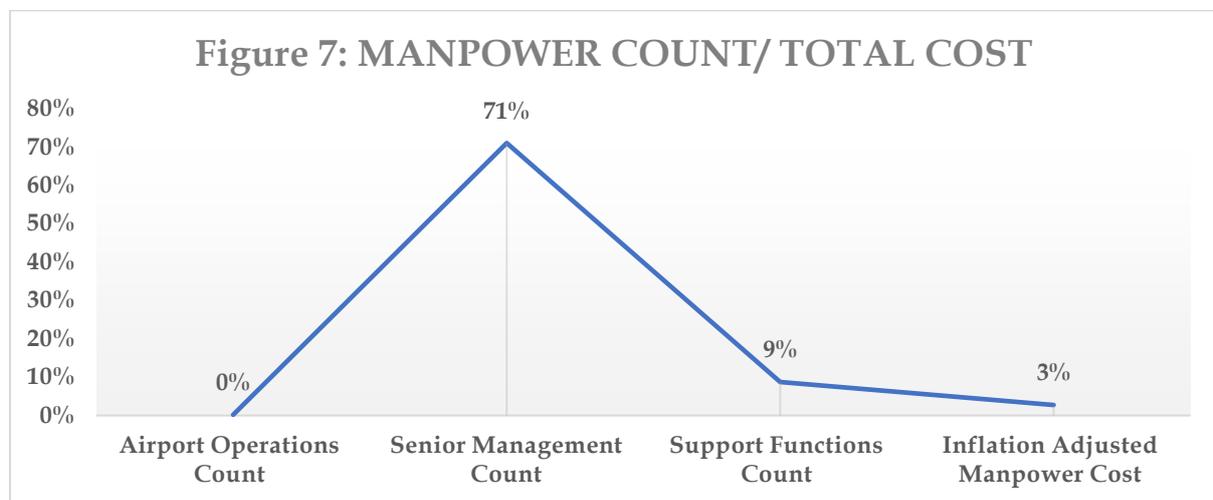
Table 42 Manpower Count for DIAL during Second Control Period

S. No	Department	Functions	FY15	FY16	FY17	FY18
1	Operations (DIAL)	Airport Operations	465	437	471	570
2	BCM/CEO Office	Senior Management	12	12	32	60
3	Commercial (Aeronautical & Non-Aeronautical)	Support Functions	88	82	81	89
4	Corporate Communication	Support Functions	12	11	10	14
5	Corporate Relations	Support Functions	24	21	20	21
6	SPG/Business Integration & Planning	Support Functions	20	20	20	20
7	Ethics & Intelligence & GMRVF	Support Functions	26	27	33	37
8	Finance & Accounts	Support Functions	62	69	73	107
9	Human Resources & FMS	Support Functions	34	35	31	73
10	Guest Relations	Support Functions	25	24	23	21
11	IT	Support Functions	19	12	7	6
12	Legal	Support Functions	15	13	13	21
13	MAG	Support Functions	6	5	7	16
14	Project & Engineering	Airport Operations	27	23	21	18
16	Quality, Service & Delivery	Airport Operations	15	14	11	13
17	Baggage Screeners	Airport Operations	438	422	316	319
18	Security	Airport Operations	85	87	91	106
19	Trolley retriever	Airport Operations	215	204	220	226
Total Manpower (Excluding CPD)			1,588	1,518	1,480	1,737

Table 43 CAGR Growth of Manpower Count and Cost during Second Control Period

Functions	FY15	FY16	FY17	FY18	CAGR
Airport Operations Count	1245	1187	1130	1252	0.19%
Senior Management Count	12	12	32	60	71.00%
Support Functions Count	331	319	318	425	8.69%
Total Manpower Cost (In Cr)	132.12	125.34	130.58	164.48	
Inflation Adjusted Cost *	132.12	114.26	117.01	143.15	2.71%

*Refer Table 44 for Inflation Index



From the above, it can be noted that the manpower costs have increased at CAGR 2.71% and the total manpower count for DIAL has increased at an average CAGR of all departments at 26.62%. This increase can be attributed to increase in the operations of DIAL to ensure highest quality services are provided to its passengers.

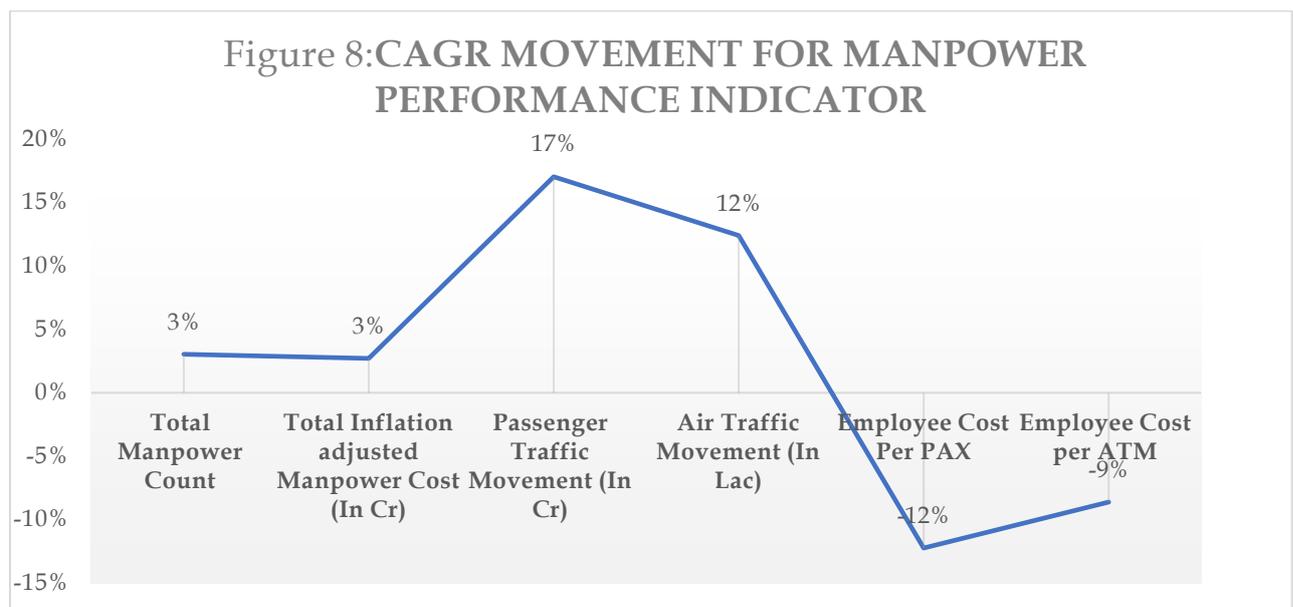
Out of the overall increase of 26.62% of the manpower count, it was seen that the increase in the count of senior management contributed 71% CAGR and the support function staff at 8.69% comparing the increase for the operational staff at only 0.19%

MANPOWER PERFORMANCE INDICATORS:

Table 44 Cost computation per PAX and per ATM for Manpower during Second Control Period

Functions	FY15	FY16	FY17	FY18	CAGR
Total Manpower Count	1588	1518	1480	1737	3.03%
Total Inflation adjusted Manpower Cost (In Cr) *	132.12	114.26	117.01	143.15	2.71%
Passenger Traffic Movement (In Cr)	4.10	4.84	5.77	6.57	17.03%
Air Traffic Movement (In Cr)	0.0323	0.0366	0.0417	0.0459	12.39%
Employee Cost Per PAX	32.24	23.60	20.28	21.79	(12.24%)
Employee Cost per ATM	4084.71	3124.37	2803.78	3117.10	(8.62%)

* Refer Table 40 for Inflation Index



The above table shows that the increase in cost of manpower catering to passengers/ air traffic movements (ATM) is attributable to the corresponding increase in number of PAX and ATM. Further, it is to be noted that the cost of employee Per PAX and Per ATM shows a decreasing trend thereby emphasizing efficiency in the airport operations at DIAL.

12.2 TERMINAL OPERATING COSTS

Table 45 Total Terminal Operating Cost of DIAL during Second Control Period

(₹ crores)

Description of the Operating Expenses	FY15	FY16	FY17	FY18
Utilities Cost	112.32	121.66	106.54	113.20
Total Consumables	7.87	8.85	11.30	12.73
GADL Manpower Outsourcing Expenses	33.34	36.56	40.20	45.11
Housekeeping and Manpower	44.87	49.01	55.58	80.86
Insurance	10.51	9.15	7.16	6.63
R&M - Runways, Taxiway & Internal Roads	7.70	8.85	11.55	10.57
R&M-Building	15.22	23.92	15.46	21.78
R&M-Others	4.50	6.00	9.13	10.45
R&M-IT	21.45	28.95	32.08	35.32
R&M-Plant & Machinery	78.34	83.82	95.20	108.27
Security & Landside Expenses	9.50	9.89	13.61	23.06
IT JV Payment	53.00	18.14	2.75	0.00
Total	396.62	404.80	400.57	467.99

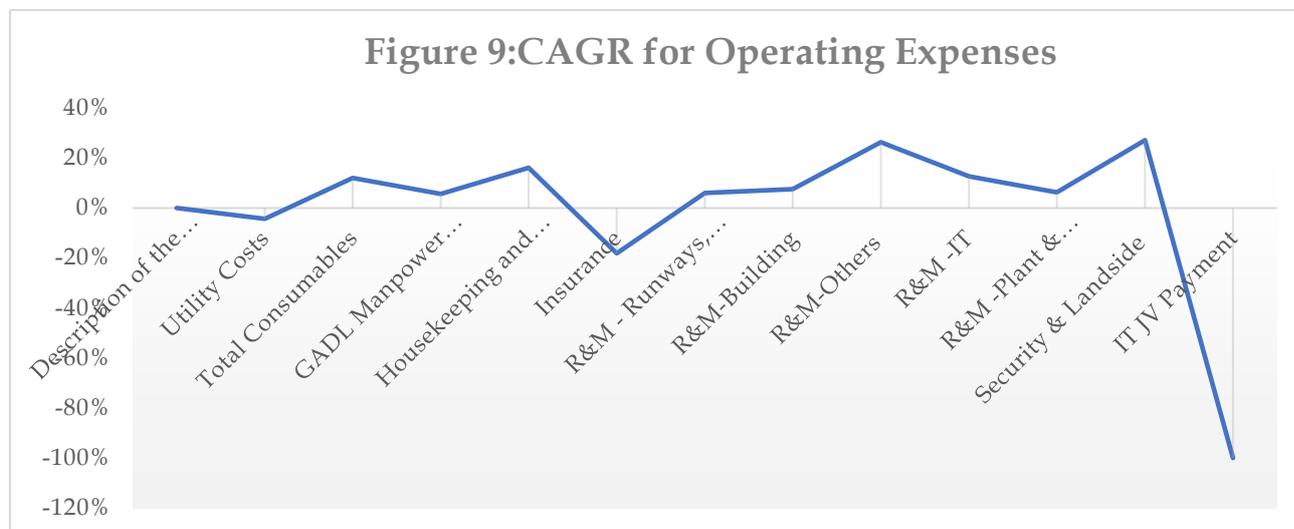
INFLATION ADJUSTED TERMINAL OPERATING COST

Table 46 Total Inflation adjusted Terminal Operating Cost of DIAL for Second Control Period *

(₹ crores)

Description of the Operating Expenses	FY15	FY16	FY17	FY18	CAGR
Utility Costs	112.32	110.90	95.47	98.52	(4.27%)
Total Consumables	7.87	8.06	10.13	11.08	12.07%
GADL Manpower Outsourcing Expenses	33.34	33.33	36.03	39.26	5.60%
Housekeeping and Manpower	44.87	44.68	49.81	70.38	16.19%
Insurance	10.51	8.34	6.41	5.77	(18.09%)
R&M - Runways, Taxiway & Internal Roads	7.70	8.07	10.35	9.20	6.10%
Repairs & Maintenance-Building	15.22	21.81	13.85	18.96	7.59%
Repairs & Maintenance-Others	4.50	5.47	8.19	9.09	26.40%
Repairs & Maintenance-IT	21.45	26.39	28.74	30.74	12.74%
Repairs & Maintenance-Plant & Machinery	78.34	76.41	85.31	94.23	6.35%
Security & Landside Expenses	9.50	9.01	12.19	20.07	27.17%
IT JV Payment	53.00	16.54	2.46	0.00	(100.00%)
Total	398.62	369.00	358.93	407.30	(2%)

*Refer Table 41 for Inflation Index



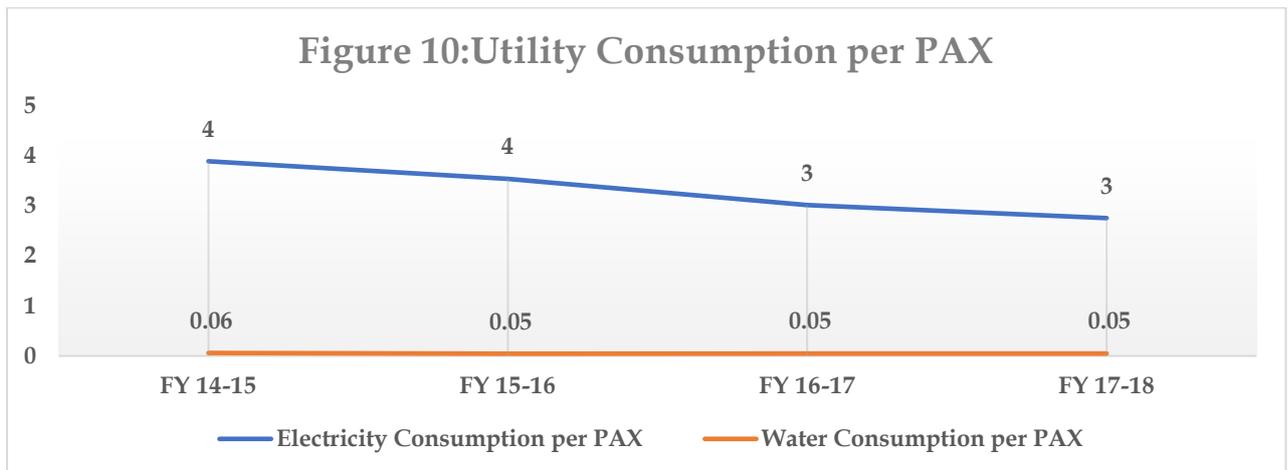
12.3 UTILITY COSTS

Table 47 Water and Electricity Consumption Pattern at DIAL during Second Control Period

Particulars	FY-15	FY-16	FY-17	FY-18
Electricity unit consumption	21,97,95,000	22,40,55,000	22,57,21,000	23,75,26,000
Solar power consumption	31,86,000	48,14,000	95,95,000	1,03,80,000
Recovery from Retailers	7,95,27,864	8,39,82,097	8,94,09,000	8,89,71,020
Total unit consumption	14,34,53,136	14,48,86,903	14,59,07,000	15,89,34,980
Total Inflation Adjusted Cost of Electricity (₹ crores) *	110.30	105.42	93.51	101.84
Water Consumption	17,36,280	13,21,917	15,25,012	18,61,712
Recovery from Retailers	4,62,509	5,53,230	7,01,202	8,56,388
Net Consumption by Passengers	12,73,771	7,68,687	8,23,810	10,05,324
Total Inflation Adjusted Cost of Water (₹ crores) *	2.02	5.48	1.96	(3.31) *

*Refer Table 41 for Inflation Index

*The costs for FY18 net of recoveries included recoveries made for previous financial years including for costs related to Second control period



With a passenger growth percentage of 17.03% during Second Control Period, it is to be noted that the consumption per PAX had dropped by 10.7% for electricity and 20.4% for water.

The reduction in energy consumption despite steady increase in PAX is due to the continuous improvement and various cost saving measures undertaken at DIAL. Few major innovations have been listed below:

Table 48 Utility Cost Saving Initiatives at DIAL

Innovation	Total Investment	Total Savings	Energy Saving	Replication Possibility
Switch off Runway Lights whenever Runway Visual Range (RVR) is greater than 3000m with the coordination of the Stakeholders	-	₹ .15 crores Per Year	20,000 Units	100%
Head of Pump was reduced by trimming the impeller by 2.5mm and this has reduced the power consumption of condenser pump	₹ .031 crores	₹ .18 crores Per Year	20,000 Units	100%
T3 has PTB and two pier Gate allocation is done by AOCC through automated software. However, all other services like lighting, HVAC, VHT, PBB, etc. are controller by BMS. Integration of the two software has ensured based on the gate allocation; the necessary	-	₹ 3.6 crores Per Year	40,00,000 Units	100%

Innovation	Total Investment	Total Savings	Energy Saving	Replication Possibility
services are switched on and remaining areas remains switched off				
Energy Saving through DIAL Lighting Control and Monitoring System	-		174,960 Units Per Year	
Other Various Energy Efficiency measures like: <ul style="list-style-type: none"> - Energy efficient Chillers - VFD's in secondary pump and CT Fans - Tempered Cooling Systems - Low U- Value Building Envelope and Roof - VVFD and Radar Sensor based Travellator and Escalator 				
Water Saving Initiatives Include: <ul style="list-style-type: none"> - Water Efficient Plumbing, Irrigation and Air-Conditioning System - Rainwater Harvesting and Reuse of treated Water - Customized Urinal Sensors for washroom to avoid frequent failures - Reduction in water consumption and process time in backwash water process 				

12.4 COST OF TOTAL CONSUMABLES

The total consumable cost for Second First Control Periods ₹ 40.75 crores and it comprises of the following components:

Table 49 Total Consumables at DIAL during Second Control Period

(₹ crores)

Consumables	FY15	FY16	FY17	FY18	Total
Fuel - Diesel	2.40	1.74	1.56	1.70	7.40
House Keeping - Material	3.33	5.37	3.86	4.21	16.77
Other Consumables	2.14	1.74	5.88	6.82	16.57
Total Cost	7.87	8.85	11.30	12.73	40.75
Inflation Adjusted Cost*	7.87	8.06	10.13	11.08	37.14

*Refer Table 41 for Inflation Index

The consumables are majorly used at the:

- Main and Secondary power substations at T1 and T3
- Air ground Lighting and other electrical installations at the airside
- Water and sewage Treatment Plants
- HVAC (Chillers, Cooling towers, Pumps, fans, softeners, etc.
- Fire Detection and protection system (Fire Pumps, detectors, Hydrant boxes, etc.)
- Hydro Pneumatic Pumps, bore wells, Sump Pumps and Panels, RO, etc.

Fuel is majorly consumed by the DG sets and vehicles operated daily by the fire department such as Crash Fire Tenders (CFTs), Sweeping machines, Runway Marking Machines, Guest Relations and Other miscellaneous.

TOTAL CONSUMABLES PERFORMANCE INDICATOR

Marking the increase in cost of these consumables at a CAGR of 17.38% to the increase in operations marked by increase in PAX by 17.03% and ATM by 12.39% during the control period, it is noted that the costs have been stable to the increase in operations signifying efficient control over consumption.

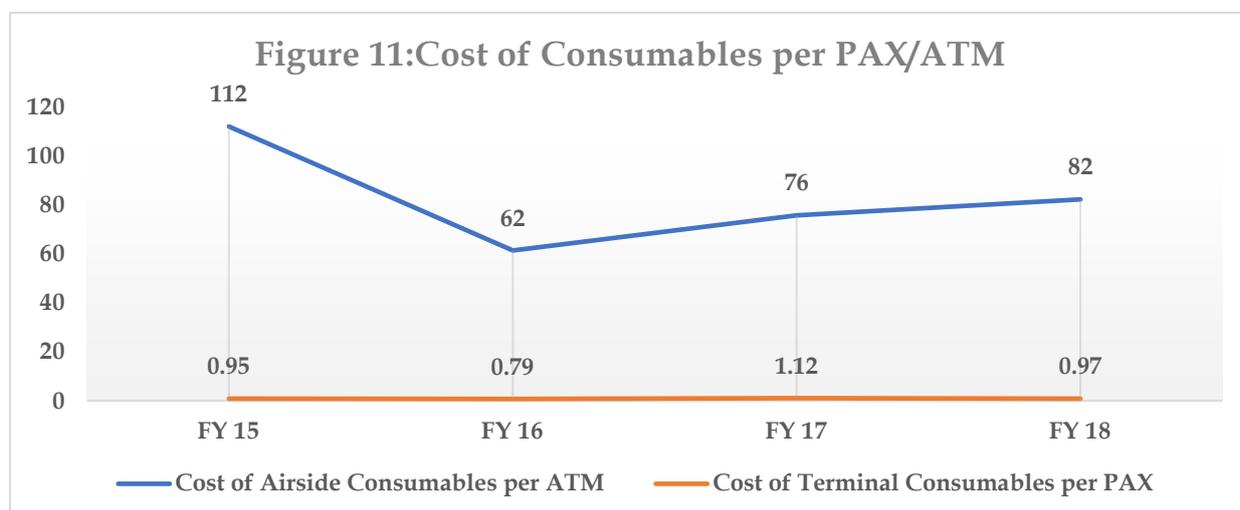
Table 50 Cost Computation per PAX and per ATM for the total Consumables at DIAL during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Inflation adjusted Airside Cost (In Cr) *	3.63	2.25	3.17	3.79
Inflation adjusted Terminal Cost (In Cr) *	3.91	3.83	6.48	6.40
Total Passenger Traffic (In Cr)	4.10	4.84	5.77	6.57
Total Air Traffic (In Cr)	0.03	0.04	0.04	0.05
Cost of Airside Consumables per ATM	112.23	61.52	75.90	82.45
Cost of Terminal Consumables per PAX	0.95	0.79	1.12	0.97

*Refer Table 41 for Inflation Index

The trend line of costs per unit increase in operations also seemed stable for the control period



12.4.1 GADL MANPOWER OUTSOURCING COST

GMR Airport Developer Limited (GADL) has outsourced technical skills to DIAL for execution of various services like:

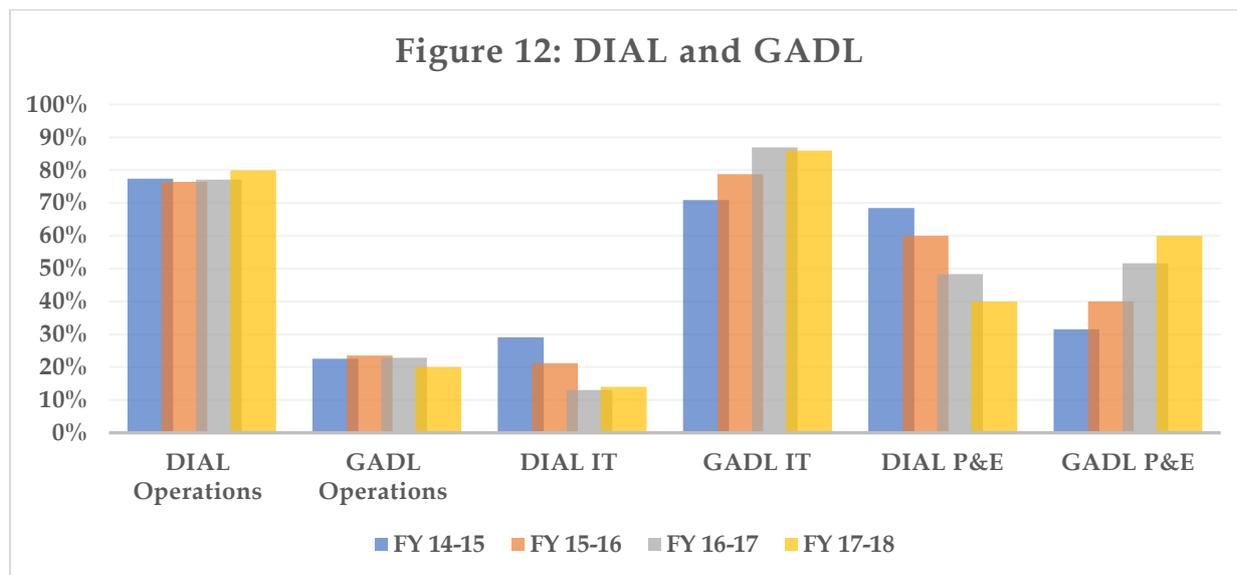
- Operations and Maintenance of all mechanical and electrical facilities required for terminal operations.

- Operation and maintenance of various other airport facilities like Baggage handling, PIDS, STP/WTP, etc. as listed in annexure A of the service level agreement with GADL.

On comparing the proportion of the services outsourced by DIAL vis-à-vis the operations undertaken by DIAL, basis the below table and chart, it was observed that the proportion of the GADL services for the P&E department increased in FY18 due to initiation of Phase 3 project proposed as per the Master Plan 2016.

Table 51 GADL Vis-à-vis DIAL Manpower Count during Second Control Period

Department	FY15	FY16	FY17	FY18
DIAL Operations	465	437	471	570
GADL Operations	135	135	140	143
Total Manpower for Airport Operations	600	572	611	713
DIAL IT	19	12	7	6
GADL IT	46	45	47	37
Total Manpower for IT Operations	65	57	54	43
DIAL P&E	27	23	21	18
GADL P&E	12	15	22	27
Total Manpower for P&E Operations	39	38	43	45



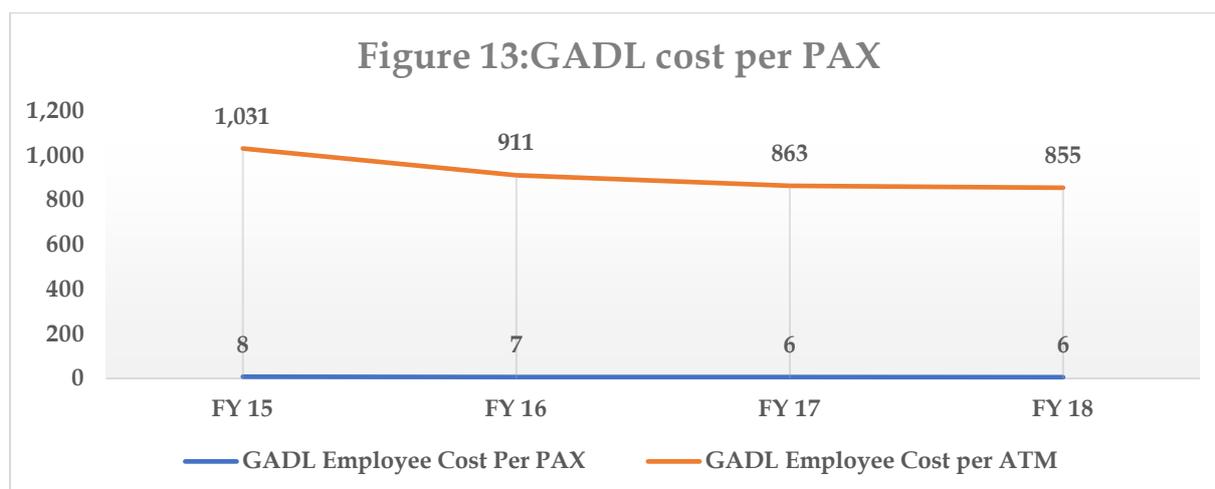
PERFORMANCE INDICATOR:

Table 52 GADL Cost Computation per PAX and per ATM during Second Control Period

Functions	FY15	FY16	FY17	FY18
Total GADL Manpower Count	202	203	220	217
Total Inflation Adjusted GADL Manpower Cost (In Cr) *	33.34	33.33	36.03	39.26
Passenger Traffic Movement (In Cr)	4.10	4.84	5.77	6.57
Air Traffic Movement (In Cr)	0.0323	0.0366	0.0417	0.0459
GADL Employee Cost Per PAX	8.13	6.88	6.24	5.98
GADL Employee Cost per ATM	1,030.77	911.46	863.27	854.87

*Refer Table 41 for Inflation Index

The below chart denotes that the cost of outsourcing per PAX/ATM has remained stable despite steady increase in operations.



12.4.2 HOUSEKEEPING AND MANPOWER COSTS

The operations of the airport require deployment of housekeeping services at three different locations, a) Passenger Terminal Building b) Airside and c) Other Landside/Cityside Buildings. For Second Control Period, the company had incurred ₹ 228.75 crores towards housekeeping services availed from major vendors at various locations are as below:

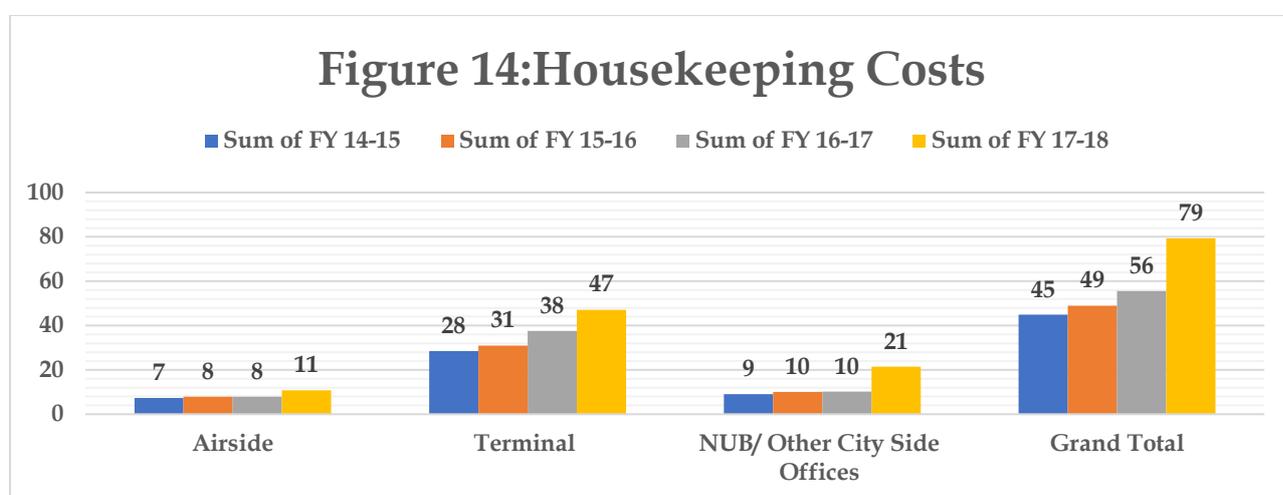
Table 53 Major Housekeeping Services engaged at DIAL

Location	Description of The Activities
Airside Operations	Bird Chasers, Supervisor and Wild-Life Control Services at T3
	Airside Pavement Cleaning for Taxiways Etc.
Terminal Operations	Comprehensive Housekeeping Services at terminals including carpet cleaning, pest control, washroom cleaning, canopy cleaning, etc.
Facilities & Administration	Environmental Services and Office Support Staff for NUB
	House Keeping Services Land/ City Side
	Support Staff for Senior Management Guest House

Table 54 Total Housekeeping costs incurred at DIAL during Second Control Period

(₹ crores)

Location	FY15	FY16	FY17	FY18	CAGR
Airside	7.33	7.89	7.85	10.76	13.64%
Terminal	28.48	31.00	37.55	47.13	18.28%
NUB/ Other City Side Offices	9.05	10.13	10.15	21.44	33.30%
Total	44.87	49.01	55.54	79.34	20.93%



It is to be noted from the above table, the costs in general were higher for FY18 as compared to the previous financial year. The key contributor to this increase in housekeeping cost for FY18, was account of revision of contracts to inbuild increase in minimum wages enforced by Ministry of Labour and Employment. The minimum wages for cleaning services was ₹ 374 per day till 31st October 2016 which was increased to ₹ 523 effective 1st January 2017.

Further, in addition to the increase in wages, additional cleaning and housekeeping services were deployed at the Airside, terminal and the administrative offices effective FY18. The details for the same are given below

At Airside

- Due to increase in operations, additional manpower was deployed towards airside pavement cleaning, bird chaser, security alerts and other airside operations

Terminal:

- ₹ 2.89 crores incurred for One-time expense of the T2 Cleaning.
- ₹ 4.25 crores incurred towards recurring expenditure effective FY18 on account of housekeeping contract of the new operational T2.

Outside the Terminal:

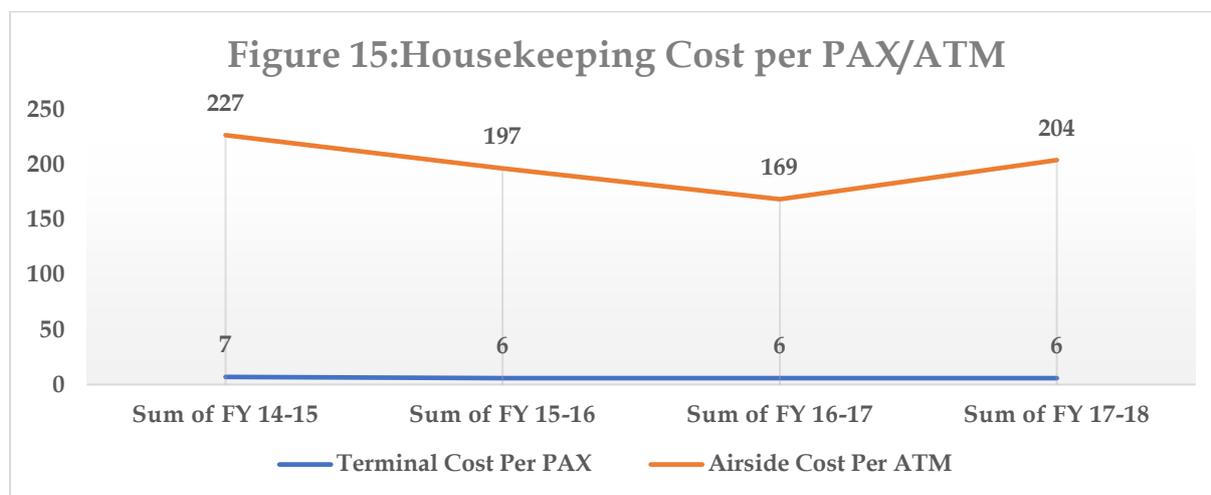
- ₹ 3.6 crores additionally incurred effective FY18 for additional manpower deployed at administrative offices and the new transit house taken on lease in FY18.

PERFORMANCE INDICATOR:

Table 55 Cost Computation per PAX and per ATM during Second Control Period

Location	FY15	FY16	FY17	FY18
Inflation adjusted Airside Costs (In Cr)	7.33	7.19	7.03	9.37
Inflation adjusted Terminal Cost (In Cr)	28.48	28.26	33.64	38.50*
Inflation adjusted NUB/ Other City Side Offices (In Cr)	9.05	9.23	9.09	18.66
Inflation adjusted Total Cost	44.87	44.68	49.77	66.53
Passenger Traffic Movement (In Cr)	4.10	4.84	5.77	6.57
Air Traffic Movement (In Cr)	0.0323	0.0366	0.0417	0.0459
Terminal Cost Per PAX	6.95	5.84	5.83	5.86
Airside Cost Per ATM	226.75	196.60	168.51	203.99

* The terminal cost for FY17-18 has been adjusted for the one-time cleaning cost of ₹2.89crores for T2 to arrive at the base line cost.



12.4.3 INSURANCE COST

Table 56 Total Insurance Cost at DIAL during Second Control Period

(₹ crores)

Type of Policy	FY15	FY16	FY17	FY18	CAGR
Airport Operator (vendor) Liability policy	1.82	1.85	1.57	1.34	(9.68%)
Assets - Vehicles Policy	2.70	0.87	0.15	1.12	(25.34%)
Industrial All Risk Policy	5.59	6.09	5.10	3.87	(11.54%)
Other Insurance Policies	0.05	0.06	0.09	0.01	(35.23%)
Special Contingency Insurance	0.34	0.28	0.25	0.28	(5.94%)
Total	10.51	9.15	7.16	6.63	(14.21%)

DIAL in accordance with the OMDA has undertaken three major policies. These are Industrial All Risk, Airport Operator Liability Policy and Terrorism Policy. From the summary of costs above, it can be noted that the Insurance cost to the company has decreased at a CAGR of 14.21%. The decrease is due to:

a) In FY15 the premium was higher due to claim lodged in May,2014 on account of T1D roof damage caused by unprecedented winds under Industrial all risk policy and FY16 due to higher risk perception considered by Insurance companies in domestic market and reinsurer in International market.

b) The insurance premium got reduced in coming years on account of no claim history since FY14 and better negotiation of premium by DIAL in both domestic and international reinsurance market.

c) The rates got further reduced in FY17 and FY18 due to the risk mitigation process undertaken by DIAL and same has been well accepted by the Insurance companies during several risk assessment of DIAL done through Independent surveyors. Also, no claim history post FY14 gave an edge to DIAL to negotiate the best premium.

12.4.4 REPAIRS AND MAINTENANCE COSTS

12.4.4.1 INFORMATION TECHNOLOGY

Table 57 Total Repair and Maintenance cost for Information Technology at DIAL during Second Control Period

(₹ crores)

IT Infrastructure	FY15	FY16	FY17	FY18
Hardware Repair and Maintenance	6.53	12.74	16.79	19.67
Licence Renewal Fee	3.31	3.36	3.77	3.54
Software Repair and Maintenance	11.61	12.84	11.52	12.11
Actual Cost - R&M- IT	21.45	28.95	32.08	35.32

The Repair and Maintenance of the IT Systems include:

- AMC for UFIS Integration
- CMC services for Audio-Visual and associated works
- Helpdesk Monitoring System
- AMC for SAP Hardware

- FIDS AMC
- PIDS AMC
- Renewal of AMC/CMC of TMRS and Main switching office
- CMC Of Alcatel Telephony at NUB, Project Office and Guest House and warranty services for Telephony.
- License Renewal includes enterprise IT license such as Oracle, Qlik-view, etc.

PERFORMANCE INDICATOR

Table 58 Baseline Cost Computation per PAX during Second Control Period

Description of the Operating Expenses	FY14	FY15	FY16	FY17	FY18
Actual Cost per PAX (A)		5.23	5.98	5.56	5.38
Inflation adjusted Hardware Repair and Maintenance (In Cr) *		6.53	11.62	15.04	17.12
Inflation adjusted Software Repair and Maintenance and Licence Renewal Fee (In Cr) *		14.92	14.77	13.70	13.62
Total Inflation Adjusted Cost*		21.45	29.24	31.65	-
Total PAX (In Cr)		4.10	4.84	5.77	6.57
Inflation Adjusted Cost per PAX – Hardware*		1.59	2.40	2.61	2.61
Inflation Adjusted Cost per PAX – Software*		3.64	3.05	2.37	2.07
Total cost per PAX		5.23	5.45	4.98	4.68
Closing Net Block Computing Equipment (In Cr)	30.28	38.90	44.28	45.26	50.31
Closing Net Block Capitalised Software (In Cr)	30.80	36.55	44.28	45.26	50.31
% Increase - Computing Equipment		0.22	0.12	0.02	0.10
% Increase - Capitalised Software		0.16	0.17	0.02	0.10
Hardware Repair and Maintenance cost per PAX adjusted to growth rate of net value of Computing Equipment		1.59	1.79	1.83	2.01

Description of the Operating Expenses	FY14	FY15	FY16	FY17	FY18
Software Repair and Maintenance and Licence Fee cost per PAX adjusted to growth rate of net value of Capitalised Software		3.64	4.21	4.95	5.06
Total cost per PAX as adjusted by increment to the Gross Block (B)		5.23	6.00	6.78	7.07

**Refer Table 40 for Inflation Index*

After adjustment for inflation to the total costs incurred on the repair and maintenance of the IT assets, the normalized cost per PAX were computed to eliminate the effect of increase in costs due to increase in operations.

Since the cost of Repair and Maintenance is affected with additions to assets with the increase in operations and ageing of assets, the growth percentage in the net block of the assets being the best indicator of the above two factors were applied to the normalized cost per PAX. The increase in cost after adjustment for the increase in net block would therefore indicate the optimum cost levels.

When comparing the optimum cost level (Indicated at B in the above table) to the actual cost per PAX (Indicated at A in the above table), it was noted that the actual cost level of the company was lower than the optimum level denoting efficiency in management of costs.

12.4.4.2 BUILDINGS

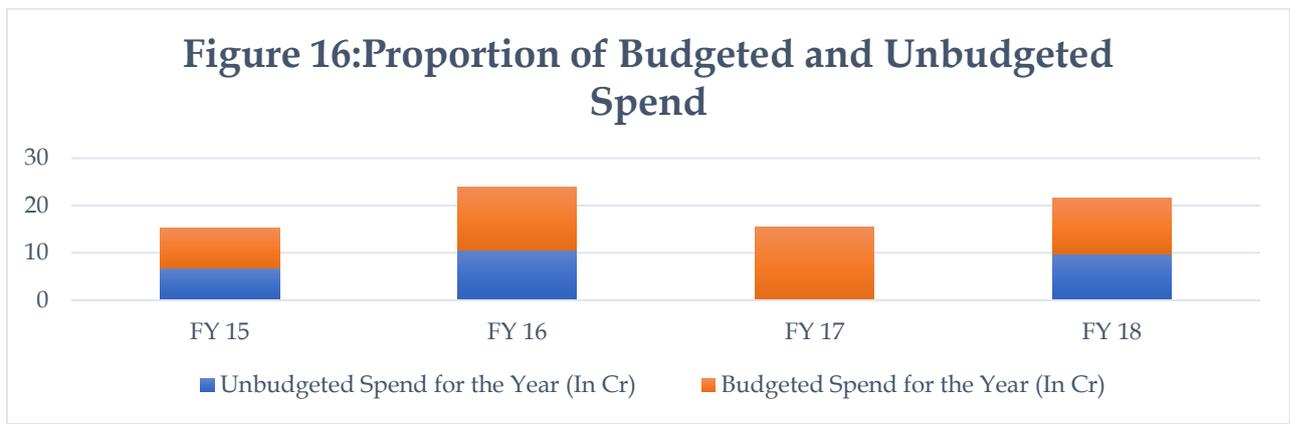
For Second Control Period, the total expenditure by DIAL on the repairs and maintenance of various buildings at the airside and landside was ₹ 76 crores.

The above spend includes a one-time expenditure of total sum of ₹ 27.5 crores not included in the estimated annual budgeted of the company, incurred by DIAL for various services across the control period. The details for the same are as given below:

Table 59 Total Repair and Maintenance cost for Buildings at DIAL during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18
Unbudgeted Spend for the Year	6.77	10.72	0.17	9.85
Budgeted Spend for the Year	8.42	13.21	15.29	11.82
Total Spend for the Year	15.20	23.92	15.46	21.67
Proportion of Unbudgeted Spend	44.57%	44.79%	1.07%	45.45%



Details of the Unbudgeted Expenses incurred during Second Control Period for the maintenance of Buildings

Table 60 Details for the Unbudgeted Repairs and Maintenance for Buildings during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18
Repair of road network around NUB and various adjoining roads		0.06		
Construction of connection road from New Custom House to Central Spine Road	-	0.00	-	-
Civil and Finishing items for Landside Buildings and Infrastructure	-	-	0.00	-

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Description	FY15	FY16	FY17	FY18
Supply of 4 nos. prefab Porta Cabins for security team	-	0.00	-	-
Repair of road network around NUB and various adjoining roads	-	1.87	-	-
Creation of Alternate Seating Facility at ASB and T-3	-	0.00	-	-
Work Order for Civil, Building and Road rehabilitation works	-	-	-	9.74
Refurbishment of Senior Management Guest House at Gurgaon	-	-	0.07	0.06
Construction of connection road from New Custom House to Central Spine Road	0.08	0.09	-	-
Civil and Finishing items for Landside Buildings and Infrastructure	-	-	0.09	0.05
Controlled dismantling of the connection bridge structure between NUB and Project office near Terminal-3,	0.14	-	-	-
Supply of 4 nos. prefab Porta Cabins for security team	0.03	(0.00)	-	-
The ARC contract was awarded for various services required to be executed on a regular basis at DIAL. The requirements are based on security requirements, visits of VVIPs, fire threat / security threat etc. The works also involve various grass/bush/jungle cutting and removal of the waste material and disposal 20 km away from the site at authorized dumping grounds. Cleaning of open drains, traffic safety related works, temporary barricading, earthwork including other items as necessary etc,	6.52	8.70	-	-

Description	FY15	FY16	FY17	FY18
The scope include both airside as well as landside.				
Total	6.77	10.72	0.17	9.85

PERFORMANCE INDICATOR

Table 61 Baseline Cost Computation for Repair and Maintenance cost of Buildings during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18
Total Cost on R&M - Building	15.20	23.92	15.46	21.66
Less: Unbudgeted Expenses	6.77	10.72	0.17	9.85
Total Recurring Cost (A)	8.42	13.21	15.29	11.82
WPI Index	100	109.7	111.6	114.9
Base Year Assignment	0	1	2	3
Total Inflation Adjusted Recurring Cost*	8.42	12.04	13.70	10.28
Closing Net Block of Assets	855.08	1,042.17	1,225.56	1,407.00
% Increase		18%	15%	13%
Increase in cost adjusted to Increase in Net Block of Assets (B)	8.42	9.94	11.42	12.90

*Refer Table 41 for Inflation Index

As the repair and maintenance cost are not variable to the operations of the airport, the baseline costs aren't analyzed on a per PAX level.

Since the cost of Repair and Maintenance is affected with additions to assets and ageing of assets, the growth percentage in the net block of the assets being the best indicator of the above two factors were applied to the total normalized cost. The increase in cost after adjusting for the increase in net block would therefore indicate the optimum cost levels.

When comparing the optimum cost level (As indicated in B of the above table) to the actual cost (As indicated to A), it was noted that the actual cost level of the company was lower than the optimum level denoting efficiency in managing costs for FY18.

12.4.4.3 PLANT AND MACHINERY

DIAL incurred ₹365 crores across Second Control Period for the repair and maintenance of its plant and machinery operated at various locations within the airport.

Of the overall costs, the total costs for T2 were noted to have increased three times in FY18 compared to the other years, as the terminal started its operations effective October 2017. For the other locations the growth rate remained stable across the financial years.

Table 62 Total Repair and Maintenance cost for Plant and Machinery at DIAL during Second Control Period

(₹ crores)

Location	FY15	FY16	FY17	FY18
Airside	25.82	29.07	29.87	35.76
T1	4.21	4.62	5.88	7.09
T2	2.27	2.44	2.41	6.76
T3	42.14	45.01	54.13	56.22
NUB/Other Cityside P&M	1.92	2.08	2.84	2.43
Total	76.36	83.21	95.13	108.25

Table 63 Breakup of Major Repair and Maintenance Services engaged at DIAL

Description
Operation & Maintenance Contract for Main Receiving Sub-Station (MRSS)
Annual Maintenance Services of Visual Docking Guidance System
Comprehensive Maintenance Contract for Baggage Handling System
Comprehensive Maintenance Contract for Passenger Boarding Bridges
Operation & Maintenance Contract for Public Health Equipment (PHE)
Operation & Maintenance Contract for Heating, Ventilation and Air Conditioning units (HVAC)
Comprehensive Maintenance Contract of Threat Containment Vehicle (TCV) and Suspect Luggage Containment Vehicle (SLCV)
Comprehensive Maintenance Contract for Computer Tomography Xray (CTX) Machine

Description
Comprehensive Maintenance Contract of Hold Baggage Screening and Passenger Screening Equipment
Comprehensive Maintenance Contract for Vertical Horizontal Travellator (VHT)
Comprehensive Maintenance Contract for Air Ground Lighting

The performance of these critical vendors for the CMC and AMC for the various equipment operated at the airport are measured through the below parameter

The availability of the equipment required to provide the services (X) Percentage of the Running hours excluding breakdown*

*The Percentage of running hours is derived as:

$(\text{Hours} - \text{Time for Preventive} - \text{Time for Breakdown}) / (\text{Hours} - \text{Time for Preventive})$.

Through a daily monitoring mechanism, above computation is based the:

- Availability of the required equipment, tools, spares and consumables for the operations
- Monthly Running Time
- Complete and Timely Preventive Maintenance is done as per the plan
- Incidents reported, Breakdown time and response time.

PERFORMANCE INDICATOR

Table 64 Baseline Cost Computation Per PAX for R&M Expenses on Plant and Machinery during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Airside Costs (In Cr)	11.09	12.88	12.74	17.44
Total Terminal Cost/Landside Cost (In Cr)	65.27	65.49	67.59	68.30
Total Cost (In Cr)	76.36	79.77	81.33	86.81
Total Air Traffic Movement (In Cr)	0.03	0.03	0.04	0.04

Particulars	FY15	FY16	FY17	FY18
Total Passenger Traffic (In Cr)	4.10	4.84	5.77	6.57
Airside Cost per ATM	342.80	352.21	305.28	379.84
Landside Cost per PAX	15.93	13.52	11.71	10.40
Total Cost per PAX (A)	358.72	365.74	317.00	390.24
WPI Index	100	109.7	111.6	114.9
Inflation adjusted Airside Cost per ATM*	342.80	321.07	273.55	330.59
Inflation adjusted Landside Cost per PAX*	15.93	12.33	10.50	9.05
Closing Net Block of Asset (In Cr)	700.99	936.77	1,169.67	1,403.44
Reclassification from the Gross block	(18.66)	(18.66)	(0.72)	(0.72)
Net Closing Block of Assets	682.33	918.12	1,168.95	1,402.72
% Increase		25.68%	21.46%	16.67%
Adjusted Airside Cost per PAX to aged assets	342.80	430.84	523.29	610.49
Adjusted Terminal Cost per PAX to aged assets	15.93	20.02	24.31	28.36
Total Adjusted Cost per PAX (B)	358.72	450.85	547.60	638.85

*Refer Table 40 for Inflation Index

The normalized cost per PAX for Landside assets and normalized cost per ATM for Airside assets were identified to eliminate the effect of increase in operations.

Since the cost of Repair and Maintenance is affected with additions to assets and ageing of assets, the growth percentage in the net block of the assets being the best indicator of the above two factors were applied to the total normalized cost. The increase in cost after adjusting for the increase in net block would therefore indicate the optimum cost levels.

When comparing the optimum cost level (As indicated in B of the above table) to the actual cost (As indicated to A), it was noted that the actual cost level of the company was lower than the optimum level denoting efficiency in managing costs.

12.4.5 LANDSCAPING COSTS

Table 65 Total Landscaping Costs at DIAL during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Total Cost for FY	3.25	4.01	6.34	7.62

The increase in total costs for FY18 is attributed majorly to increase in the minimum wages and increase in area of landscaping due to commissioning of T2 and the Centre Spine Road. Further the aging of existing landscape and infrastructure facility like green houses, irrigation system etc. also contributed towards increase in landscape cost.

Table 66 Major Landscaping Service Contracts engaged at DIAL

Description
Indoor Plant Maintenance within the terminals including the Security held areas
Indoor Plant Maintenance at the Administrative Office
External Landscape Maintenance at the Approach Roads to the Terminals, administrative office and the associated areas

12.4.6 SECURITY EXPENSES

The number of manpower deployed around the airport for ensuring safety at various locations are given as below:

Table 67 Count of Manpower Services deployed by DIAL- Location and Contractor Wise

SL. No	Duty Post	Total	
		RAXA Manpower	Peregrine Manpower
1	T3 Landside	102	95
2	T1 Landside	78	15
3	CARGO Terminal	55	0
4	CDU	6	0
5	Vital Installations	70	0
6	New Udaan Bhawan	38	0
7	T2 Landside	69	0
	Total	418	110
	Leave Reserve/Weekly off (24% for RAXA and 16% for Peregrine)	99	18
8	Officers	13	0
9	EPGs (5) & Gunmen (4)	9	0

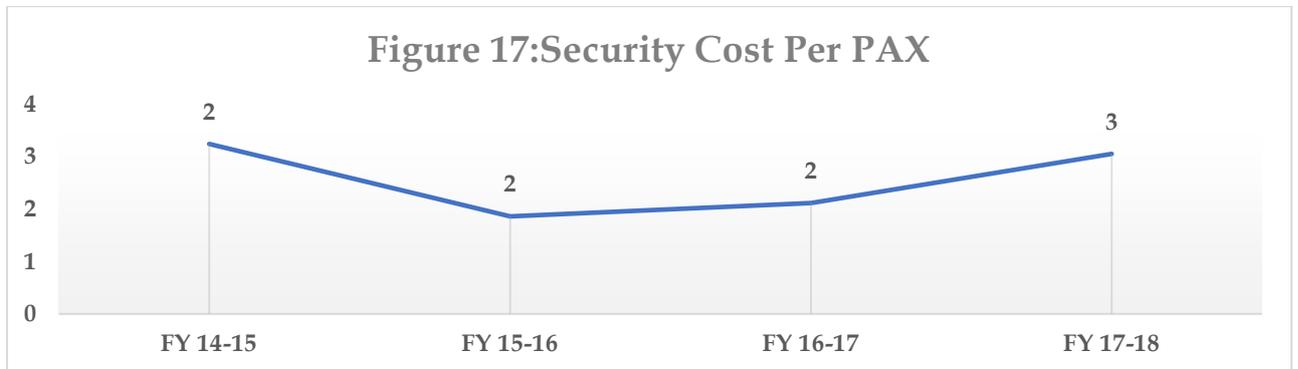
SL. No	Duty Post	Total	
		RAXA Manpower	Peregrine Manpower
10	New Duty Points 43+ (24% of 43)	53	0
11	Guest Houses	21	0
12	BDDS	18	0
	Total	631	128

Table 68 Total Security and Vigilance Expenses at DIAL

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Total Manpower Services	9.50	9.89	13.61	23.06
WPI	100.00	109.7	111.6	114.9
Adjusted Cost of Manpower	9.50	9.01	12.19	20.07
Total Passenger Traffic	4.10	4.84	5.77	6.57
Inflation Adjusted Cost Per PAX*	2.32	1.86	2.11	3.06

*Refer Table 40 for Inflation Index



The increase in the security cost per PAX is attributed to the increase in minimum wages from ₹ 414 to ₹ 637 per day and the operation of T2 which necessitated additional manpower in FY18 (Peregrine Manpower).

12.5 SUMMARY

Trend analysis of following Terminal Operating costs showed:

- Utility costs: With a passenger growth of 17.03% during Second Control Period, the consumption per PAX had dropped by 10.7% for electricity and 20.4% for water, due to continuous improvement and various cost saving measures undertaken at DIAL.
- Consumables: Cost of Airside consumables per ATM and Terminal Consumable per Pax showed a stable trend for the Second Control Period
- GADL Manpower outsourcing costs: The cost of outsourcing per PAX/ATM has remained stable despite steady increase in operations.
- Housekeeping costs: These costs were higher for FY18 as compared to previous financial years, due to revision of contracts to inbuild increase in minimum wages enforced by Ministry of Labour and Employment.
- Insurance costs: This has decreased at a CAGR of 14.21%, due to reduced premium on account of no claim history, risk mitigation measures coupled with better negotiation of premium by DIAL in domestic and international market.
- Repairs and Maintenance costs: The actual costs of the company were lower than the optimum level denoting efficiency in managing costs.
- Landscaping costs: Costs for FY18 was higher than the other years, majorly due to increase in the minimum wages and increase in area of landscaping due to commissioning of T2 and the Centre Spine Road.
- Security costs: The increase in the security cost per PAX in FY 18 is attributed to the increase in minimum wages from ₹ 414 to ₹ 637 per day and the operation of T2 which necessitated additional manpower.

13 ADMINISTRATIVE AND GENERAL EXPENSES

Table 69 Total Administrative and General expenses at DIAL during Second Control Period

(₹ crores)

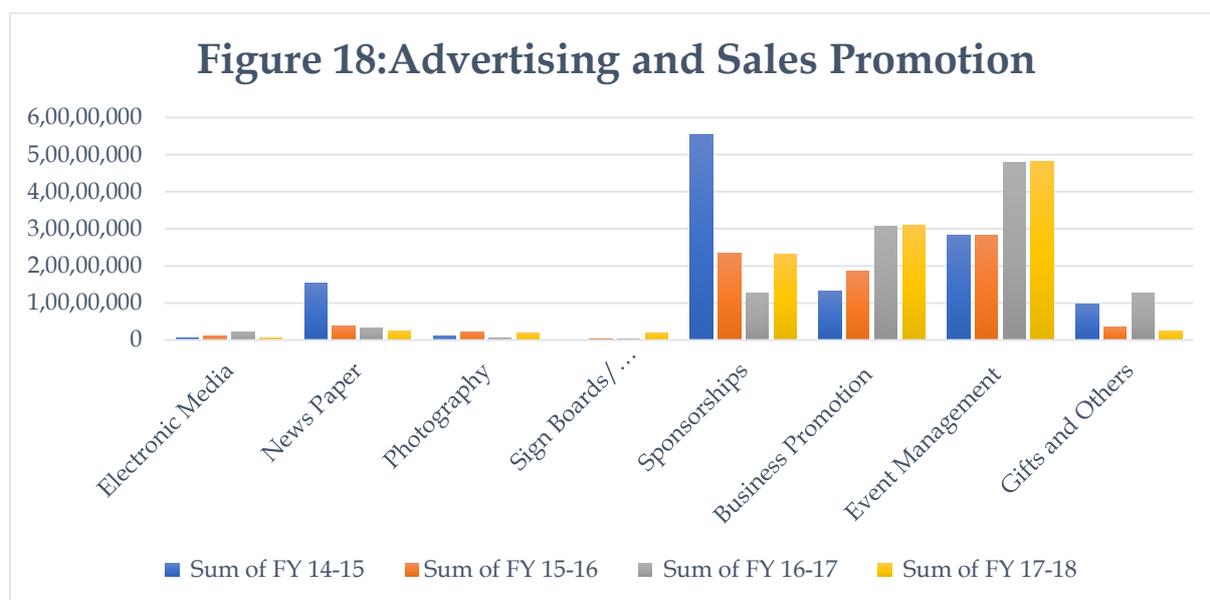
Particulars	FY15	FY16	FY17	FY18	Total
Advertising and Sales Promotion	12.37	8.09	11.01	11.18	42.66
Charities & Donations	0.26	1.51	2.67	2.65	7.09
Collection Charges	-	-	-	3.60	3.60
Communication Exp	1.86	1.62	1.70	2.09	7.28
Corporate Social Responsibility	0.89	4.21	7.73	10.92	23.75
Consultancy and other Professional charges	50.67	48.76	47.19	73.06	219.68
Fixed Assets written off	2.18	0.18	1.59	0.07	4.02
Foreign Exchange Gain/loss	-	0.86	0.44	1.12	2.42
Medical Expenses for Hospitals operated at terminals	0.99	1.00	1.42	1.43	4.84
Office Maintenance	6.56	4.33	6.40	5.38	22.68
Other Admin expenses	5.51	7.95	7.30	8.65	29.41
Printing and Stationary	1.17	1.33	0.98	1.50	4.99
Provision for Bad debts	9.21	0.46	1.73	0.30	11.71
Rates and taxes	2.37	2.45	1.25	1.10	7.17
Rent (including lease rentals)	7.42	9.68	9.44	10.10	36.65
Travelling and Conveyance	9.62	10.67	12.85	13.35	46.50
Chartering Cost	4.30	3.47	3.67	4.28	15.72
Total Administrative Cost	115.39	106.59	117.38	150.79	490.16
Corporate Cost Allocation	54.20	54.20	75.92	85.02	269.34
Total Inclusive Corporate Cost	169.59	160.79	193.30	235.81	759.50

13.1 ADVERTISING AND SALES PROMOTION

Table 70 Total Advertising and Sale Promotion Expenses at DIAL during Second Control Period

(₹ crores)

Particulars	FY14	FY15	FY16	FY17	Total
Electronic Media	0.05	0.11	0.23	0.06	0.44
News Paper	1.54	0.38	0.33	0.24	2.49
Photography	0.12	0.22	0.05	0.20	0.58
Sign Boards/ Hoardings	0.00	0.02	0.03	0.20	0.25
Sponsorships	5.54	2.34	1.26	2.31	11.45
Business Promotion	1.22	1.85	3.07	3.10	9.25
Event Management	2.83	2.81	4.79	4.82	15.26
Gifts and Others	0.96	0.35	1.25	0.25	2.82
Total	12.26	8.09	11.01	11.18	42.55



13.1.1 ADVERTISEMENT THROUGH SPONSORSHIP

In FY15 the sponsorship expenses incurred by the company was ₹ 5.54 crores which was higher than the other financial years when the expenses were at an average of ₹ 2 crores. This incremental expense for FY15 were due to the following:

- Rs 2.88 crores paid to TV18 Broadcast Limited Sponsorship charges for CNN IBN Indian of the Year (IOTY) and India Business Leader of the year (IBLA).
- Rs 1.40 crores paid to HT Media Limited Sponsorship HT leadership Summit presentation.
- Rs 0.55 crores paid to Business Standard Ltd sponsorship for Business Standard awards.

13.1.2 EVENT MANAGEMENT

DIAL organizes various events relating to different stakeholders. These include IGIA awards felicitating the exception work done by airport community, world route conferences, ACI events and various aviation industry events and seminars

An average of ₹ 4.80 crores in FY17 and FY19, around 2 times more than the cost of FY15 and FY16 was incurred at DIAL. This increase in cost was attributed to the increase in the scale of IGIA award and the Sky-Olympics which includes the entire airport community such as the Airlines, Cargo, Ground handling and all others stakeholders involved in the airport operations, sponsorship of GAD Asia event in India and DIAL 10th Anniversary celebration.

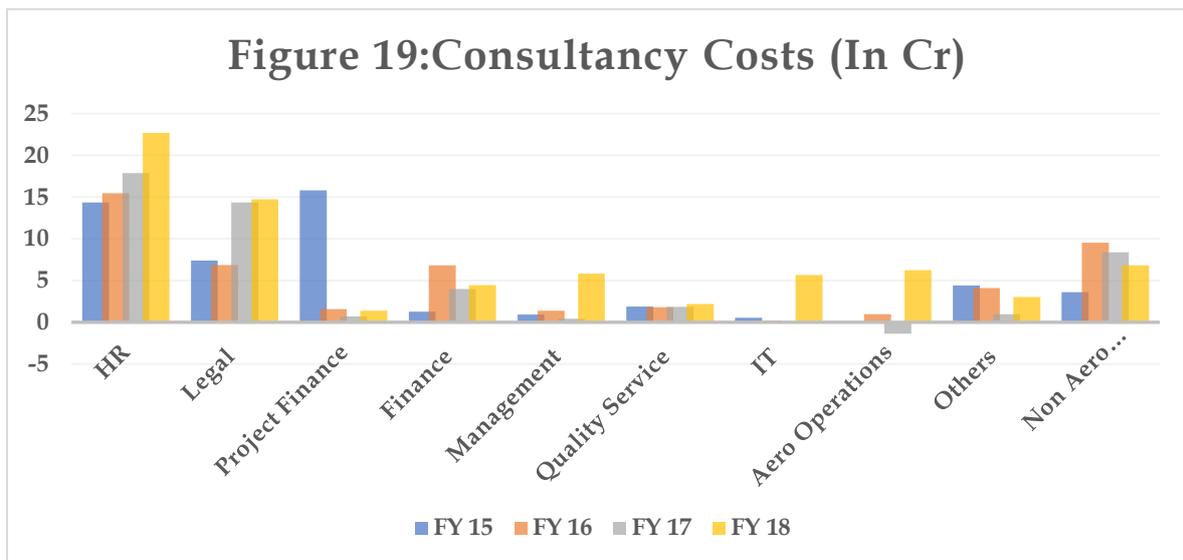
13.2 CONSULTANCY COSTS

Table 71 Total Consultancy Cost at DIAL during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	Total
HR	14.37	15.47	17.86	22.69	70.39
Legal	7.39	6.87	14.34	14.75	43.34
Project Finance	15.82	1.57	0.70	1.39	19.48
Finance	1.29	6.82	4.00	4.47	16.58

Particulars	FY15	FY16	FY17	FY18	Total
Management	0.92	1.37	0.42	5.82	8.54
Quality Service	1.88	1.82	1.84	2.19	7.73
IT	0.54	0.21	0.05	5.66	6.46
Aeronautical Operations	0.04	0.97	-1.37	6.24	5.88
Others	4.42	4.11	0.96	3.04	12.54
Non-Aeronautical operations	3.61	9.54	8.37	6.81	28.34
Total	50.27	48.76	47.19	73.06	219.28



13.2.1 HR CONSULTANCY

13.2.1.1 RETAINER FEE:

DIAL had obtained services from seasoned professionals with domain expertise and several years of experience. The field of these expert includes project management, design consultant, security expert, construction & engineering, training, legal etc. The breakup for such costs per department is as under:

Table 72 Retainer Fee per Department at DIAL during Second Control Period

(₹ crores)

Department	FY15	FY16	FY17	FY18	Total
Airline Marketing	1.22	0.55	0.00	0.00	1.77
Commercial	0.62	0.43	0.41	0.12	1.58
Corporate Relation	0.54	0.40	0.42	0.51	1.86
ALD	0.06	0.19	0.31	0.75	1.32
F&A	0.42	0.23	0.08	0.15	0.88
HR	1.23	0.64	0.48	0.24	2.59
IT	0.00	0.00	0.00	0.27	0.27
Legal	0.97	0.84	1.07	1.05	3.93
Operation	0.00	0.18	0.26	0.29	0.73
Planning	0.51	0.56	0.61	0.58	2.27
Project	2.12	2.12	2.30	2.42	8.96
Secretarial	0.00	0.13	0.00	0.00	0.13
Security	1.22	1.07	1.38	1.28	4.95
Strategy	0.00	0.25	0.60	0.60	1.46
Total	8.90	7.60	7.92	8.26	32.68

13.2.1.2 HR CONSULTANCY - OTHERS

Other major HR consultancy costs include

Table 73 Major HR Consultancy Services Engaged by DIAL during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18	Total
Outsourcing Manpower development	2.72	2.98	2.87	0.78	9.35
Engagement of support staff for Senior Management Guest House	0	1.1	2.34	0.2	3.64
Consultancy for Strategic advice	0	0.3	1.21	1.2	2.71
Consultant-Infrastructure	0	0.35	0.6	0.6	1.56
Managerial Consultancy Services for DIAL	0	0	0.6	0.6	1.2
Consulting services for Organisation development and institution building	0	0	0	1.47	1.47
Increase in Admin Support Staff due to increase in business at various locations	0	0	0	1.02	1.02
Consulting services for strategy, planning and operational excellence	0	0	0	1.09	1.09
Total	2.72	4.73	7.62	6.96	22.04

13.2.2 PROJECT FINANCE:

₹15 crores was spent in FY15 as DIAL in its endeavor to optimize its loan portfolio had considered ICICI bank to undertake various roles including but not limited to the underwriter and sole lead arranger, facility agent, working capital, ECB and hedge facility provider along with task of interacting with other lenders and regulatory authorities, legal counsel, lender engineer and insurance consultants. The year FY15 was the last year of these advisory services and post FY15 DIAL has refinanced its existing loan via bond.

13.2.3 MANAGEMENT EXPENSES:

These are consultancy services availed by senior management for assisting them in business decision making. For FY18, the major constituents of these expenses are services for enhancement of airside capacity which amounts to ₹ 3.29 Cr, senior management leadership development ₹ 0.64Cr and one-time consultancy services undertaken from Fraport for ground operation safety manual, dual & triple taxi movements, amounting to ₹ 0.43 Cr.

13.2.4 IT (₹ 6.5 crores):

In FY18, Consultants were appointed to evaluate the Collaborative Decision-Making Module (CDM), carry out gap analysis, sustainability of the existing CDM vis-a-vis improving technologies and suggest improvement measures. This amounted to ₹ 4.95 crore for FY18.

Engagement of Consultant for Implementation of Digital literacy across employees for DIAL amounted to ₹0.37 crores in FY18.

13.2.5 AERONAUTICAL OPERATIONS

One-time Civil Maintenance at T3 (₹ 6 Cr) classified under Aeronautical Operations:

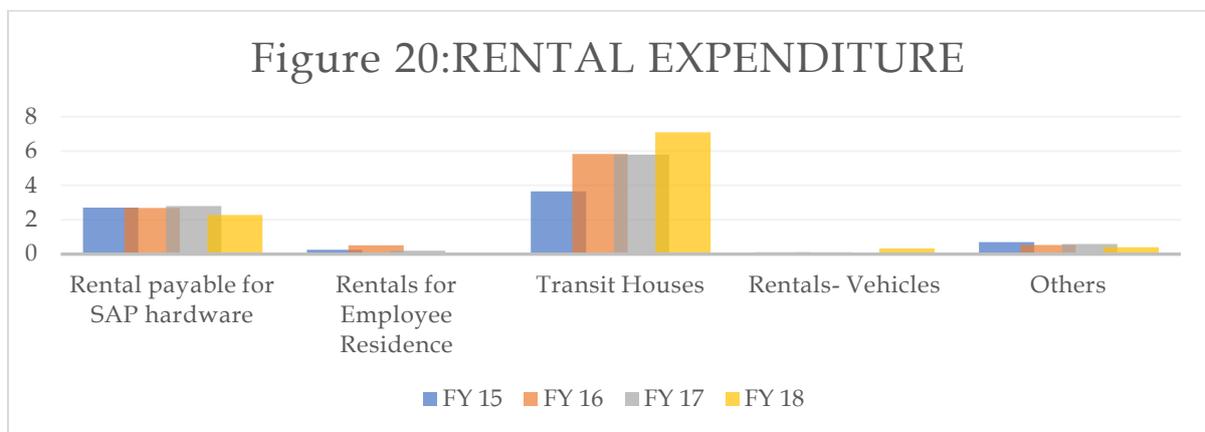
Cost incurred towards one-time consultancy service in FY18 for optimization of energy and water management at DIAL.

13.3 RENTAL EXPENDITURE

Table 74 Total Rental Expenses at DIAL during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	Total
Rental payable for SAP hardware	2.71	2.68	2.80	2.27	10.47
Rentals for Employee Residence	0.25	0.52	0.21	0.00	0.97
Transit Houses	3.66	5.84	5.79	7.08	22.36
Rentals- Vehicles	0.11	0.12	0.06	0.33	0.62
Others	0.70	0.53	0.58	0.41	2.23
Total	7.42	9.68	9.44	10.10	36.65



From the above chart, we note that the company expends comparatively higher towards the rentals of the transit houses. For FY18, there was a 20% increase in the rental expenditure from FY17 which was attributed to an additional property “The Greens” taken out on lease. The details of the other properties held by DIAL for use by its visiting corporate guests and meetings are as under:

Table 75 Details of the Guest Houses taken on rent by DIAL

S. No	Location of the Guest House	Purpose of the Guest House
1	Pushpanjali farmhouse	Executive Chairman residence post 1st April'2018
2	Aurangzeb Lane guest house	This is a guest house used for business meetings, specifically blocked for meetings and conferences of MD - DIAL with delegates from India and abroad
3	Heritage city guest house	Guest house used by DIAL senior management for transit and stay, this has been surrendered effective June'2018.

S. No	Location of the Guest House	Purpose of the Guest House
4	Golf link guest house	Used for MD for transit and stay of business guest. This has been vacated.
5	Caitriona guest house	Guest house is utilized for the temporary stay of newly appointed employees, stay of advisors, consultant, trainers etc
6	Greens	Guest house blocked for stay of MD including business guests
7	Safdarjung Enclave	Held for business meeting and guests. This guest house has been surrendered effective July'2019
8	National Media Caitriona Guest House	The guest house is utilized for the temporary stay of newly appointed employees, stay of advisors, consultant, trainers etc
9	Abdul Kalam	This is a guest house transformed into a meeting room. This is specifically blocked for meetings and conferences of CEO DIAL & Directors
10	Lucknow Office	This is a business office used for airport work as DIAL.

13.4 CORPORATE SOCIAL RESPONSIBILITY EXPENSE

As mandated under section 135 of the Companies Act 2013, Every Company with:

- Net worth of ₹ 500 crores or more or
- Turnover of ₹ 1000 crores or more or s
- Net Profit of ₹ 5 crores or more

during the immediately preceding financial year shall ensure that the company spends, in every financial year, at least 2% of the average net profits of the company made during the 3 immediately preceding financial year, in pursuance of its CSR Policy. In accordance with the above requirement, DIAL had spent ₹ 33.72 crores on CSR (for FY 15 - FY 19) and claimed ₹ 30.07 crores as Aeronautical Expenses in the ratio of Gross Fixed Assets of the Company. The Authority may take its own view in this regard.

The actual amount spent (till FY18) in accordance with the above requirements under the Companies Act, 2013 has been detailed out in Table 76 below:

Table 76 Actual CSR Costs Vis-à-vis Maximum Cost mandated under the Companies Act, 2013

(₹ crores)

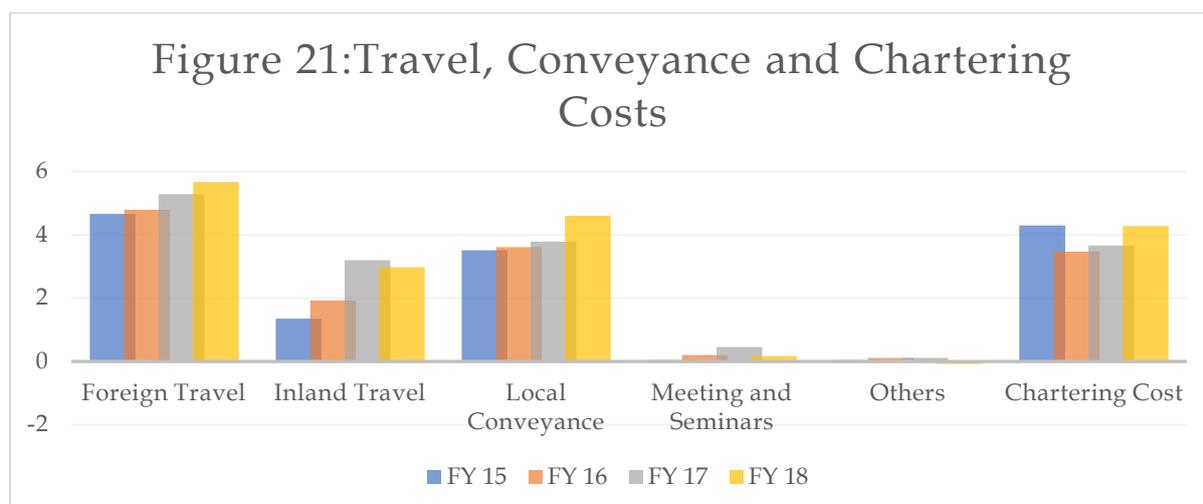
Particular	FY13	FY14	FY15	FY16	FY17	FY18
PBT for computation of CSR Cap	69.30	412.54	212.13	632.74	929.67	(138.78)
Average of previous 3 FY's	-	-	-	-	419.14	591.51
2.00% of the average PBT (A)	-	-	-	4.63	8.38	11.83
Actual Spent (B)	-	-	-	4.21	7.51	11.14
Additional Spent (A-B)	-	-	-	-	-	-

13.5 TRAVEL, CONVEYANCE AND CHARTERING COSTS

Table 77 Total Travel, Conveyance and Chartering Cost at DIAL during Second Control Period

(₹ crores)

Travel Type	FY15	FY16	FY17	FY18	Total
Foreign Travel	4.67	4.80	5.29	5.67	20.42
Inland Travel	1.35	1.93	3.20	2.98	9.47
Local Conveyance	3.52	3.62	3.79	4.60	15.52
Meeting and Seminars	0.04	0.21	0.45	0.18	0.88
Others	0.04	0.12	0.11	-0.07	0.20
Chartering Cost	4.30	3.47	3.67	4.28	15.72
Total	13.92	14.15	16.51	17.63	62.21



13.5.1 CHARTERING COSTS

In accordance with the approval by the Board of Directors of DIAL, the Senior Management of the company are eligible for Flying charges of charter for business travel mainly for the purpose of meetings, seminars, marketing & business development. ₹ 15.7 crores have been incurred by DIAL for Second First Control Period relation to such flying charges.

13.5.2 TRAVELING AND CONVEYANCE COSTS:

13.5.2.1 LOCAL CONVEYANCE:

Out of the ₹15.5 crores spent by DIAL across Second Control Period, ₹ 8.36 crores have been incurred towards the cost of free inter-terminal shuttle services provided to the passengers. These inter-terminal services include services from T3-PTC-T3, T1 to T3, T3 to T1, T3 to T2 & T2 to T3 by Delhi Transport Corporation & Purple UMTC Transport Pvt Ltd and VIP Ferry Vehicles at Airside T3 and T1 by Deneb Pollux Tours & Travels.

13.5.2.2 INLAND AND FOREIGN TRAVEL

Of the ₹ 29.89 crores incurred by DIAL across Second Control Period towards foreign and inland travel on account of business activities (Conferences & Events), Marketing (New Route Developments), attending the ASQ Award ceremonies, Employee Trainings & Meeting

customers, Other stakeholder engagements etc, ₹ 21.82 crores were incurred by the Senior Management of the Company including the Business and Group chairman, the COO, CEO and CCMO.

Table 78 Approval matrix for Travel

Travel Type	Purpose of Visit	Approval Matrix
Foreign Travel	Business - such as export promotion, technical and/or commercial discussions, etc	If the travel is as per AOP, CEO/GCXO to approve. If the travel is not as per AOP, BCM to approve
Foreign Travel	Training / Seminar / Conference	Approval by Business Chairman based on the Training. Need and overall Foreign Training Policy agreed with PHR/BCM
Inland Travel	Travel requests up to 15 days	The travel requests are auto approved with an email trigger to the immediate supervisor. The Expenses should be approved by minimum LD/PD Level.
Inland Travel	Travel requests exceeding 15 days/In deviation to the Travel Policy	The travel request should be approved by the HOD. The Expenses are to be approved at the second level to the LD/PD.

13.6 CORPORATE COST DISTRIBUTION

Table 79 Total Corporate costs allocated to DIAL during Second Control Period

(₹ crores)

Financial Year	Corporate Cost Allocation	Corporate Cost Allocation	Total Cost Allocation
	GMR Airport Limited	GMR Infrastructure Limited	
FY15	17.53	36.67	54.20

FY16	20.59	33.47	97.59
FY17	37.79	37.70	75.49
FY18	64.12	20.85	41.43
Total	140.02	128.69	268.71

GMR Infrastructure Limited (GIL), part of the GMR Group, is a global infrastructure holding company formed to invest in various infrastructure projects in the Group's Energy, Highways, Airports and Urban infrastructure businesses. GMR Airports Ltd (GAL), which is a fully owned subsidiary of GIL, is an airport holding company for the airport companies such as Delhi International Airport Private Limited (DIAL), GMR Hyderabad International Airport Limited (GHIAL) etc.

Both GIL and GAL has a set of corporate departments which supports their airport companies/ SPVs and charges them for use of resources (involved in carrying out these activities) based on a methodology developed in 2011-12 by Deloitte.

For each of the departments (or a group of similar departments), potential list of individual cost drivers (basis for charging) was identified. Cost drivers were identified based on standard practice followed in the industry. Refer Table 80 for the basis of cost allocation.

13.6.1 GMR AIRPORTS LIMITED

Table 80 Cost Objected allocated from GAL to DIAL

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
1	GCM Office	Fully Chargeable	Weighted Average Ratio of Assets [#]
2	BCM Office	Fully Chargeable	Weighted Average Ratio of Assets
3	CEO Office	Fully Chargeable	Weighted Average Ratio of Assets
4	Stakeholder Management	Fully Chargeable	Weighted Average Ratio of Assets

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
5	Commercial and BD	Semi- Chargeable*	Weighted Average Ratio of Assets
6	Legal	Fully Chargeable	Weighted Average Ratio of Assets
7	Sector HR	Semi- Chargeable*	Weighted Average Ratio of Assets
8	Sector IT	Semi- Chargeable*	Weighted Average Ratio of Assets
9	Strategic Planning Group	Fully Chargeable	Weighted Average Ratio of Assets
10	Finance and Accounts	Semi- Chargeable*	Weighted Average Ratio of Assets
11	Regulatory	Fully Chargeable	Weighted Average Ratio of Assets

*Semi- Chargeable: A portion of the activities carried out by these departments are to provide support to Fraport AG which is the airport operator for DIAL. Hence, the portion of the cost which is attributable to the support provided to Fraport AG is retained with GAL based on a driver which reasonably represents the effort spent by the department.

#Weighted average ratio of assets was determined by the external consultant Deloitte.

13.6.2 GMR INFRASTRUCTURE LIMITED

Table 81 Cost Objects of GIL allocated to DIAL

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
1	GCM office	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
2	Group Corporate Finance	Fully Chargeable	Based on the Funds Generated
3	CCM Office	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
4	BCM IB&G	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
5	Strategy and Corporate Development	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
6	Management Assurance Group	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
8	Budget Assurance and Cost Control	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
9	Corporate Communication and Corporate Relations	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
10	Corporate Procurement Department and Insurance	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
11	Corporate Legal	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
12	GIL Consolidated Finance and Accounts	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
13	Direct Taxation	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
14	Indirect Taxation	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
15	SSC	Fully Chargeable	Number of FTE/Manpower
16	HR	Fully Chargeable	Number of FTE/Manpower
17	FMS	Fully Chargeable	Number of FTE/Manpower
18	IT	Fully Chargeable	Number of FTE/Manpower

13.7 SUMMARY

- Administration costs includes expenses such as Advertising and Promotion, Consultancy, Travelling & Conveyance, Chartering costs, Rent, Taxes, Corporate cost etc. Total administration costs incurred during FY15-FY18 was ₹ 759.50 crores.
- GMR Infrastructure Limited (GIL), is a global infrastructure holding company formed to invest in various infrastructure projects in the Group's Energy, Highways, Airports etc. GMR Airports Ltd (GAL), which is a fully owned subsidiary of GIL, is an airport holding company for the airport companies such as DIAL and GHIAL.
- Both GIL and GAL have a set of corporate departments which supports their airport companies/ SPVs and charges them for use of resources. The methodology for appropriate apportionment of Corporate costs was developed in 2011-12 by an External Consultant.

14 FINAL GROSS FIXED ASSET ALLOCATION RATIO AFTER THE ABOVE ADJUSTMENTS (UPTO FY19)

Table 82 Final Gross Fixed Asset Allocation Ratio for FY19

(₹ crores)

Particulars	Aeronautical	Non- Aeronautical	Total
Net Closing Gross Block (As on 31st March 2019)	12,436.69	1483.86	13,920.56
Gross Fixed Asset before Adjustment	89.34%	10.66%	
Adjustments - Gross Block			
EPOS System (Integrated with CCTV, shifted from Aeronautical to Non-Aeronautical)	-6.00	6.00	
NUB Improvements (Adjusted based on Let out space in the Building)	-3.59	3.59	
BCM and GCM Office (Revenue Share of the Group Companies)	-3.61	3.61	
Common Transit Houses (50% Aeronautical and 50% Non-Aeronautical)	-7.95	7.95	
Movement from Common to 100% Aeronautical (Correction of errors)	0.31	-0.31	
Movement from Aeronautical to Common	-2.76	2.76	
Gross Block After Adjustments	12,413.09	1,507.46	13,920.56
Proportion considered for apportionment of Aeronautical and Non- Aeronautical expenses	89%	11%	

BENCHMARKING OF INTERNATIONAL AND DOMESTIC AIRPORTS

We have conducted a study based on documents available at various forums and have undertaken a two-pronged approach of benchmarking the Delhi and Mumbai airports:

- (1) Internal Benchmarking (or Self Benchmarking), wherein the Airport's operating metrics are analysed over a period; and
- (2) External Benchmarking (or Peer Benchmarking), wherein the Airport's operating performance has been compared to similar data from other airports, either at a single point in time or over a period.

15 INTERNAL BENCHMARKING

Under the Internal Benchmarking methodology, an Airport's operating metrics is evaluated over a time period. The Internal Benchmarking approach is less complex to analyse and comprehend because the number of variables that change at an airport over the period is limited.

15.1 INTERNAL BENCHMARKING AT DIAL

The following costs of DIAL were analyzed over the time period within DIAL

- Total Terminal Maintenance Cost comprising
 - Utilities Cost
 - Repair and Maintenance Cost
 - Payments to WAISL
 - Housekeeping and Manpower Services
 - Insurance Costs
 - Cost of Consumables
 - Manpower Hire Charges
 - Security Expenses
- Total Administrative and General Expense comprising
 - Rent, Rates and Taxes (Excluding Property Tax)
 - Professional and Consultancy expenses
 - Printing and Stationery Expenses
 - Travelling, Conveyance and Chartering Costs
 - Communication Costs
 - Office Maintenance
 - Advertising and Sales Promotion
 - Loss on sale of assets
 - Provision for Bad and Doubtful Debts and Advances
 - Corporate Cost Allocation
 - Donations and CSR Costs
 - Other Admin Expenses

- Total Manpower Cost of DIAL

The following Work steps were used for the purpose of Internal benchmarking at DIAL.

1. Data for First Control Period was collated from the ICWA Report on “Assessment of Efficiency of Operating and Maintenance Cost of Aeronautical Operations during the First Control Period”
2. Data for Second Control Period were collated from the respective years Audited Financial Statements of DIAL.
3. The percentage change in costs over First & Second Control Periods were analyzed and the probable factors affecting the change in costs were noted.
4. Conclusions were drawn based on the above analysis as to whether DIAL’s costs are in line with the probable factors determined as above.

Table 83 Movement of Terminal Operating Cost and Administrative and General Expenses at DIAL

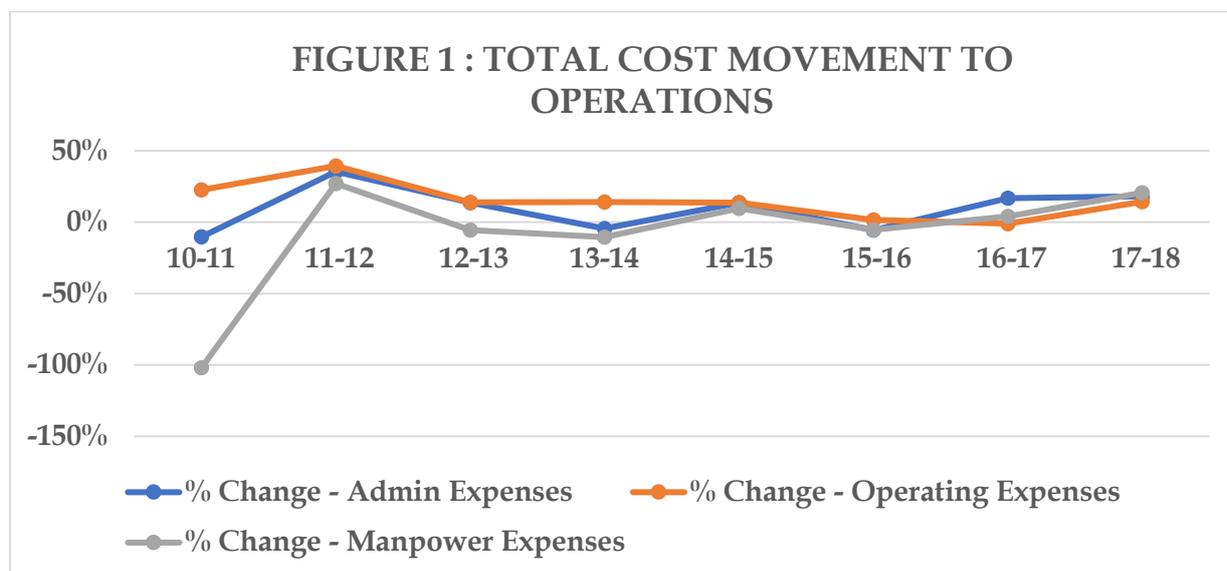
(₹ crores)

Particulars	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Administrative and General Expenses ⁸	94.23	85.44	132.23	153.14	146.48	169.60	160.79	193.30	235.81
Terminal Operating Expenses ⁹	119.55	154.31	254.59	295.83	344.43	398.58	404.80	400.57	467.99
Manpower Cost ¹⁰	205.26	101.66	139.34	131.88	119.39	132.12	125.34	130.58	164.48
% Change - A&G Expenses		-10%	35%	14%	-5%	14%	-5%	17%	18%
% Change - Terminal Operating Expenses		23%	39%	14%	14%	14%	2%	-1%	14%
% Change - Manpower Expenses		-102%	27%	-6%	-10%	10%	-5%	4%	21%

⁸ Source: Table 15 of ICWA Report for data up to FY14 and Management Information for data up to FY18

⁹ Source: Table 10 of ICWA Report for data up to FY14 and Management Information for data up to FY18

¹⁰ Source: Table 10 of ICWA Report for data up to FY14 and Management Information for data up to FY18



These costs are further analysed based on the following factors in order to determine the root cause of the trends of movement year-on-year and justify if the change in costs were in line to the change in the following factors:

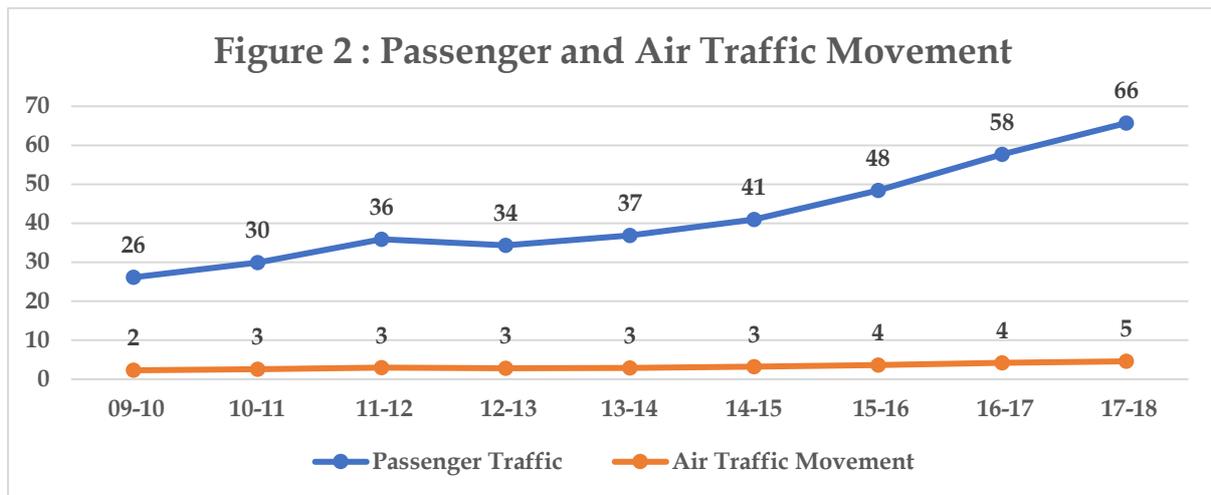
- Passenger traffic
- Air traffic movement
- Terminal and runway capacity utilisation
- Proportion of domestic and international passenger traffic
- Management structure and contract outsourcing practices
- Extent of Non-Aeronautical revenues

Passenger traffic and Air traffic movement

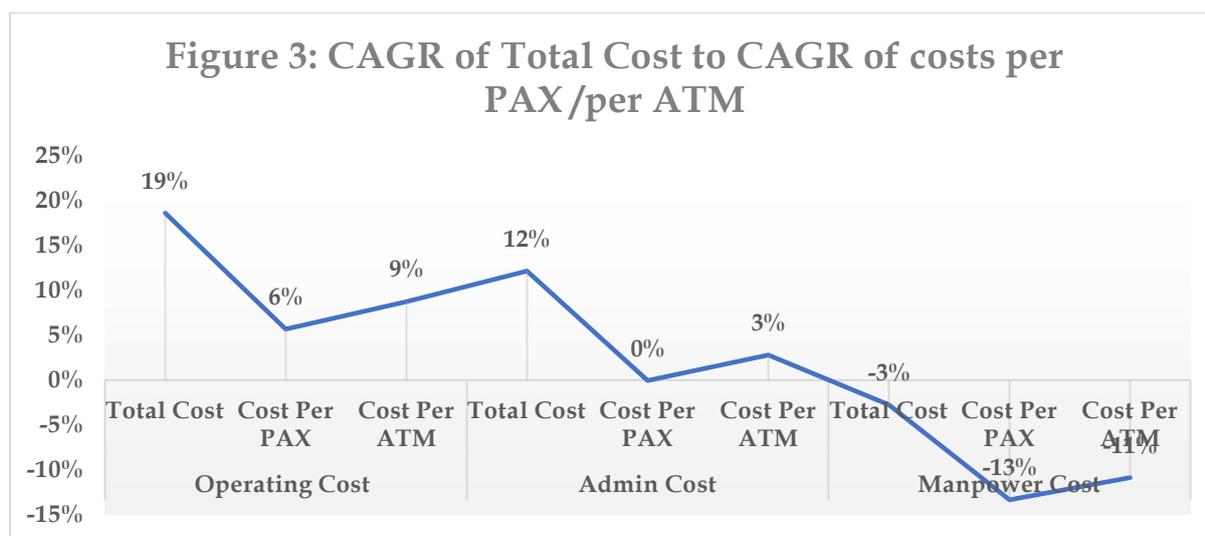
As per the information gathered, the number of passengers and air traffic operations have increased substantially over the past year and reasonably the airport has maintained a flexible cost structure to balance the need to serve the airlines and passengers while ensuring that its high ASQ rating is maintained (as per Figure 3).

Table 84 Movement of Passenger and Air Traffic at DIAL

Particulars	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Passenger Traffic (In Million)	26.13	29.94	35.88	34.37	36.88	40.99	48.42	57.70	65.69
Air Traffic Movement (In Lakhs)	2.29	2.56	2.95	2.81	2.91	3.23	3.66	4.17	4.59



The below figure 3 shows the CAGR movement of the total cost of DIAL versus the CAGR of the cost per PAX and per ATM at DIAL. The figure depicts that the growth of costs per PAX and ATM were at a lower rate comparing the growth rate of the total costs justifying the impact for the growth in operations.

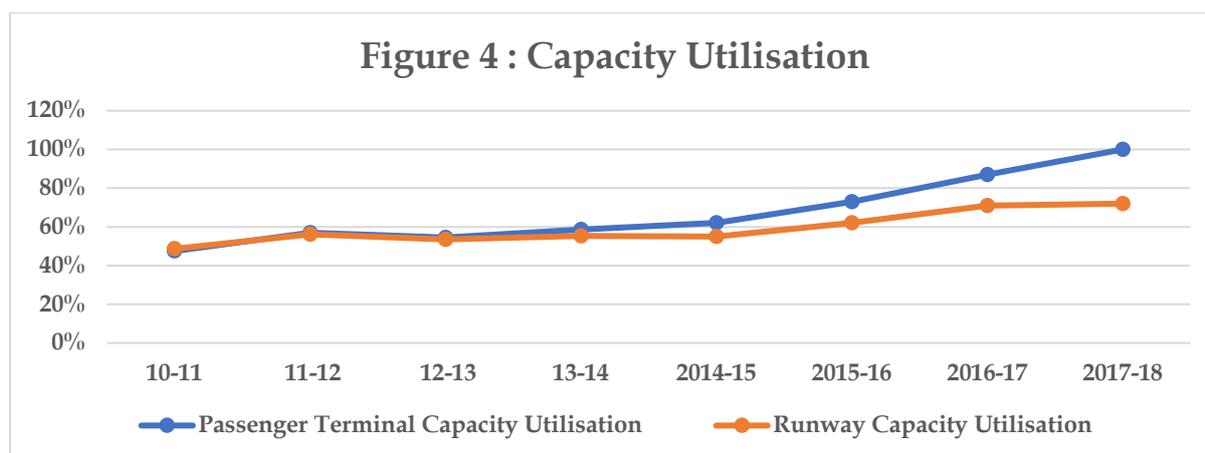


Terminal and runway capacity utilisation

Increase in the airport capacity utilization also substantially increases the fixed cost of airport operations, especially relating to Terminal and Airside maintenance costs, electricity, and administrative manpower costs. The chart below shows that:

- DIAL's runway capacity utilisation has increased from 45% in FY11 on a runway capacity of 60 movements during the peak hour to approximately 75% in FY18 on a runway capacity of 72 movements during the peak hours.
- Increase from 48% in FY11 on the terminal capacity of 63 million passengers per annum to 100% in FY18 on the terminal capacity of 66 million passengers per annum.

This increase in capacity utilisation could be attributed to the operating and admin expenses growth rate from FY11 to FY18 of 19% and 12% respectively (*Refer Figure 3 above to see the CAGR of the period for operating and admin expenses*)

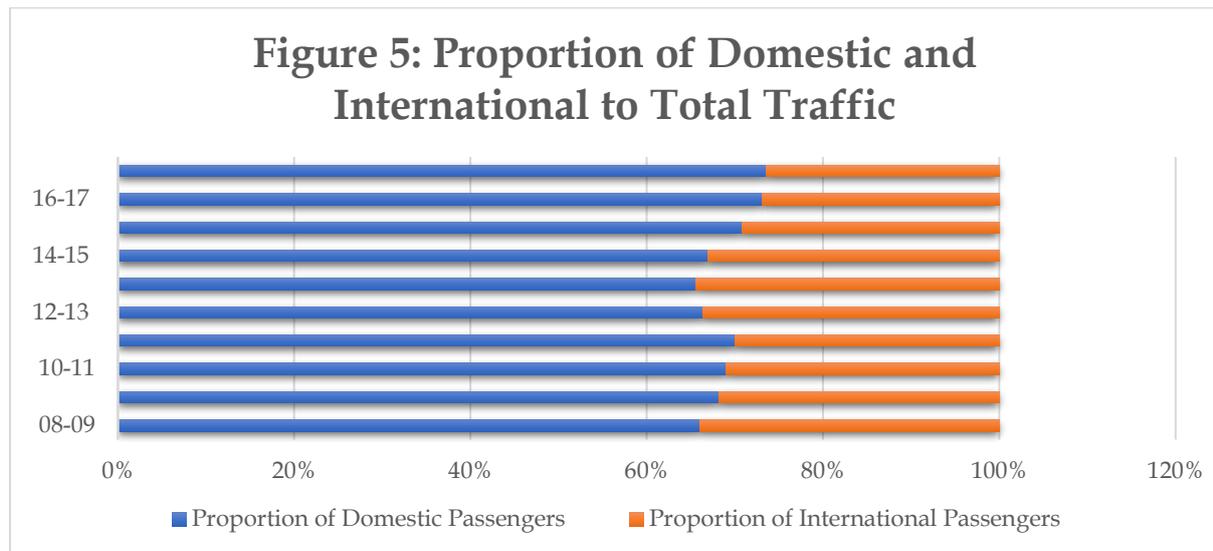


Proportion of domestic and international passenger traffic

It is generally reckoned that domestic passengers’ movements are managed on a relatively low-cost, no-frills and higher gate utilisation model, whereas international passenger movements involve relatively high-cost and amenities, and lower gate capacity utilisation. Therefore, a higher international passenger traffic involves higher cost of operations as well. The chart below provides data on the domestic and international passenger mix over a period. It may be concluded based on this data that since the proportion of international passengers have trended downwards from FY09 to FY18, justifying the movement change in the operating costs from an average 25% to 14%.

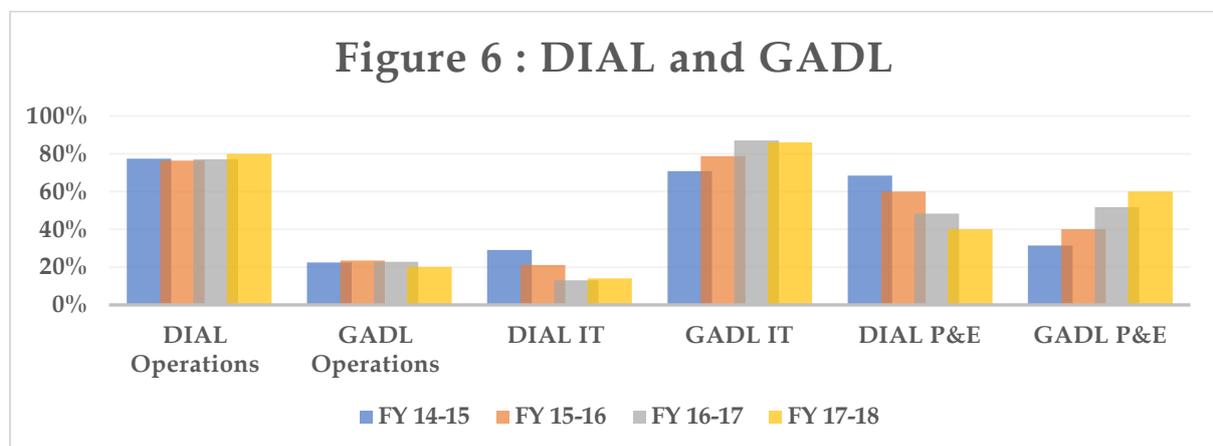
Table 85 Proportion of International and Domestic Passengers

	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Domestic Passengers	66%	68%	69%	70%	66%	66%	67%	71%	73%	74%
International Passengers	34%	32%	31%	30%	34%	34%	33%	29%	27%	26%



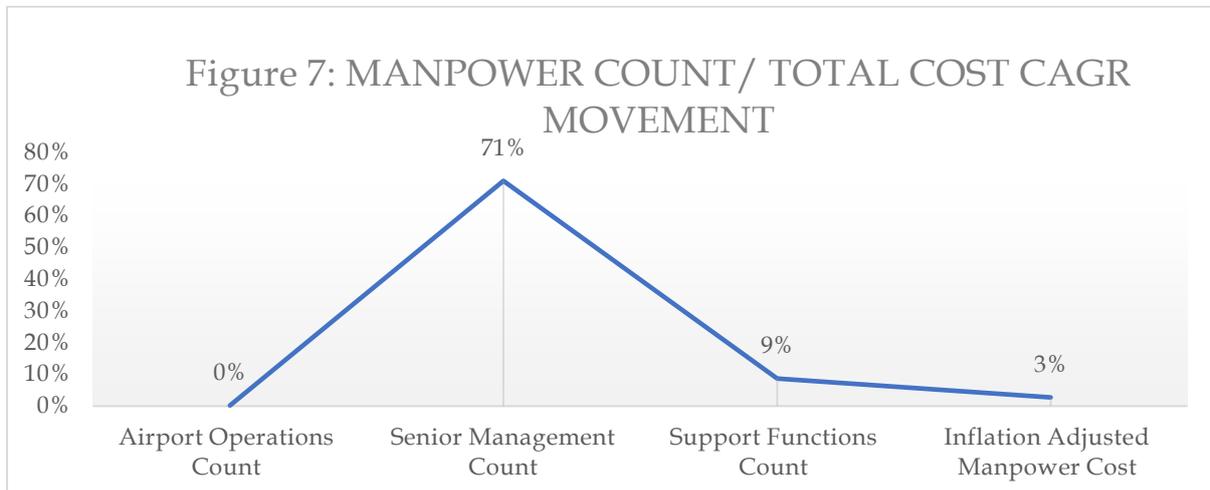
Management structure and contract outsourcing practices

- It was noted that the airport management have outsourced additional functions in FY18 bringing in expertise for the commencement and execution of the Phase-3 Project at the Airport. This cost of outsourcing has increased the operational costs for the airport for FY18. This increase is depicted in the bar diagram below along with the operating trend lines from FY17 to FY18 in the above figure 1



- During our study on employee costs, it was noted that with the increase in the overall operations at the airport, manpower count at DIAL has steadily increased over the period. The trend analysis expresses a considerable increase in the count for the senior management office reflected in the CAGR of the employee count from FY15 to FY18. As

the cost of senior management office is comparatively higher than the cost of other operational and supporting departments, a 21% increase in manpower cost for FY18 is justified.



Extent of Non - Aeronautical Revenue

DIAL has witnessed a predictable trend in the total let out space at the terminal enabling recovery/distribution of Aeronautical operating costs like housekeeping and maintenance, utility, etc to the concessionaires.

Further, the study indicates that the increase in retail space also leads to increased generation of Non-Aeronautical revenue subsidizing the total costs at the airport. The Non-Aeronautical operations indicate such a trend in DIAL, as illustrated in the chart below:



15.2 SUMMARY

Referring to the growth pattern in various operating factors over the period like steady increase in Passenger traffic from 26.13 million in FY10 to 65.69 Million in FY18 (please refer Table 84 of the detailed report) and extensive utilisation of DIAL's runway capacity (from 45% in FY11 to 75% in FY18) we contend that the airports must expand its operational capacity to accommodate the increased workload, which invariably will lead to increased operating cost for Airport Operator.

However, with expansion, Airports benefit from economies of scale (i.e. expenditure per PAX) by enhancing the efficiencies in the operating and spreading out of the overhead costs along with marginal increase in cost due to administrative complexities. Refer figure 3 of this section which reflects that the CAGR of the total costs from FY10 to FY18 is higher than the CAGR of the costs per PAX/ATM from FY10 to FY18.

16 EXTERNAL BENCHMARKING

External Benchmarking (where the Airports under study are compared with other comparable airports) involves consideration of several factors that affect the configuration, operating structure and cost basis of an airport. Considering such multiple dynamic variables, it is a comparatively more complex exercise than Internal Benchmarking. Accordingly, in order to make useful comparisons among airports, it is essential to compare similar sets of businesses operating in similar environments. When comparing one airport to another, some of the influencing factors for benchmarking include¹¹

- Passenger volume
- Capacity constraints
- Mix of international and domestic traffic
- Mix of local and transit passengers
- Mix of passenger carrier service (network, low-cost, chartered)
- Type of aircraft
- Mix of passenger versus cargo activity
- Degree of outsourcing
- Range of services provided by the airport (including aircraft stands, Aero bridges)
- Weather conditions (temperature and humidity)
- Geographic location
- Physical size of the airport
- Public transportation access and usage
- Local labour conditions
- Ownership and Governance structure
- Regulatory factors

Beyond the core airside operational functions, different airports have little in common and largely vary from each other in many of the above parameters. The costs of operation,

¹¹ Source: ACI Guide to Airport Performance Measures (February 2012)
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Chartered Accountants

maintenance and administration of one airport vis-à-vis another can also be additionally affected by the following factors¹²:

- Certain airports are required to build facilities that keep arriving and departing international passengers sterile from one another, whereas other airports may not have such requirements and thus can build less complicated terminals with lower capital and operating costs.
- Certain airports operators like BIAL and HIAL (Green-Field) do not have to invest in purchasing or leasing the land on which they build their infrastructure and commence operations whereas other airport operators like DIAL and MIAL (Brow-Field) acquire or lease their land and pay for legacy government investment in basic infrastructure.
- Typically, single-till regulated airports have comparatively lower operating costs than dual-till regulated airports. Single-till regulation allows profits derived from airport concession services generating Non-Aeronautical revenue to cover its infrastructure cost. This set off is not permitted under dual-till regulation. DIAL and MIAL are hybrid-till regulated airports where the Non-Aeronautical revenues are partially allowed to be adjusted to the operating costs.

Post consideration to the above varying factors, it can be concluded that airports are diverse and there is no 'typical' or perfectly comparable airport. With difficulties in identifying a perfect set of comparable airports and certain common concerns like data availability and consistency of the available data, care must be taken when interpreting the results of benchmarking.

With establishing the framework for the external benchmarking exercise undertaken as part of RFP 03/2018-19, the report is detailed in two parts:

1. Domestic Benchmarking where DIAL was compared to other privatised airports within India
2. International Benchmarking where DIAL was compared to Airports outside India

¹² Source: Intervista Consulting Inc., 2018
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16.1 DOMESTIC BENCHMARKING

- i. The initial selection criterion for comparable airports was to consider the other privatised airports existing in India. Considering this, we have chosen four other privatised airports in India as set out in the table below:

Table 86 List of Airports for Domestic Benchmarking

S. No	Airports	Major Shareholder	Date of Commencement	Type of Airport Project
1	Cochin International Airport Limited (CIAL)	Government of Kerala	June 1999	Green-Field Project
2	Bengaluru International Airport Limited (BIAL)	Fairfax Financial Holdings Limited	May 2008	Green-Field Project
3	Hyderabad International Airport Limited (HIAL)	GMR Airports Limited	March 2008	Green-Field Project
4	Mumbai International Airport Limited (MIAL)	GVK Airports Limited	April 2006	Brown-Field Project
5	Delhi International Airport Limited (DIAL)	GMR Airports Limited	April 2006	Brown- Field Project

- ii. For benchmarking of the Domestic airports, the total Operation and Maintenance costs are compared from FY15 to FY18. These Operation and Maintenance costs are inclusive of the Airport Operator Fee paid by the respective airports however excludes the following cost objects:

- Annual Airport Concession Fees paid to AAI
- Finance Costs
- Depreciation and Amortization cost
- Loss on scrapping of assets

Additionally, to the total operation and maintaining costs, the below significant components included in the above operation and maintenance costs were also independently compared for the five Airports.

- Employee costs (Support Staff and Operating staff)
- Rental costs

- Utility costs (Power and fuel)
 - Repair and Maintenance costs
- iii. The data for the purpose of benchmarking the above costs for the five airports were obtained from the Annual Reports of the respective airports for relevant financial years drawn from their official website.
- iv. The benchmarking results are expressed:
- on per Passenger basis; and
 - on per ATM basis

Passenger and air traffic movement at the comparable set of airports for the four years are tabulated below:

Table 87 Passenger Traffic at the Comparable Airports in India

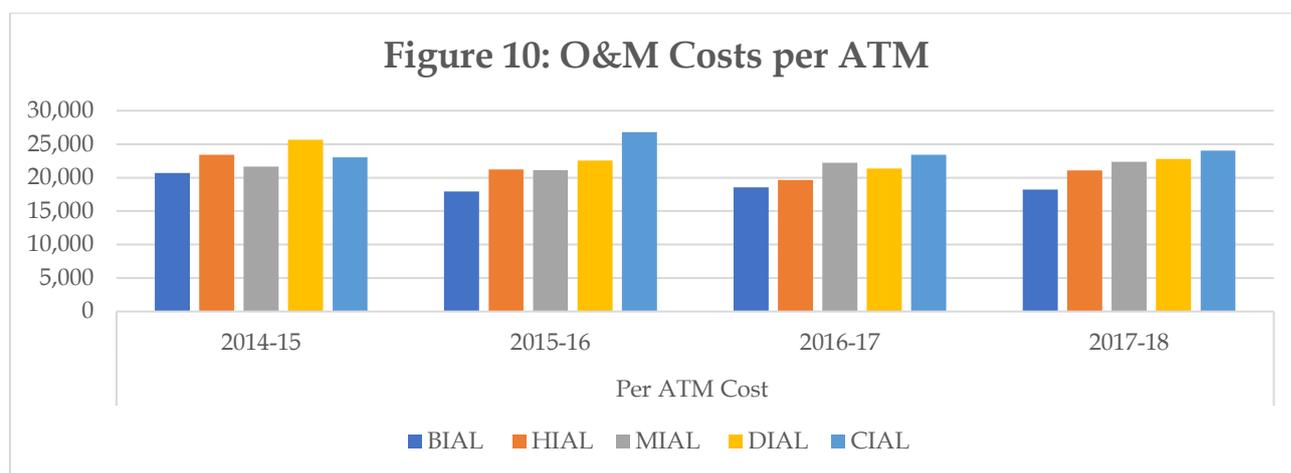
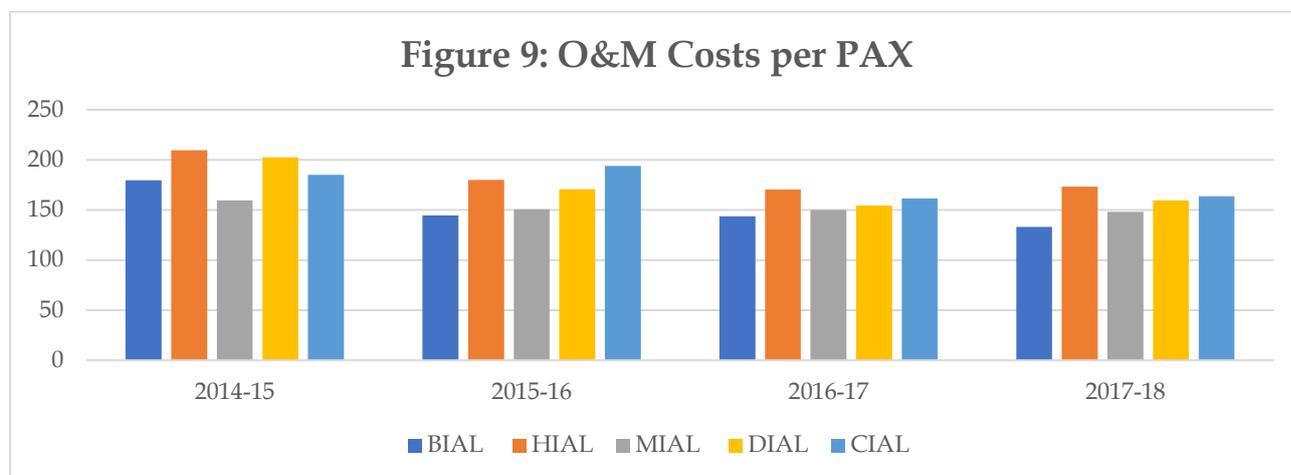
(₹ crores)

Airport	Passenger Traffic			
	FY15	FY16	FY17	FY18
BIAL	1.54	1.90	2.29	2.69
HIAL	1.05	1.25	1.51	1.82
MIAL	3.66	4.17	4.52	4.85
DIAL	4.10	4.84	5.77	6.57
CIAL	0.64	0.78	0.89	1.01

Table 88 Air Traffic Movement at Comparable Airports

Particulars	Air Traffic Movement			
	FY15	FY16	FY17	FY18
BIAL	133500	153100	177300	196600
HIAL	94100	105800	130700	149600
MIAL	269456	296634	305465	320689
DIAL	323450	365696	417319	459243
CIAL	51500	56200	61700	68800

16.1.1 OPERATION AND MAINTENANCE COSTS COMPARISON



Notes:

1. The metric of total cost per PAX and per ATM include both Aeronautical and Non-Aeronautical costs. Comparing two airports with different Non-Aeronautical activity would not be feasible as the Non-Aeronautical costs could be higher due to additional retail activity whilst the Aeronautical costs per PAX/ATM may be same.
2. Since all these costs at the airport are driven by various factors like physical size of the airport, passenger mix, capacity constraints, weather conditions, etc., comparison of operating and maintenance costs between airports may be misleading, considering the complex mix of elements between airports.

The below table reflects how various costs have different cost drivers and how these cost drivers can vary between airports.

Table 89 Cost Objects and Cost Drivers

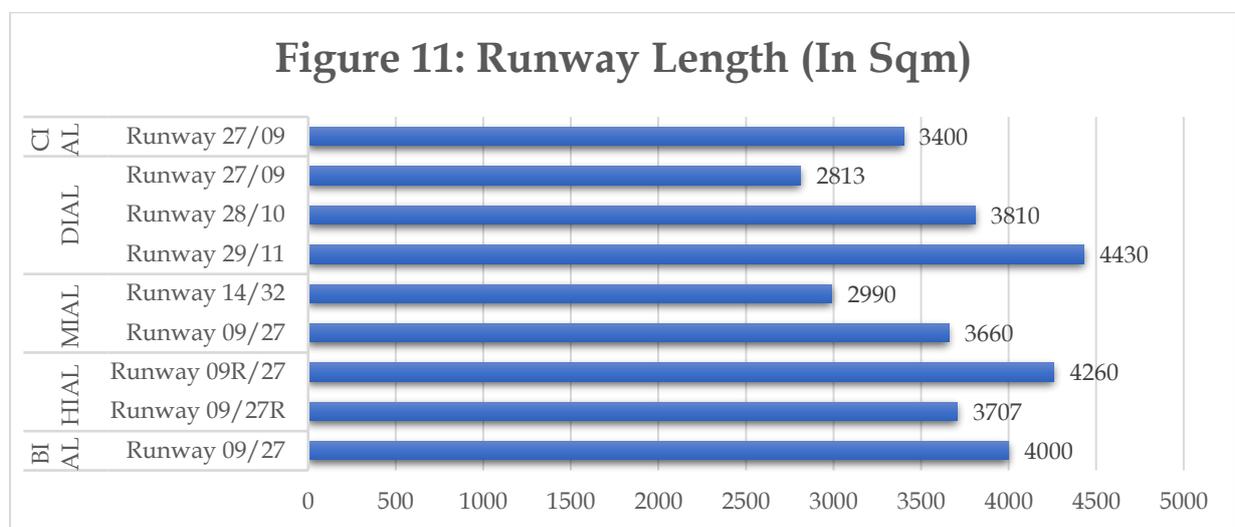
Cost	Cost Driver
Employee Costs	<ul style="list-style-type: none"> • Airside and Terminal Capacity • Air Traffic and Passenger Traffic movement • Local Labour Costs • Local Regulatory Conditions • Degree of Outsourcing
Rental Costs	<ul style="list-style-type: none"> • Leasehold Property (Including Guest Houses)
Utility Costs (Power, Fuel and Water)	<ul style="list-style-type: none"> • Physical Size and number of the Runway and Passenger Terminal Buildings • Air Traffic and Passenger traffic movement • Local Regulatory Conditions • Weather Conditions (Temperature and humidity) • Source of Procurement of Power
Repair and Maintenance Costs	<ul style="list-style-type: none"> • Physical Size and number of the Runway and Passenger Terminal Buildings • Air Traffic and Passenger traffic movement • Range of Services provided by the Airport • Aging of the assets operated at the airport • Degree of Outsourcing of engineering services
Airside Operating and Management Cost	<ul style="list-style-type: none"> • Physical Size and number of the Runway (Code F Compliant Runway Operations) • Air Traffic Movements • Range of Equipment operated • Degree of Outsourcing of engineering services • Airport Congestion • Local Regulatory Conditions

Cost	Cost Driver
	<ul style="list-style-type: none"> • Technology Absorption
Terminal Management Costs	<ul style="list-style-type: none"> • Passenger Mix (Domestic and International) • Physical Size and number of the Terminal • Air Traffic and Passenger traffic movement • Range of Services provided by the Airport • Degree of Outsourcing of engineering services • Local Regulatory Conditions (Example: Security) • Airport Congestions • Technology Absorption
Insurance Costs	<ul style="list-style-type: none"> • Physical Size and number of the Runway and Passenger Terminal Buildings • Premium costs are dependent on number and severity of Incidents Reported • Age of the Assets Operated • Local Regulatory Conditions • Range of the Equipment Operated
Administrative and General Expenses	<ul style="list-style-type: none"> • Ownership and Governance Structure • Physical Size and number of the Runway and Passenger Terminal Buildings • Total Runway and Terminal Capacity • Air Traffic and Passenger traffic movement

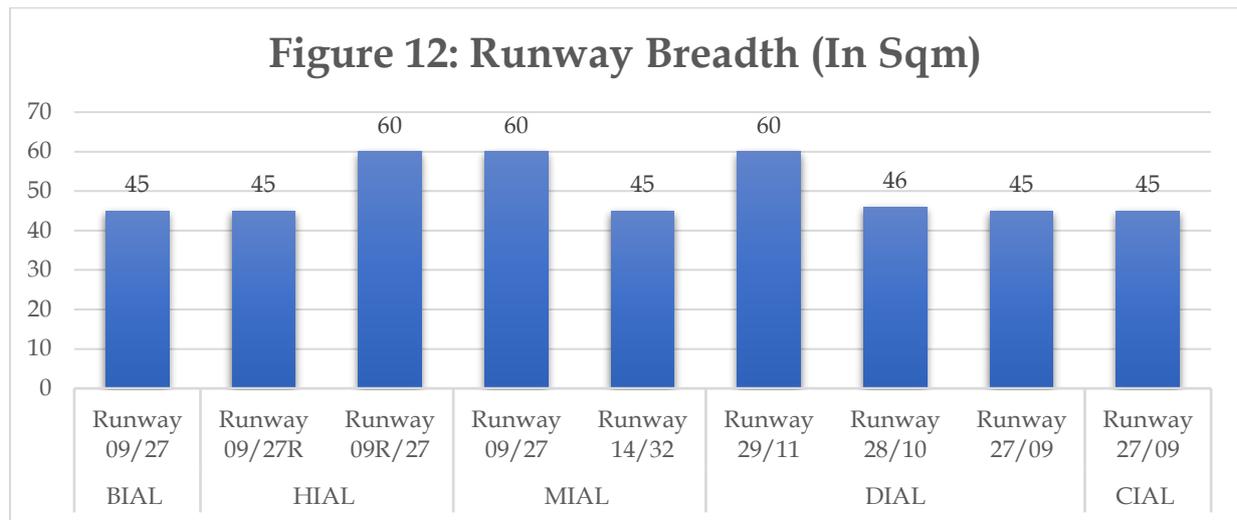
To demonstrate the above at the chosen airports, data was collated on few of these cost drivers to understand how each of these airports vary from one to another.

16.1.1.1 NUMBER OF RUNWAYS AND SIZE OF THE RUNWAYS: ¹³

Based on available information, it was noted that Mumbai, Delhi and Hyderabad airports out of the five chosen airports operate more than one runway at the airport and are comparatively lengthier and code F compliant (The Width of the Runway can support A380 aircrafts with wingspan more than 80 metres). Since airside management costs like Airside lighting, cleaning and maintenance costs, ground transportation costs, firefighting and safety costs are variable to length and breadth of the runway, costs at Delhi, Mumbai and Hyderabad are expected to be comparatively higher.



¹³ Source: Wikipedia
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16.1.1.2 PASSENGER TRAFFIC AND AIR TRAFFIC MOVEMENT¹⁴

Top 10 busiest airports in India include the chosen airports at the respective ranks and the percentage of growth year on year is as per the below table: ¹⁵:

Table 90 Passenger Traffic Growth % at Comparable Airports

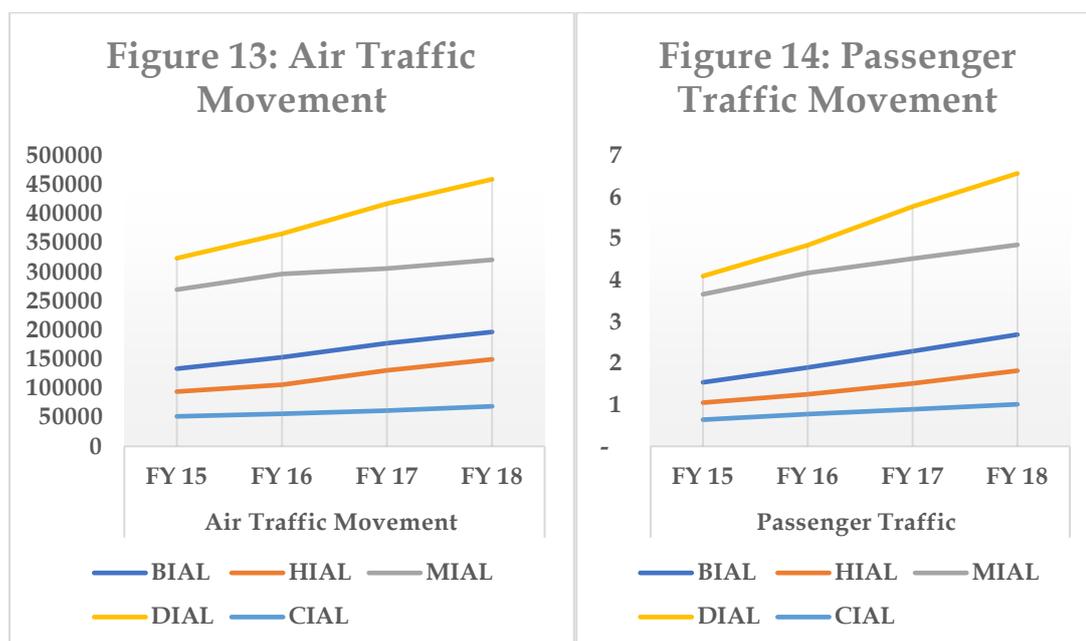
Rank	Airport	City	% Change in FY18	% Change in FY17	% Change in FY16	% Change in FY15
1	Indira Gandhi International Airport	Delhi	13.8	19.2	18.1	11.1
2	Chhatrapati Shivaji Maharaj International Airport	Mumbai	7.4	8.4	13.7	13.7
3	Kempegowda International Airport	Bengaluru	24.1	20.6	23.2	19.7

¹⁴ Source: apaindia.com

¹⁵ Source: Wikipedia

Rank	Airport	City	% Change in FY18	% Change in FY17	% Change in FY16	% Change in FY15
6	Rajiv Gandhi International Airport	Hyderabad	20.2	21.9	19.1	20.2
7	Cochin International Airport	Kochi	13.6	16.4	21.0	19.2

The continuous growing trends in air traffic and passenger traffic have significant consequences on passenger satisfaction and airport attractiveness. As passenger convenience factors like comfort, processing time, availability of staff, information visibility, security, etc affecting the overall airport service quality score is considered as a priority in the agenda of the airport management, increasing traffic have a significant bearing on the costs related to airside and terminal management for maintaining the required passenger satisfaction level.

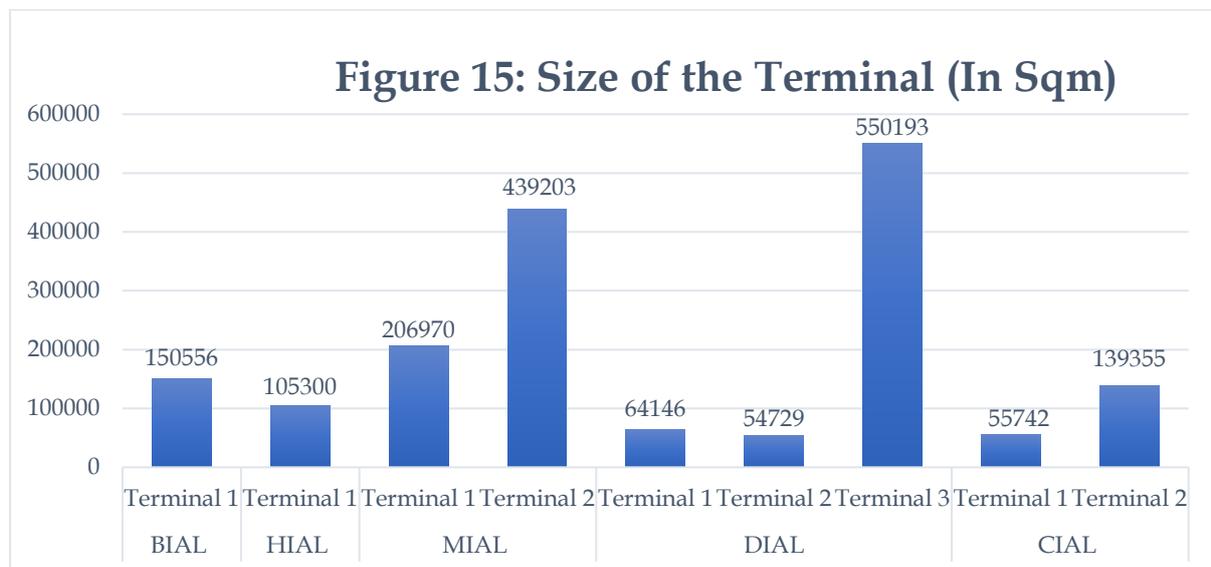


16.1.1.3 NUMBER OF TERMINALS AND SIZE¹⁶

The number and size of the terminal affects various terminal management costs like

- Direct costs of Local Rates and Taxes related the property in use
- Costs to maintain the technical discipline across the terminals for information technology, security systems, people mover systems like the travellers and escalators, the heating ventilation and air conditioning systems
- Maintenance and Cleaning Costs
- Wayfinding and Terminal Signage costs
- Ground Transportation costs
- Airport Security costs, etc

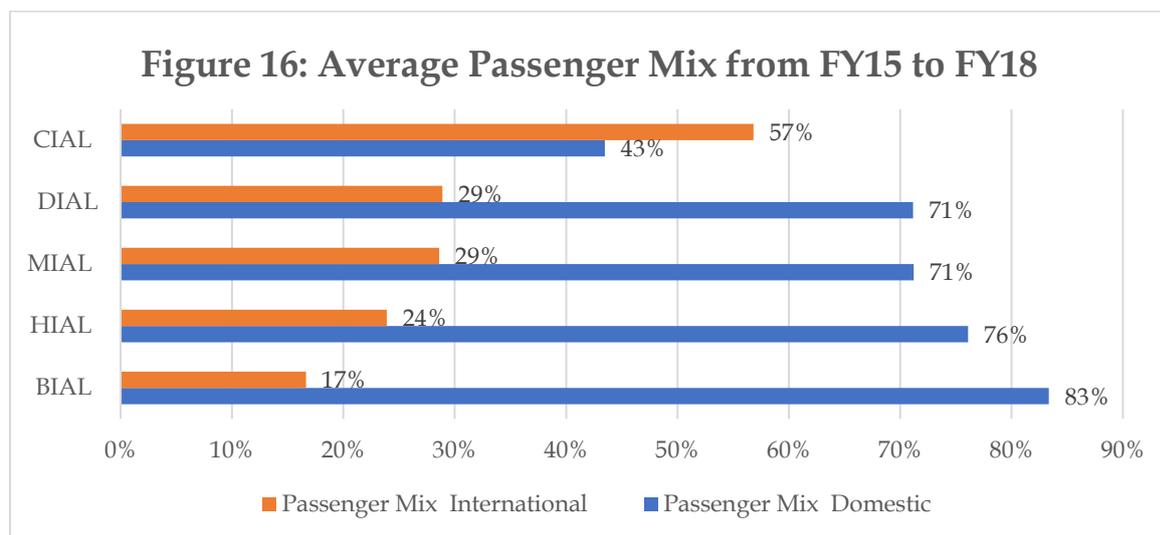
Consequently, from the information gathered and represented in the below chart, it can be interpreted that these costs would comparatively be higher at the Mumbai and Delhi Airport since they operate more than one and larger terminals.



¹⁶ Source: Wikipedia
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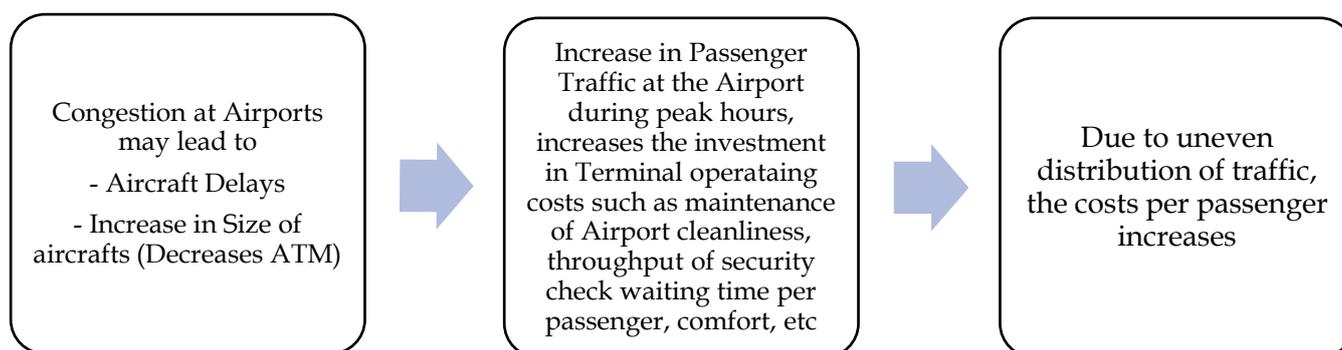
16.1.1.4 PASSENGER MIX¹⁷

Since the proportion of International passengers to the Domestic Passengers are higher at the Cochin Airport, higher costs for the additional services like customs, immigration having related costs of security, personnel, health care can be noted.



16.1.1.5 TERMINAL CAPACITY UTILISATION FOR FY18¹⁸

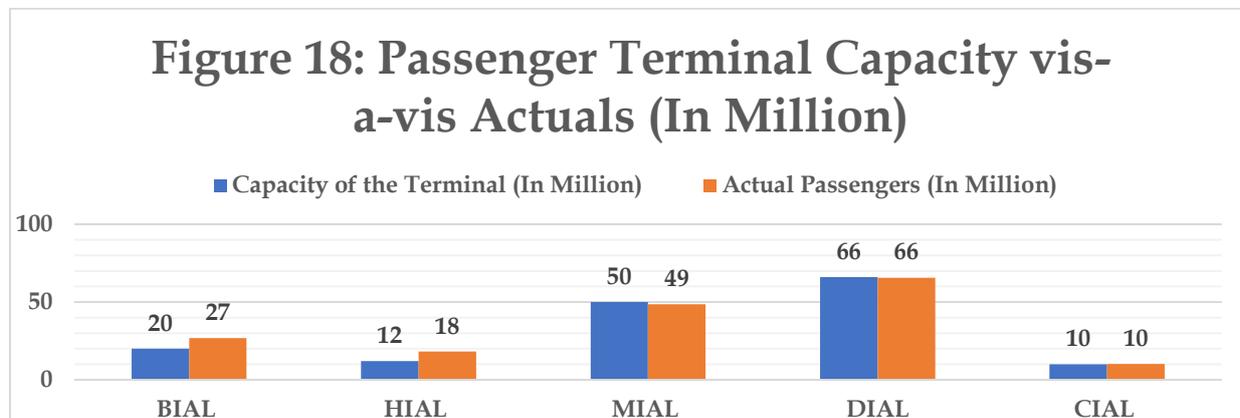
Capacity Utilisation have a two-fold effect on the airport operational costs. Increase in utilisation of the available capacity decreases the per PAX and per ATM Costs of the airport but an increase in terminal traffic more than the available capacity may increase the per PAX cost due to the following impact:



¹⁷ Source: apaointia.com

¹⁸ Source: apaointia.com

Thus, could be seen from the below chart, where Cochin, Delhi and Mumbai are currently operating at 100% capacity, airports at Bengaluru and Hyderabad operate at more than capacity which may influence their per PAX costs (Refer Figure Below)



16.1.1.6 WEATHER CONDITIONS AT THE GEOGRAPHIC LOCATIONS OF THE AIRPORTS¹⁹

Weather conditions of the geographic locations of the airport affect primarily the utilities cost such as power, fuel and water.

In locations such as Delhi where the lowest temperature reaches as low as 8 degrees and the highest reach as high as 40 degrees with humidity up to 58% (September 2018), the consumption of power can be comparatively higher to others locations such as Bengaluru where the average temperature remains constant between 20 to 30 degree Celsius

¹⁹ Source: Average temperature for 2018 by NOAA – National Oceanic and Atmospheric Administration

Delhi

Weather averages

Overview **Graphs**

Temperatures (°C)



Mumbai, Maharashtra

Weather averages

Overview **Graphs**

Temperatures (°C)



Bengaluru, Karnataka

Weather averages

Overview **Graphs**

Temperatures (°C)



Hyderabad, Telangana

Weather averages

Overview **Graphs**

Temperatures (°C)



Kochi, Kerala

Weather averages

Overview **Graphs**

Temperatures (°C)



16.1.1.7 INFERENCE FROM THE FLUCTUATING COST DRIVERS

Based on the available information, it can be construed that benchmarking of total costs between peer airports does not portray accurate positions.

To support the view, we quote the submissions made by the British Airport Authority (BAA) to the UK Civil Aviation Authority (CAA) on Benchmarking in 2001 which emphasizes that a complete set of adjustments would be required to the given airport costs to produce a notional set of perfectly comparable data. However, these adjusted numbers would not bear any

relation to reality. The report illustrates how airports can vary in the degree of services they provide and therefore the costs associated with the same.

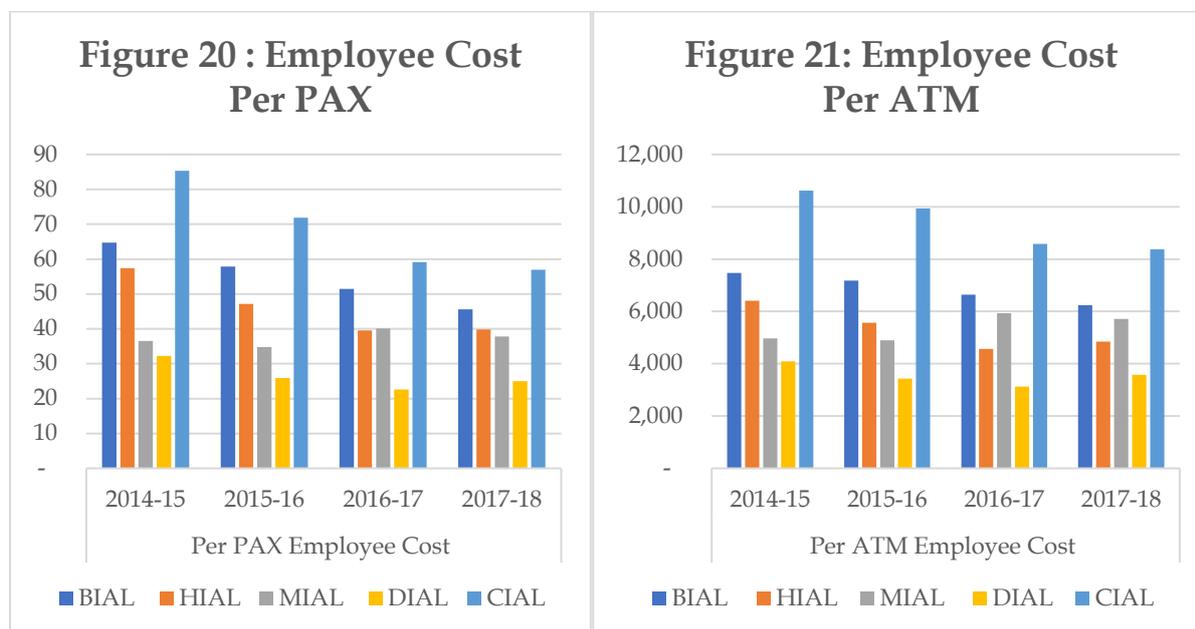
Table 91 Variances between Comparable Airports

Varying Airport Activities include:	Handling activities; International services; Crash and Rescue services; Degree of Security services like cabin Baggage search, Access Control, Other Airfield services
Add on Costs at the Airports	Rates; Airport licences; Corporation tax; Pension/Social security costs
Accounting differences	Asset valuation (replacement methodologies, asset ownership); Intercompany charges
Geographical and Regulatory Differences include	Local utility costs, Local property costs, Local staff costs, Exchange rates
In house/outsourcing	Cleaning; Engineering; Security; Catering; Retail

16.1.2 BENCHMARKING OF COMPONENTS OF OPERATION AND MAINTENANCE COSTS

An effort to analyse the total costs for certain specific cost objects were made to observe the trend movements for the chosen airports and accordingly evaluate the performance of Delhi and Mumbai Airports.

16.1.2.1 EMPLOYEE COST BENCHMARKING

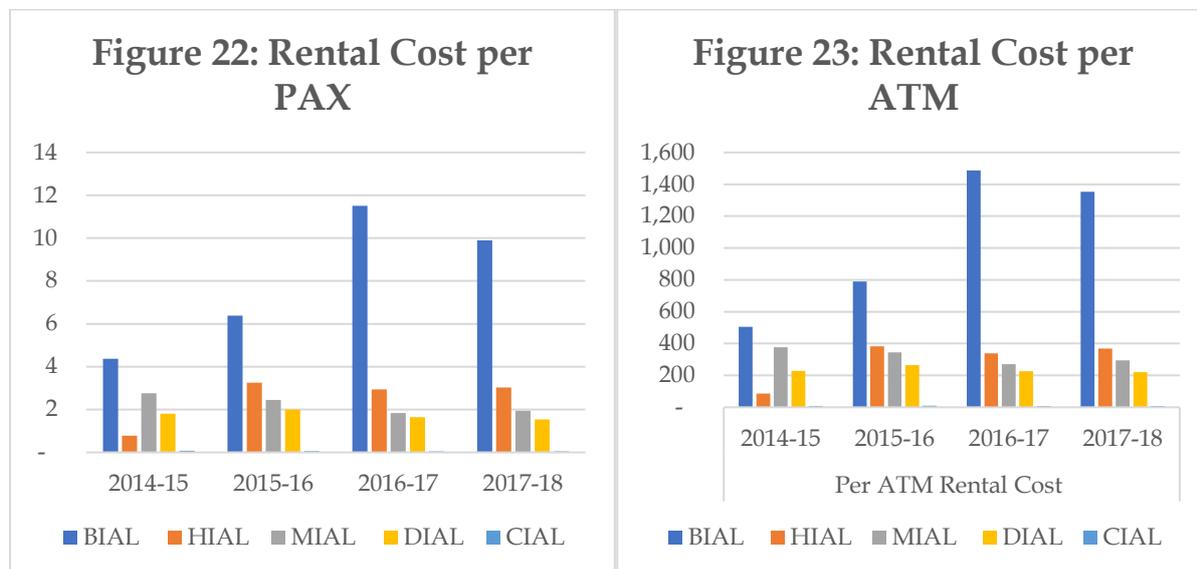


At first, the varying degrees to which airports provide services to its passengers and airlines make this measure of labour productivity particularly difficult to use for external benchmarking.

Further, while certain airports perform all the operations comparing other airports who outsource to other agencies, for example, the Cochin airport performs the operations of Cargo where the other airports have outsourced the same through concessionaires, the manpower costs of the Cochin airport, can be seen to be higher than the others.²⁰

²⁰ Source: Normative Cost Approach by AERA
 R. Subramanian and Company LLP
 Chartered Accountants

16.1.2.2 RENTAL COST BENCHMARKING

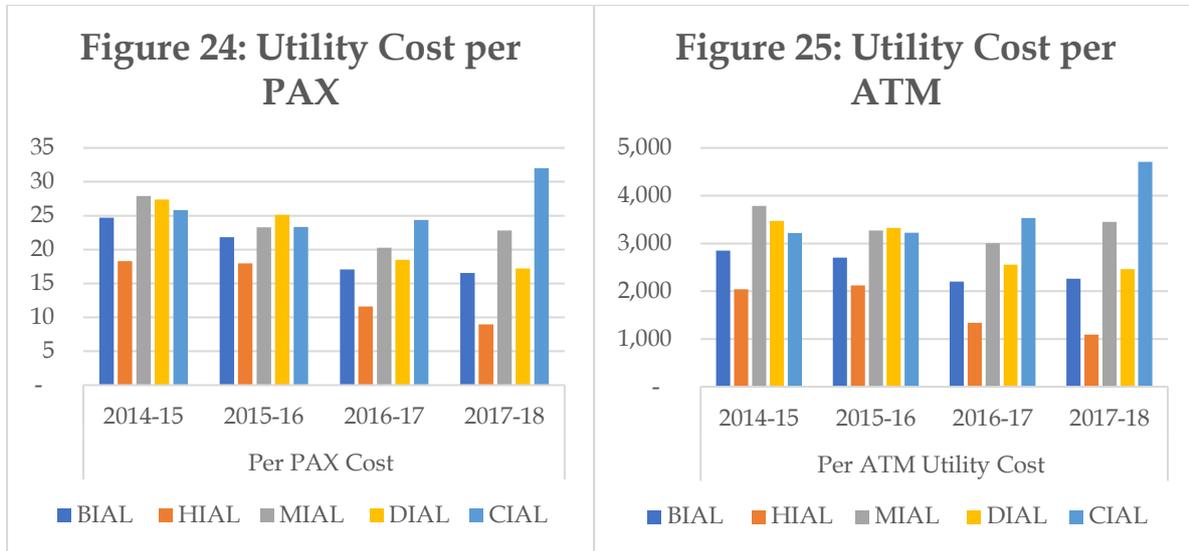


Interpreting the above chart, it was noted that BIAL reflects a higher rental cost as compared to the other domestic airports that were benchmarked.

The vital reason for this variation is the fact that Mumbai and Delhi airports are Brown Field projects with minimal rental payable to AAI for leasing of the airports on an “as is where basis”. However, BIAL (Green Field Project) entered into a Land Lease Agreement (LLA) with the Karnataka Government (KSIIDC) for approximately 4000 acres of land for which an annual lease rental of 3% of the total site cost of ₹211.78 crores is incurred by BIAL. This lease payment by BIAL justifies the higher costs²¹.

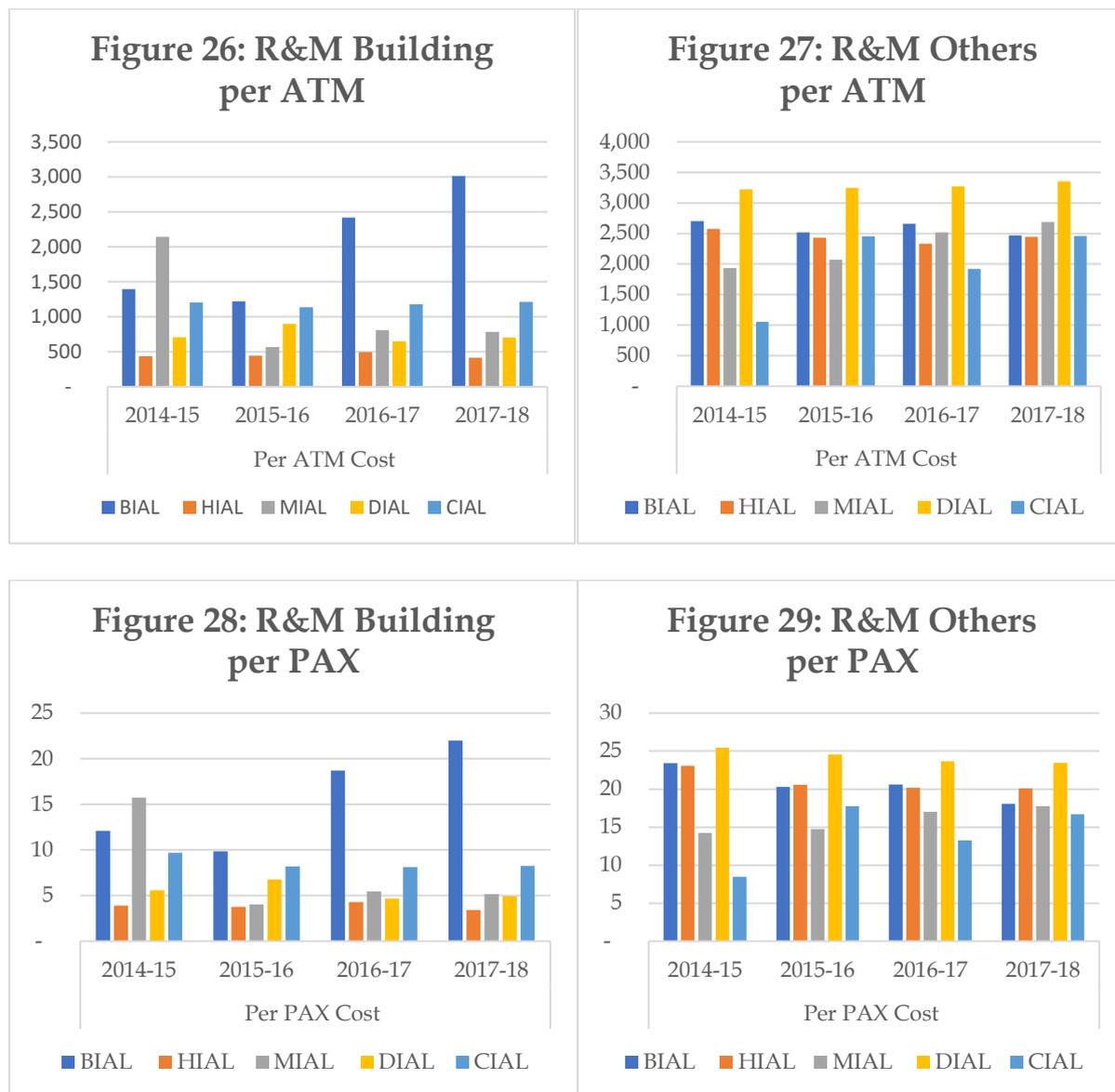
²¹ Source: Annual Report 17-18 of Kempegowda International Airport Limited
 R. Subramanian and Company LLP
 Chartered Accountants

16.1.2.3 UTILITY COSTS (POWER, FUEL AND WATER)



Passenger Terminal Building (PTBs) consist of multiple space types in one structure, such as offices, retail, food service (FS), Public Order and Safety (PO&S), Public Assembly (PA), circulation, ticketing/check-in, passenger screening and other support areas. Due to the complexity and variations in the geometry, operations and business model of these terminal buildings for each of the airports, interpreting the energy consumption patterns for the airports becomes complicated.

16.1.2.4 REPAIRS AND MAINTENANCE



Maintenance ensures that airport buildings and installations are kept fully operational; it includes the internal equipment of the terminal (e.g. baggage conveyor belts, moving stairways, passageways, heating and air conditioning systems, power supply) and the external equipment (e.g. runway lighting, instrument landing system, telecommunication and meteorological equipment), as well as airport vehicles (e.g. buses, firefighting and apron vehicles).

Disparity between the airports in the number of terminals, runways and equipment operated makes these numbers incomparable. Further the extent to which these engineering services may be performed by outside consultants or contractors at airports to enable them to efficiently use such services on a permanent and continuous basis may also add to the reason why these numbers may not be accurately comparable.

16.1.3 BENCHMARKING - DIAL AND MIAL

Due to the unavailability of specific information related the proportion of direct operating and administrative expenses to the total operation and maintenance costs of an airport and the proportion of the Operating staff and support staff to the total manpower strength at the airport to benchmark the cost levels involved in the backend functioning of airports, the exercise of benchmarking for these two parameters were restricted only to Delhi and Mumbai Airports.

16.1.3.1 PROPORTION OF OPERATION AND MAINTENANCE COST (EXCLUDING A&G EXPENSES) TO THE ADMINISTRATIVE AND GENERAL (A&G) EXPENSES AT MIAL AND DIAL

The below table shows the total cost per PAX at the Mumbai and Delhi Airport split into proportion of costs related to operation of the Terminal like

- Costs of Power, fuel and Water
- Costs of Consumables
- Repair and Maintenance Expenses
- Insurance
- Housekeeping and Security Expenses

and other indirect costs (A&G) required for supporting the functions of the airports like:

- Rent, Rates and Taxes
- Costs related the Corporate Social Responsibilities

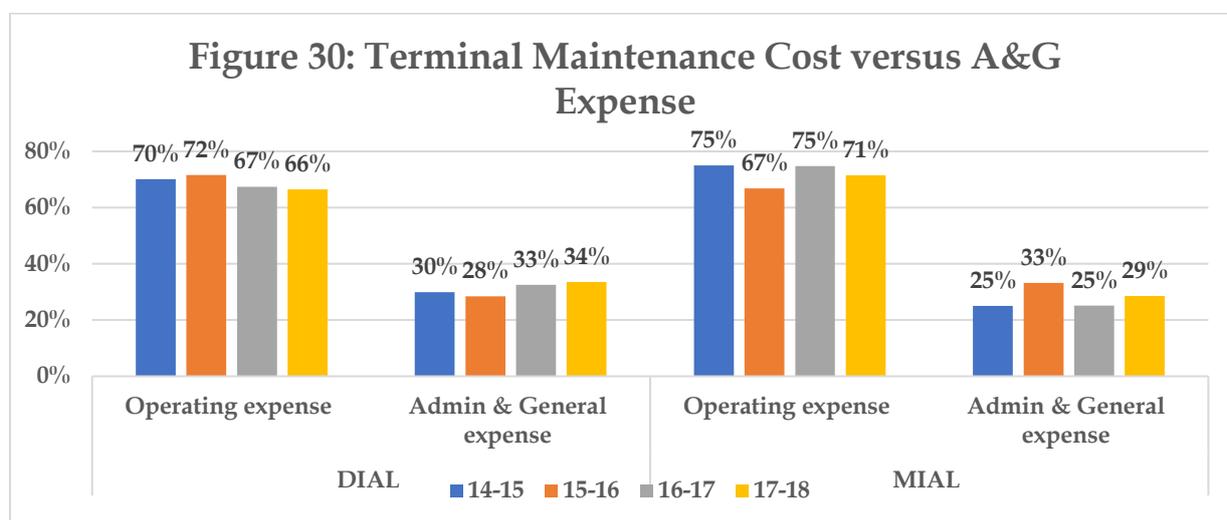
- Advertisement
- Traveling and Conveyance
- Professional Consultancy Charges, etc

Table 92 Proportion of Terminal Operating Cost and A&G Expenses at MIAL and DIAL

(₹ crores)

Particulars	Cost per PAX				Proportion of Costs			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
DIAL Terminal Operating Cost (excluding A&G)	97.25	83.64	69.42	71.23	70%	72%	67%	66%
DIAL Admin & General expense	41.47	33.22	33.50	35.89	30%	28%	33%	34%
Total Cost per PAX - DIAL	138.72	116.86	102.92	107.12				
MIAL Terminal Operating (excluding A&G)	88.01	73.25	78.28	76.86	75%	67%	75%	71%
MIAL Admin & General expense*	29.26	36.38	26.36	30.65	25%	33%	25%	29%
Total Cost per PAX - MIAL	117.27	109.63	104.65	107.51				

*The Expenses of MIAL excludes the Collection Charges on Development Fund until FY17 as the same is adjusted against the revenue in the books of DIAL.



The above table when represented in graphs comparing the proportions maintained at both the airports, it was noted on an average both the airports operate at the same levels of operating and non-operating costs.

16.1.3.2 PROPORTION OF SUPPORT STAFF (NON-OPERATING) TO OPERATING STAFF AT MIAL AND DIAL

The below table shows the total employee count at the Mumbai and Delhi Airport split into manpower directly engaged with the operation of the airport working in departments like

- Airside Management
- Terminal Management
- Project and Engineering
- Baggage Operations
- Security
- Slot and Data Management

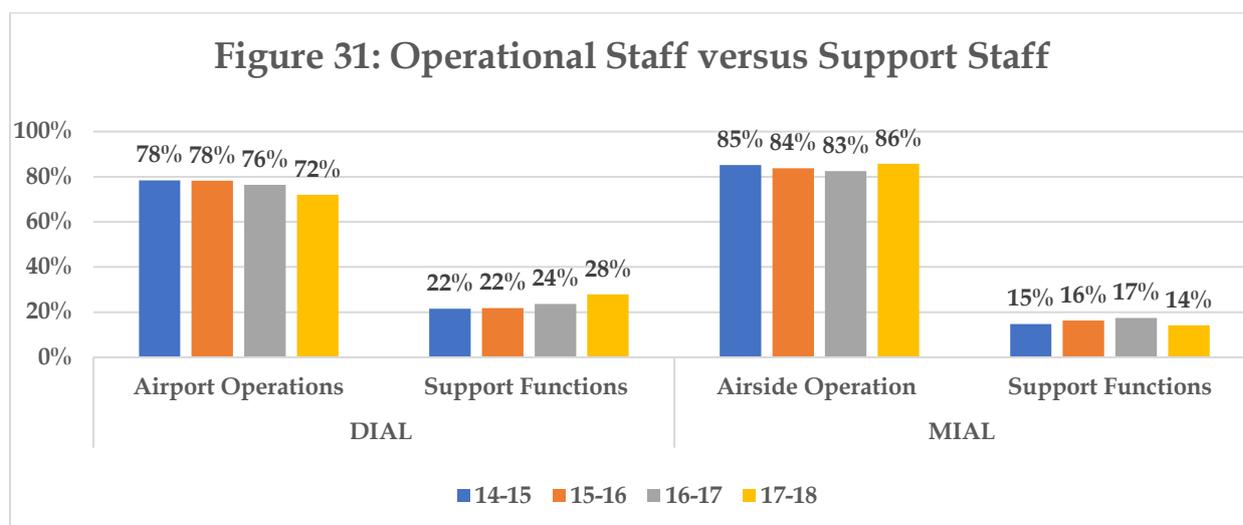
and manpower not directly related to the functional departments of the airport but required for supporting the functions of the airports like

- Senior Management Office
- Support Business functions like Legal, audit and assurance, Information Technology, etc
- Human Resource Management
- Aero Marketing Team, etc

Table 93 Proportion of Operating and Support Staff at DIAL and MIAL

(₹ crores)

Particulars		Manpower Count				Proportion of Support Functions			
		FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
MIAL	Airside Operation	1152	1065	1022	988	85%	84%	83%	86%
	Support Functions	200	207	216	164	15%	16%	17%	14%
	Total	1352	1272	1238	1152	-	-	-	-
DIAL	Airport Operations	1245	1187	1130	1252	78%	78%	76%	72%
	Support Functions	343	331	350	485	22%	22%	24%	28%
	Total	1588	1518	1480	1737	-	-	-	-



The above table when represented in graphs comparing the proportions maintained at both the airports, it was noted that on an average MIAL maintains a slightly lower proportion of non-support staff when compared to DIAL.

16.2 SUMMARY

Thus, in setting up of the efficiency target for the operations of Airports in India, we must be mindful of the numerous uncontrollable factors that vary between the airports since these variable factors are generally consistent with costs. The above charts (given in section 16.1) only give a general impression of how airport performance compares with other airports but aren't suitable to set regulatory price caps.

16.3 INTERNATIONAL BENCHMARKING²²

- i Broadly meeting the criterion of comparable airport size to DIAL in terms of its passenger capacity of around 66MAP, Leigh- Fisher has selected fifteen airports for which data are available for the purpose of International Benchmarking. The List of fifteen airports along with the passenger throughout for calendar year 2017 are as per the table below:

Table 94 List of Comparable International Airports

(₹ crores)

Airport	Domestic	International	Total
Delhi	4.84	1.73	6.57
Amsterdam	0.00	7.58	7.58
Beijing	7.01	2.56	9.58
Hong Kong	-	7.36	7.36
London Gatwick	0.40	4.17	4.57
London Heathrow	0.48	7.32	7.80
Los Angeles	6.09	2.57	8.66
Melbourne	2.59	1.09	3.68
Miami	2.23	2.14	4.38
Mumbai	3.48	1.36	4.85
Munich	0.98	3.47	4.45
Rome Airports	1.17	3.50	4.69
San Francisco	4.39	1.38	5.77
Singapore Changi	-	6.30	6.30
Sydney	2.74	1.60	4.33
Tokyo Narita	0.75	3.34	4.09

²² Source: Leigh Fisher
R. Subramanian and Company LLP
Chartered Accountants

ii. For the above airports, benchmarks were produced for the following cost Objects

- Total operating costs
- Staff costs
- Total non-staff operating costs
- Maintenance Cost

In addition, data are available to produce benchmarks of maintenance costs for the following nine airports (in addition to DIAL):

<ul style="list-style-type: none"> • Amsterdam • Beijing • Hong Kong 	<ul style="list-style-type: none"> • London Gatwick • London Heathrow • Melbourne 	<ul style="list-style-type: none"> • San Francisco • Singapore Changi • Sydney
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iii. The results are expressed in three ways

- on a per passenger basis,
- on a per ATM basis,
- in relation to airport capacity,

and in the following currencies for each of the three options above:

- Indian Rupees,
- US Dollars,
- SDRs (see below).

The SDR is an international reserve asset, created by the International Monetary Fund (IMF), to supplement its member countries' official assets. The value of the SDR is based on a basket of five currencies - the US Dollar, the Euro, the Chinese Ren, the Japanese Yen and the British Pound.

iv. The Benchmarking exercise was carried out with the data for calendar year 2017

v. Results of the International Benchmarking

A. Per Passenger Basis

- Delhi ranks in 15th position (*in order of highest to lowest cost*) out of 16 airports in terms of total costs per passenger. Its total costs per passenger are 20.8% of the average for the sample of airports.
- Delhi ranks in 16th and 15th positions (*in order of highest to lowest cost*) in terms of staff costs and non-staff costs per passenger respectively. Delhi's staff costs are only 9.4% of the average for the sample and non-staff costs are 26.8% of the average for the sample.
- Delhi ranked in 8th position (*in order of highest to lowest cost*) out of ten in comparison of the maintenance cost per passenger, and its maintenance costs equate to 49% of the average for the sample.

B. Per ATM Basis

- Delhi ranks in 15th position (*in order of highest to lowest cost*) out of 16 airports in terms of total costs per passenger. Its total costs per passenger are 20.3% of the average for the sample of airports.
- Delhi ranks in 16th and 15th positions (*in order of highest to lowest cost*) in terms of staff costs and non-staff costs per passenger respectively. Delhi's staff costs are only 9.3% of the average for the sample and non-staff costs are 26.0% of the average for the sample
- Delhi ranked in 8th position (*in order of highest to lowest cost*) out of ten in comparison of the maintenance cost per passenger, and its maintenance costs equate to 44.5% of the average for the sample.

C. Per Terminal Capacity

- Delhi ranks in 15th position (*in order of highest to lowest cost*) out of 16 airports in terms of total costs per passenger. Its total costs per passenger are 22.8% of the average for the sample of airports.

- Delhi ranks in 15th positions (*in order of highest to lowest cost*) in terms of staff costs and non-staff costs per passenger respectively. Delhi's staff costs are only 10.3% of the average for the sample and non-staff costs are 29.5% of the average for the sample
- Delhi ranked in 8th position (*in order of highest to lowest cost*) out of ten in comparison of the maintenance cost per passenger, and its maintenance costs equate to 53.3% of the average for the sample.

16.4 SUMMARY

Reiterating the fact that the chosen comparable airports only broadly meet the criteria of comparable airport size, from the above results of Leigh-Fisher, it is interpreted that the Operating and Maintenance cost levels at the Delhi Airport are comparatively lower than its peer airports. However, the scale of difference between the variation from the average for maintenance costs compared to the variation from the average for the other three metrics makes the comparability of operating and maintenance costs quite complex.

17 AIRPORT SERVICE QUALITY ASSESSMENT OF DIAL

For coping up with ever- growing passenger traffic, air movement traffic and the Cargo Movements and for improving its passenger facilities, the Delhi International Airport Limited (DIAL) made significant investments in Second Control Period (2014 to 2019). DIAL has refurbished its T2, expanded its facility in T1, installed solar power plants, initiated measures to rehabilitate its airside pavements and thus improve their passenger turnaround time over the four years. The parameters and rating per parameter are as given in the below table²³.

Table 95 ASQ Rating for Quarter 2, Quarter 3 for FY18 and Quarter 4 for FY19

ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
OVERALL SATISFACTION SCORE						
Overall satisfaction with the airport	5	5	5	5	4.99	5
Overall satisfaction with the airport; business PAX	5	5	5	5	4.94	5
Overall satisfaction with the airport; leisure PAX	5	5	5	5	5	5
Overall satisfaction other+ Leisure	5	5	5	5	5	5
ACCESS						
Ground transportation to/ from the airport	4.72	4.74	4.85	4.64	4.93	4.9
Availability of parking facilities	4.71	4.61	4.78	4.58	4.86	4.87
Parking facilities value for money	4.72	4.59	4.71	4.56	4.8	4.83
Availability of baggage carts/ trolleys	4.78	4.67	4.54	4.63	4.76	4.79
CHECK-IN (AT THIS AIRPORT)						
Waiting time in check-in-queue/ line	4.82	4.78	4.86	4.68	4.8	4.89

²³ Source: Management Information
R. Subramanian and Company LLP
Chartered Accountants

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ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
Efficiency of check-in staff	4.76	4.68	4.73	4.58	4.89	4.76
Courtesy and helpfulness of inspection staff	4.84	4.69	4.8	4.71	4.88	4.79
PASSPORT/ PERSONAL ID CONTROL						
Waiting time at passport/ personal ID inspection				4.68	4.86	4.78
Courtesy and helpfulness of inspection staff				4.68	4.86	4.71
SECURITY						
Courtesy and helpfulness of security staff	4.82	4.81	4.93	4.81	4.85	4.89
Thoroughness of Security inspection	4.76	4.66	4.69	4.69	4.9	4.75
Waiting time at security inspection	4.84	4.69	4.74	4.66	4.91	4.75
Feeling of being safe and secure	4.89	4.75	4.87	4.82	4.92	4.85
FINDING YOUR WAY						
Ease of finding your way through airport	4.83	4.77	4.92	4.81	4.77	4.91
Flight information screens	4.77	4.66	4.77	4.69	4.86	4.76
Walking distance inside the terminal	4.82	4.69	4.79	4.61	4.84	4.77
Ease of making connections with other flights	4.9	4.75	4.79	4.81	4.84	4.86
AIRPORT FACILITIES						
Courtesy, helpfulness of airport staff	4.82	4.81	4.94	4.84	4.81	4.97
Restaurant/ eating facilities	4.62	4.62	4.64	4.68	4.82	4.79
Restaurant facilities value for money	4.63	4.67	4.57	4.67	4.85	4.73

AERA RFP 02/2018-19
Study on Efficient Operation and Maintenance Costs

ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
Availability of bank/ ATM facilities/ money changers	4.86	4.86	4.73	4.82	4.92	4.67
Shopping facilities	4.8	4.75	4.79	4.77	4.9	4.84
Shopping facilities value for money	4.79	4.78	4.49	4.76	4.83	4.51
Internet access/ Wi-Fi	4.88	4.85	4.84	4.86	4.9	4.84
Business/ Executive lounges	4.93	4.84	4.75	4.89	4.92	4.78
Availability of washrooms/ toilets	4.95	4.89	4.93	4.94	4.97	4.97
Cleanliness of washrooms/ toilets	4.94	4.92	4.95	4.92	4.95	4.96
Comfort of waiting/ gate areas	4.9	4.89	4.91	4.91	4.9	4.95
Cleanliness of airport terminal	4.97	4.97	4.99	4.99	4.95	5
Ambience of the airport	4.97	4.95	4.94	4.98	4.95	4.99
ARRIVAL SERVICES						
Arrivals passport and visa inspection				4.57	4.92	4.82
Speed of baggage delivery service	4.73	4.67	4.74	4.49	4.84	4.72
Customs inspection				4.64	4.91	4.69
OVERALL SATSFACTION						
Overall satisfaction with the airport	5	5	5	5	4.99	5
Ease of finding your way through airport/ Sign posting	4.83	4.77	4.92	4.81	4.77	4.91
Flight information screens	4.77	4.66	4.77	4.69	4.86	4.76
Walking distance	4.82	4.69	4.79	4.61	4.84	4.77
Ease of making connections with other flights	4.9	4.75	4.79	4.81	4.84	4.86
Ground transportation to/ from the airport	4.72	4.74	4.85	4.64	4.93	4.9

AERA RFP 02/2018-19
Study on Efficient Operation and Maintenance Costs

ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
Availability of Baggage carts	4.78	4.67	4.54	4.63	4.76	4.79
Restaurant/ Eating facilities	4.62	4.62	4.64	4.68	4.82	4.79
Shopping Facilities	4.8	4.75	4.79	4.77	4.9	4.84
Business Facilities (ATM/ Money Exchange)	4.86	4.86	4.73	4.82	4.92	4.67
Washrooms (Cleanliness)	4.94	4.92	4.95	4.92	4.95	4.96
Parking Facilities	4.71	4.61	4.78	4.58	4.86	4.87
Restaurant/ Eating facilities	4.63	4.67	4.64	4.67	4.85	4.79
Shopping Facilities	4.79	4.78	4.79	4.76	4.83	4.84
Parking Facilities	4.72	4.59	4.71	4.56	4.8	4.83
Courtesy, helpfulness of airport staff	4.82	4.81	4.94	4.84	4.81	4.97
Comfort of waiting/ gate areas	4.9	4.89	4.91	4.91	4.9	4.95
Speed of baggage delivery services	4.73	4.67	4.74	4.49	4.84	4.72
Cleanliness of airport terminal	4.97	4.97	4.99	4.99	4.95	5
Ambience of the airport	4.97	4.95	4.94	4.98	4.95	4.99
Waiting time in Check-in	4.82	4.78	4.86	4.68	4.8	4.89
Efficiency of Check-in	4.76	4.68	4.73	4.58	4.89	4.76
Courtesy, helpfulness of check-in staff	4.84	4.69	4.8	4.71	4.88	4.79
Business/ executive lounges	4.93	4.84	4.75	4.89	4.92	4.78

Average ASQ rating (overall satisfaction) for domestic is 4.79 and international is 4.82.

18 OVERALL SUMMARY OF THE STUDY

- DIAL is the 12th busiest airport in the world and 6th busiest airport in Asia by passenger traffic handling nearly 67 million passengers in FY18.
- During the Second Control Period, the total passenger traffic grew at a rate of 17.03% p.a, Air traffic at 12.39%p.a & Cargo at 11.40% p.a. The Passenger terminal capacity utilisation increased from 62% to 100% and Runway Capacity utilisation increased from 55% to 72%.
- The total Operation and Maintenance costs incurred by DIAL during the Second Control Period was ₹ 5,649.36 crores.
- Based on the nature and description of the costs, the same was classified as Aeronautical and Non-Aeronautical in accordance with Schedules 5 and 6 of OMDA respectively.
- Segregation logics were determined for appropriate segregation of Common costs in to Aeronautical and Non-Aeronautical categories (as detailed in Table 1). Accordingly, the
 - Common costs incurred within the Terminal have been segregated in the ratio of space demarcated within the terminals for Aeronautical/ Non-Aeronautical activities as per initial floor space plan (*as it was noted that the actual space let out for Non -Aeronautical activities (89,804 sqm) was lower than the space demarcated for the same (1,05,252 sqm)*).
 - Common costs incurred outside the Terminal were segregated using a reasonable basis - *Adjusted Gross Fixed Assets ratio of 89:11 was used as a norm for apportioning such expenses and for exceptions such as Chartering, transit house expenses etc where there was no proper basis to ascertain the actual usage, a 50:50 ratio was used for apportionment.*
- Out of the total Operational and Maintenance costs of ₹ 5,649.36 crores, DIAL had classified Aeronautical Expenses (other than Forex Losses of ₹ 576.30 crores) as ₹ 4,304.15 crores and Non-Aero Expenses as ₹ 768.91 crores. Based on the study, an adjustment of ₹ 64.79 crores was made to the Aeronautical Expenses (as mentioned in section 4.1) and the total expenses have been re-segregated as under:
 - Adjusted Aeronautical expenses: ₹ 4,239.36 crores.
 - Non-Aeronautical expenses: ₹ 833.70 crores.

- Forex losses: ₹ 576.30 crores. The Authority may take its own view with regard to the above forex loss.
- Administration costs includes expenses such as Advertising, Consultancy, Travelling, Chartering, Rent, Taxes, Corporate cost etc, totaling to ₹ 759.50 crores (for FY15 to FY18).
- In order to determine the Efficient baseline costs, we have made a detailed study of DIAL's costing system, budgetary process, cost centre-wise allocation methodology, and process efficiency improvement initiatives undertaken.
- Standardised process is followed at DIAL for setting up budgets in the form of an Annual Operating Plan (AOP). MIS documenting the actual performance (financial & operational) vis-à-vis the AOP is documented and reviewed periodically by the Senior Management.
- There are 28 major departments/cost centers that are further divided into Sub-Cost Centers and the segregation of all operation and maintenance costs into Aeronautical and Non-Aeronautical is based on the nature of the sub cost center.
- Total cost savings of DIAL achieved through Continuous Improvement Plans (CIP) & Bottom Line Improvement Plans (BLIP) for the Second Control Period was ₹ 92.65 cr.
- Trend analysis was performed to determine efficiency of costs (adjusted with general price level changes to remove inflationary effect) incurred by DIAL over a period. Overall, the increase in operational costs were in consonance with the steady increase in passenger traffic/ air-craft movements.
- Operational and Maintenance (O&M) costs of DIAL was benchmarked with 4 domestic airports and 15 international airports and it was noted DIAL's O&M costs (per passenger and ATM) were reasonable as compared to the other domestic airports and were lower than the international airports.
- Airport Service Quality (ASQ) assessment of DIAL for the period ending 31 March 2019 based on various factors such as *Access, Check-in, Security, Passport/Personal ID control, Airport facilities, Arrival services, Overall satisfaction etc* showed that the average ASQ rating for domestic was 4.79 and international was 4.82, out of a maximum possible rating of 5.

19 LIMITATIONS

- We have relied on the reports of internal auditors, statutory auditors, cost auditors and the verification reports with respect to physical verification of fixed assets. As part of our study, we have performed a sample verification of internal documents for assessment of baseline costs and for its appropriate segregation in to 'Aeronautical' and Non-Aeronautical'.
- Our work procedures do not constitute an audit, examination or a review in accordance with generally accepted auditing standards or attestation standard as is expected under section 143 of the Company's Act, 2013. Consequently, we do not intend to express any opinion on the accuracy or appropriateness of such expenditures or its underlying assumptions.
- The study on the segregation of Assets and Operation and Maintenance Expenses and testing of the baseline costs for the second control period were limited to data up to FY18 only. However, any impact arising due to differences in opinion with the segregation logics adopted by DIAL were worked out also for FY19.

20 ANNEXURE TO DOMESTIC BENCHMARKING

20.1 TOTAL COST FOR THE AIRPORTS

Table 96 Total Cost at the Comparable Domestic Airports

(₹ crores)

Total Cost				
	FY15	FY16	FY17	FY18
BIAL	277	275	329	358
HIAL	220	225	257	315
MIAL	583	627	679	718
DIAL	830	825	891	1,047
CIAL	119	151	144	165
Employee Cost				
	FY15	FY16	FY17	FY18
BIAL	100	110	118	123
HIAL	60	59	60	72
MIAL	134	145	181	183
DIAL	132	125	131	164
CIAL	55	56	53	58
Rental Cost				
	FY15	FY16	FY17	FY18
BIAL	7	12	26	27
HIAL	1	4	4	6
MIAL	10	10	8	9
DIAL	7	10	9	10
CIAL	0	0	0	0
Power and Water				
	FY15	FY16	FY17	FY18
BIAL	38	41	39	44
HIAL	19	22	17	16
MIAL	102	97	92	111
DIAL	112	122	107	113
CIAL	17	18	22	32
R&M - Building				
	FY15	FY16	FY17	FY18
BIAL	19	19	43	59
HIAL	4	5	6	6
MIAL	58	17	25	25
DIAL	23	33	27	32

Total Cost				
CIAL	6	6	7	8
R&M - Machinery and Others				
	FY15	FY16	FY17	FY18
BIAL	36	39	47	49
HIAL	24	26	30	37
MIAL	52	61	77	86
DIAL	104	119	136	154
CIAL	5	14	12	17

20.2 COST PER PAX AND PER ATM

Table 97 Costs per PAX and ATM at the comparable domestic airports

(₹ crores)

	Per PAX Total Cost				Per ATM Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	180	145	144	133	20,719	17,934	18,553	18,227
HIAL	210	180	170	173	23,409	21,237	19,666	21,071
MIAL	159	150	150	148	21,651	21,151	22,214	22,380
DIAL	202	171	154	159	25,648	22,573	21,346	22,806
CIAL	185	194	162	164	23,027	26,797	23,406	24,053
	Per PAX Employee Cost				Per ATM Employee Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	65	58	51	46	7,466	7,174	6,644	6,231
HIAL	57	47	40	40	6,412	5,569	4,564	4,840
MIAL	37	35	40	38	4,963	4,890	5,932	5,714
DIAL	32	26	23	25	4,085	3,427	3,129	3,582
CIAL	85	72	59	57	10,621	9,937	8,576	8,369
	Per PAX Rental Cost				Per ATM Rental Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	4	6	12	10	505	790	1,487	1,354
HIAL	1	3	3	3	87	384	339	368
MIAL	3	2	2	2	376	344	271	294
DIAL	2	2	2	2	229	265	226	220
CIAL	0	0	0	0	9	9	7	8
	Per PAX Utility Cost				Per ATM Utility Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18

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BIAL	25	22	17	17	2,846	2,704	2,202	2,261
HIAL	18	18	12	9	2,043	2,119	1,338	1,092
MIAL	28	23	20	23	3,788	3,271	3,001	3,453
DIAL	27	25	18	17	3,473	3,327	2,553	2,465
CIAL	26	23	24	32	3,216	3,224	3,531	4,708
Per PAX R&M- Building Cost					Per ATM R&M- Building Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	12	10	19	22	1,396	1,220	2,417	3,010
HIAL	4	4	4	3	435	445	493	414
MIAL	16	4	5	5	2,140	566	807	782
DIAL	6	7	5	5	709	896	647	704
CIAL	10	8	8	8	1,205	1,134	1,179	1,214
Per PAX R&M- Machinery and Others Cost					Per ATM R&M- Machinery and Others Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	23	20	21	18	2,700	2,517	2,660	2,470
HIAL	23	21	20	20	2,576	2,429	2,332	2,443
MIAL	14	15	17	18	1,934	2,071	2,518	2,686
DIAL	25	25	24	23	3,224	3,248	3,269	3,354
CIAL	8	18	13	17	1,055	2,453	1,920	2,457

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22 GLOSSARY

Table 98 Table of Glossary

Abbreviations	Expansions
AAI	Airports Authority of India
ACI	Airports Council International
ACS	Access Control Systems
AERA	Airports Economic Regulatory Authority
AGL	Airfield Ground Lighting
AMC	Annual Maintenance Contract
AMDB	Airport Mapping Database
AOA	Airport Operator Agreement
AOCC	Airport Operation Control Centre
AODB	Airport Operational Database
AOP	Annual Operating Plan
ASQ	Airport Service Quality
ATC	Air Traffic Control
ATM	Aircraft Movement
ATR	Action Taken Report
BAA	British Airport Authority
BAC	Base Airport Charges
BCM	Business Chairman
BIAL	Bengaluru International Airport Limited
BID	Bill Inward Desk
BLIP	Bottom Line Improvement Plans
BRS	Baggage reconciliation system
CAA	Civil Aviation Authority
CAGR	Compound annual growth rate

Abbreviations	Expansions
CCMO	Corporate Chairman Office
CCTV	Control Centre television camera
CDM	Collaborative Decision-Making Module
CFT	Crash Fire Tenders
CIAL	Cochin International Airport Limited
CIP	Continuous Improvement Plans
CISF	Central Industrial Security Force
CMC	Comprehensive Maintenance Contract
CPSD	Corporate Strategic & Planning Department
CSR	Corporate Social Responsibility
CUPPS	Common Use Passenger Processing Systems
CUSS	Common Use Self Service
CUTE	Common Use Terminal Equipment
DIAL	Delhi International Airport Private Limited
EPOS	Electronic Point of Sale
FAR	Fixed Asset Register
FIDS	Flight information display system
FTE	Full Time Equivalent
FY	Financial year from 1 April till 31 st March
GADL	GMR Airport Developer Limited
GAL	GMR Airports Ltd
GCM	Group Chairman
GDP	Gross Domestic Product
GHB	GMR Holding Board
GHIAL	GMR Hyderabad International Airport Limited
GIL	GMR Infrastructure Limited
GOI	Government of India
GRN	Goods Receipt Note

Abbreviations	Expansions
HIAL	Hyderabad International Airport Limited
HVAC	Heating Ventilation and Air Conditioning
IATA	International Air Transport Association
IBLA	India Business Leader
ICWA	Institute of Cost and Works Accountants
IGIA	Indira Gandhi International Airport
IMB	(Interface Message Broker)
IOTY	Indian of the Year
IT JV	Information Technology Joint Venture (WAISL)
JVC	Joint Venture Company
KPI	Key performance indicators
LDA	Lease Deed Agreement
LLA	Land Lease Agreement
LLP	Limited Liability Partnership
MAP	Million Annual Passengers
MATV	Master Antenna TV
MCA	Ministry of Civil Aviation
MCD	Municipal Corporation of Delhi
MIAL	Mumbai International Airport Limited
MIS	Management Information System
MPAS	Mobile Phone Antenna Systems
MPPA	Million Passengers per annum
MRSS	Main Receiving Sub-Station
NFA	Notes for approvals
NUB	New Udaan Bhavan
OMDA	Operation, Management and Development Agreement
OTP	On Time Performance
PA	Public Assembly

Abbreviations	Expansions
PAVA	Public Address System
PAX	Passengers
PBB	Passenger Boarding Bridge
PDPR	Personal Development and Performance Review
PIDS	Perimeter Intrusion Detection System
PO	Purchase Orders
POS	Public Order and Safety
PPE	Plant, Property and equipment
PR	Purchase Requisition
PTB	Passenger Terminal Building
PSF	Passenger Service Fee
RAB	Regulatory Asset Base
ORFQ	Request for Quotation
RVR	Runway Visual Range
SA	Shareholders' Agreement
SE	Service entry
SGSA	State Government Support Agreement
SPG	Strategic Planning Group
SSA	State Support Agreement
STP	Sewage Treatment Plant
T1	Terminal 1
T2	Terminal 2
T3	Terminal 3
TDSAT	Telecom Disputes Settlement and Appellate Tribunal
TMRS	Tetra Mobile Radio Systems
UDF	User Development fee
UFIS	Universal Flight Information System
VDGS	Visual Docking Guiding System

Abbreviations	Expansions
VFD	Variable Frequency Drive
VHT	Vertical Horizontal Travellator
VIM	Vendor Invoice Management
WAISL	Wipro Airport IT Services Limited
WPI	Wholesale Price Index
YTD	Year to date

23 EXHIBITS

23.1 EXHIBIT 1 ON FINAL ANNEXURE ON OPERATING AND MAINTENANCE EXPENSES

[Exhibit 1 - Final Annexure of Operation and Maintenance Expense.xlsx](#)

23.2 EXHIBIT 2 ON THE HOTO CERTIFICATE WORKINGS FOR ACTUAL LET OUT RETAIL SPACE

[Exhibit 2- HOTO Working.xlsx](#)

Summary of the Operating and Maintenance Expense of DIAL

Particulars	Reference to the Annexure	In ₹ (Refer Item A of Table 2 in our Report 02/2018-19)	Aeronautical Charges as per DIAL Study (Refer Item D of Table 2 in our Report 02/2018-19)	Aeronautical Charges as per Our Study (Refer Item H of Table 2 in our Report 02/2018- 19)	Proposed Increase/Decrease in Aeronautical Expenses (Refer Item G of Table 2 in our Report 02/2018-19)
Total Operating and Maintenance Expense Up to FY 18	Sheet 1. Total O&M Expense upto FY 18	36,565,143,706	31,435,556,723	30,946,977,710	488,579,014
Total Operating and Maintenance Expense FY 19	Sheet 2. Total O&M Expense for FY 19	10,439,645,765	8,908,200,679	8,759,997,460	148,203,220
Finance Charges (Bank Charges, Amortisation Fee and Refinancing Charges)	Refer Sheet 1A + Sheet2 - Finance Charges	2,635,100,000	2,349,115,670	2,343,415,670	5,700,000
Foreign Exchange Gain/Loss		6,464,300,000	5,763,000,000	5,763,000,000	-
Additional Property tax Paid on Demand	Refer Sheet1A - Additional Property Tax	389,500,000	348,700,000	343,300,000	5,400,000
Total Expense Claimed		56,493,689,471	48,804,573,073	48,156,690,840	647,882,233

Company Name	Country	Market	Revenue	Profit	Employees	Industry	Headquarters	Website	Year Founded	Market Cap	Revenue Growth	Profit Growth	Employee Growth	ESG Score	Dividend Yield	P/E Ratio	ROIC	Debt to Equity	Current Ratio	Operating Margin	Net Margin	EBITDA Margin	Free Cash Flow Margin	Return on Assets	Return on Equity	Return on Capital Employed	Return on Invested Capital	Return on Assets (Adj)	Return on Equity (Adj)	Return on Capital Employed (Adj)	Return on Invested Capital (Adj)
Alphabet Inc.	USA	Technology	251,039	73,795	74,523	Internet & Software	Mountain View, CA	alphabet.com	1998	2,800,000	25%	35%	15%	A-	0.00	28	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Amazon.com, Inc.	USA	Technology	376,368	49,100	912,000	Technology	Seattle, WA	amazon.com	1994	1,500,000	37%	30%	25%	A-	0.00	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Microsoft Corporation	USA	Technology	173,265	52,550	223,000	Technology	Redmond, WA	microsoft.com	1985	750,000	12%	15%	10%	A+	0.72	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Apple Inc.	USA	Technology	294,310	77,340	164,000	Technology	Cupertino, CA	apple.com	1976	2,900,000	7%	10%	5%	A+	0.44	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Meta Platforms, Inc.	USA	Technology	113,481	29,970	54,000	Technology	Menlo Park, CA	meta.com	2004	350,000	15%	20%	15%	A-	0.00	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Alphabet Inc.	USA	Technology	251,039	73,795	74,523	Internet & Software	Mountain View, CA	alphabet.com	1998	2,800,000	25%	35%	15%	A-	0.00	28	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Amazon.com, Inc.	USA	Technology	376,368	49,100	912,000	Technology	Seattle, WA	amazon.com	1994	1,500,000	37%	30%	25%	A-	0.00	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Microsoft Corporation	USA	Technology	173,265	52,550	223,000	Technology	Redmond, WA	microsoft.com	1985	750,000	12%	15%	10%	A+	0.72	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Apple Inc.	USA	Technology	294,310	77,340	164,000	Technology	Cupertino, CA	apple.com	1976	2,900,000	7%	10%	5%	A+	0.44	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	
Meta Platforms, Inc.	USA	Technology	113,481	29,970	54,000	Technology	Menlo Park, CA	meta.com	2004	350,000	15%	20%	15%	A-	0.00	35	25%	0.15	1.5	28%	28%	28%	28%	15%	25%	15%	25%	15%	25%	15%	

Company Name	Country	Industry	Market Cap	Revenue	Profit	EPS	P/E Ratio	Dividend Yield	ROE	Debt to Equity	Current Ratio	Operating Margin	Net Margin	Asset Turnover	Equity Turnover	Capital Expenditure	Free Cash Flow	Research & Development	SG&A	Interest Expense	Income Tax Expense	Minority Interest	Goodwill	Intangible Assets	Other Assets	Other Liabilities	Other Equity
Alibaba Group Holding Limited	China	Internet & Software	235,000	61,200	10,000	1.00	23.5	0.00	15.0	0.15	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Amazon.com, Inc.	USA	Internet & Software	180,000	376,000	30,000	3.00	60.0	0.00	20.0	0.20	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Apple Inc.	USA	Consumer Electronics	150,000	260,000	60,000	15.00	10.0	0.50	25.0	0.10	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Microsoft Corporation	USA	Software	120,000	118,000	40,000	10.00	12.0	0.00	20.0	0.05	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Facebook Inc.	USA	Internet & Software	100,000	59,000	15,000	1.50	66.7	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Google Inc.	USA	Internet & Software	80,000	252,000	70,000	28.00	28.6	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Netflix Inc.	USA	Media & Entertainment	70,000	22,000	5,000	0.50	140.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Twitter Inc.	USA	Internet & Software	60,000	5,000	1,000	0.10	600.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
LinkedIn Corporation	USA	Internet & Software	50,000	4,000	1,000	0.20	250.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Slack Technologies Inc.	USA	Software	40,000	3,000	1,000	0.25	160.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Zoom Video Communications Inc.	USA	Software	30,000	2,000	1,000	0.30	100.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Dropbox Inc.	USA	Software	20,000	1,000	1,000	0.40	50.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Paycom Software Inc.	USA	Software	15,000	800	1,000	0.60	25.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Workday Inc.	USA	Software	10,000	600	1,000	0.80	12.5	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
ServiceNow Inc.	USA	Software	8,000	500	1,000	1.20	6.7	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Okta Inc.	USA	Software	6,000	400	1,000	1.60	3.8	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Twilio Inc.	USA	Software	5,000	300	1,000	2.00	2.5	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
SendGrid Inc.	USA	Software	4,000	200	1,000	2.50	1.6	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
MailChimp Inc.	USA	Software	3,000	150	1,000	3.00	1.0	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
HubSpot Inc.	USA	Software	2,000	100	1,000	4.00	0.5	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Intercom Inc.	USA	Software	1,500	80	1,000	5.00	0.3	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Zendesk Inc.	USA	Software	1,000	60	1,000	6.00	0.2	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
DocuSign Inc.	USA	Software	800	40	1,000	8.00	0.1	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
ZoomInfo Inc.	USA	Software	600	30	1,000	10.00	0.05	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
NetScout Systems Inc.	USA	Software	500	25	1,000	12.00	0.02	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Bluebird bio Inc.	USA	Biotechnology	400	20	1,000	15.00	0.01	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Moderna Inc.	USA	Biotechnology	300	15	1,000	20.00	0.005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Vertex Pharmaceuticals Inc.	USA	Pharmaceuticals	200	10	1,000	25.00	0.002	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Amgen Inc.	USA	Pharmaceuticals	150	8	1,000	30.00	0.001	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novartis AG	Switzerland	Pharmaceuticals	100	5	1,000	40.00	0.0005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Roche Holding AG	Switzerland	Pharmaceuticals	80	4	1,000	50.00	0.0002	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novo Nordisk A/S	Denmark	Pharmaceuticals	60	3	1,000	60.00	0.0001	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
AbbVie Inc.	USA	Pharmaceuticals	50	2	1,000	80.00	0.00005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Amgen Inc.	USA	Pharmaceuticals	40	1	1,000	100.00	0.00001	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novartis AG	Switzerland	Pharmaceuticals	30	0.5	1,000	150.00	0.000005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novo Nordisk A/S	Denmark	Pharmaceuticals	20	0.2	1,000	200.00	0.000002	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
AbbVie Inc.	USA	Pharmaceuticals	10	0.1	1,000	300.00	0.000001	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Amgen Inc.	USA	Pharmaceuticals	5	0.05	1,000	400.00	0.0000005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novartis AG	Switzerland	Pharmaceuticals	2	0.02	1,000	500.00	0.0000002	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novo Nordisk A/S	Denmark	Pharmaceuticals	1	0.01	1,000	600.00	0.0000001	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
AbbVie Inc.	USA	Pharmaceuticals	0.5	0.005	1,000	800.00	0.00000005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Amgen Inc.	USA	Pharmaceuticals	0.2	0.002	1,000	1000.00	0.00000002	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novartis AG	Switzerland	Pharmaceuticals	0.1	0.001	1,000	1200.00	0.00000001	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novo Nordisk A/S	Denmark	Pharmaceuticals	0.05	0.0005	1,000	1500.00	0.000000005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
AbbVie Inc.	USA	Pharmaceuticals	0.02	0.0002	1,000	2000.00	0.000000002	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Amgen Inc.	USA	Pharmaceuticals	0.01	0.0001	1,000	3000.00	0.000000001	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100	50	100	0	0	0	0	0	
Novartis AG	Switzerland	Pharmaceuticals	0.005	0.00005	1,000	4000.00	0.0000000005	0.00	20.0	0.00	1.50	15.0	10.0	0.50	0.70	1,000	2,000	500	100								

Company Name	ISIN	Country	Market	Market Cap (USD)	Revenue (USD)	Profit (USD)	EPS (USD)	P/E Ratio	Dividend Yield (%)	52-Week High (USD)	52-Week Low (USD)	Current Price (USD)
Alibaba Group Holding Ltd	9988.HK	China	Technology	200,000,000,000	55,410,000,000	10,500,000,000	1.00	199.00	0.00	235.00	85.00	190.00
Amazon.com Inc	AMZN.O	USA	Technology	1,800,000,000,000	376,000,000,000	49,000,000,000	4.80	37.50	0.00	175.00	125.00	170.00
Apple Inc	AAPL.O	USA	Technology	2,500,000,000,000	292,000,000,000	69,000,000,000	5.30	33.96	0.00	170.00	130.00	165.00
Microsoft Corp	MSFT.O	USA	Technology	2,300,000,000,000	168,000,000,000	44,000,000,000	4.40	39.09	0.00	165.00	120.00	160.00
Google Inc	GOOGL.O	USA	Technology	2,800,000,000,000	252,000,000,000	59,000,000,000	5.90	28.81	0.00	160.00	115.00	155.00
Facebook Inc	FB.O	USA	Technology	250,000,000,000	119,000,000,000	20,000,000,000	2.00	125.00	0.00	155.00	105.00	150.00
Twitter Inc	TWTR.O	USA	Technology	55,000,000,000	5,400,000,000	1,000,000,000	1.00	55.00	0.00	150.00	90.00	145.00
Netflix Inc	NFLX.O	USA	Technology	150,000,000,000	22,000,000,000	4,000,000,000	4.00	37.50	0.00	145.00	100.00	140.00
LinkedIn Corp	LNKD.O	USA	Technology	60,000,000,000	5,000,000,000	1,000,000,000	1.00	60.00	0.00	140.00	95.00	135.00
Slack Technologies Inc	WORK.O	USA	Technology	15,000,000,000	1,000,000,000	200,000,000	0.20	75.00	0.00	135.00	85.00	130.00
Zoom Video Communications Inc	ZM.O	USA	Technology	100,000,000,000	10,000,000,000	2,000,000,000	2.00	50.00	0.00	130.00	80.00	125.00
Dropbox Inc	DBX.O	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	125.00	75.00	120.00
Twitter Inc	SNOW.O	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	120.00	70.00	115.00
Twitter Inc	MTWV.O	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	115.00	65.00	110.00
Twitter Inc	MTW.O	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	110.00	60.00	105.00
Twitter Inc	MTW.L	UK	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	105.00	55.00	100.00
Twitter Inc	MTW.S	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	100.00	50.00	95.00
Twitter Inc	MTW.F	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	95.00	45.00	90.00
Twitter Inc	MTW.D	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	90.00	40.00	85.00
Twitter Inc	MTW.E	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	85.00	35.00	80.00
Twitter Inc	MTW.G	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	80.00	30.00	75.00
Twitter Inc	MTW.H	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	75.00	25.00	70.00
Twitter Inc	MTW.I	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	70.00	20.00	65.00
Twitter Inc	MTW.J	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	65.00	15.00	60.00
Twitter Inc	MTW.K	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	60.00	10.00	55.00
Twitter Inc	MTW.L	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	55.00	5.00	50.00
Twitter Inc	MTW.M	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	50.00	0.00	45.00
Twitter Inc	MTW.N	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	45.00	0.00	40.00
Twitter Inc	MTW.O	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	40.00	0.00	35.00
Twitter Inc	MTW.P	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	35.00	0.00	30.00
Twitter Inc	MTW.Q	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	30.00	0.00	25.00
Twitter Inc	MTW.R	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	25.00	0.00	20.00
Twitter Inc	MTW.S	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	20.00	0.00	15.00
Twitter Inc	MTW.T	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	15.00	0.00	10.00
Twitter Inc	MTW.U	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	10.00	0.00	5.00
Twitter Inc	MTW.V	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	5.00	0.00	0.00
Twitter Inc	MTW.W	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.X	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.Y	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.Z	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AA	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AB	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AC	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AD	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AE	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AF	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AG	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AH	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AI	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AJ	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AK	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AL	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AM	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AN	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AO	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AP	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AQ	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AR	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AS	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AT	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AU	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AV	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AW	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AX	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AY	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.AZ	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BA	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BB	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BC	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BD	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BE	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BF	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BG	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BH	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BI	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BJ	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BK	USA	Technology	10,000,000,000	1,000,000,000	200,000,000	0.20	50.00	0.00	0.00	0.00	0.00
Twitter Inc	MTW.BL	USA	Technology	10,000,0								

Terminal	Financial Year	Total Space	Space Allocated to Aero	Directly Allocated to Non AERO as per HOTO (Relatable to Rental Income)	Directly Allocated to Non AERO as per HOTO (Incl 8652)	Common Area allocated to Non-Retail	Area Excluded by AERA	Total Non area	AERO %	NON-AERO %	Weighted Average Floor Space (AERO)	Weighted Average Floor Space (NON AERO)
Terminal 1	FY12	64146	58857	5020	0	269	0	5289	91.75%	8.25%		
	FY13	64146	58428	5449	0	269	0	5718	91.09%	8.91%		
	FY14	64146	56655	7222	0	269	0	7491	88.32%	11.68%		
	FY15	64146	56713	7164	0	269	0	7433	88.41%	11.59%		
	FY16	64146	55833	8044	0	269	0	8313	87.04%	12.96%		
	FY17	64146	56817	7060	0	269	0	7329	88.57%	11.43%		
FY18	64146	56591	7286	0	269	0	7555	88.22%	11.78%	88.11%	11.89%	
Terminal 2	FY15	Non-Operational										
	FY16											
	FY17											
	FY18	54729	51848	2404		477	0	2881	94.74%	5.26%	94.74%	5.26%
Terminal 3	FY12	541541	478596	38541	47193	24404	8652	71597	88.38%	11.62%		
	FY13	541541	476725	40412	49064	24404	8652	73468	88.03%	11.97%		
	FY14	541541	474398	42739	51391	24404	8652	75795	87.60%	12.40%		
	FY15	541541	475596	41541	50193	24404	8652	74597	87.82%	12.18%		
	FY16	541541	477863	39274	47926	24404	8652	72330	88.24%	11.76%		
	FY17	541541	476999	40138	48790	24404	8652	73194	88.08%	11.92%		
FY18	541541	470825	46312	54964	24404	8652	79368	86.94%	13.06%	87.63%	12.37%	
Average Terminal Space											90.16%	9.84%

Terminal	Financial Year	Total Space	Space Allocated to Aero	Directly Allocated to Non AERO (Relatable to Rental Income)	Common Area allocated to Non-Retail	Total Non area	AERO %	NON-AERO %
Terminal 1 Demarcated Area	2011	64146	53820	10057	269	10326	83.90%	16.10%
Terminal 2 Demarcated Area	2011	54729	46080	8163	477	8640	84.20%	15.80%
Terminal 3 Demarcated Area	2011	541541	455255	61882	24404	86286	84.07%	15.93%
						Weighted average	84.06%	15.94%

**REPORT ON
ANALYSIS OF CAPITAL EXPENDITURE ON
EXPANSION OF
DELHI INTERNATIONAL AIRPORT LTD. (PHASE-3A)**



*Prepared for
Airport Economic
Regulatory Authority
(AERA)*

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Abbreviations

DIAL	Delhi International Airport Limited
IGIA	Indira Gandhi International
AAI	Airport Authority of India
OMDA	Operation, Management & Development Agreement
ICAO	International Civil Aviation Organization
LCC	Low Cost Carriers
OOG	Out of Gauge
MMPTA	Million Metric Tonnes Per Annum
IMG	Inter-Ministerial Group
ILS	Instrument Landing System
GSE	Ground Support Equipment
MRO	Maintenance Repair & Overhaul
MAP	Million Annual Passenger
RET	Rapid Exit Taxiway
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
LOS	Level of Service
ATM	Air Traffic Movement
CAGR	Compound Annual Growth Rate
NTP	North Terminal Precinct
STP	South Terminal Precinct
ROT	Runway Occupancy Time
ATC	Air Traffic Control
ADRM	Airport Development Reference Manual
ECT	Eastern Cross Taxiway

EXECUTIVE SUMMARY

Indira Gandhi International Airport (Delhi Airport) is the primary civil aviation hub for India and the National Capital Region of India. It is spread over an area of 5106 acres (2066 Ha), situated in Palam, South-West of New Delhi. IGI Airport is the busiest airport in India in terms of passenger traffic and second busiest in term of cargo traffic. The overall airport infrastructure has the capacity to handle 62 MAP and Cargo handling capacity of 1.5 MMTPA.

Keeping in account of the present aviation demand and growth rate, DIAL has now proposed to expand the existing Terminal and Airside facilities along with associated facilities to enhance the passenger handling capacity of IGIA from current 62MAP to 109MAP and Cargo handling capacity 2.2 Million Metric Tonnes Per Annum (MMTPA) from 1.5 MMTPA as per demand forecasted. The proposed expansion project by DIAL will be carried out in three phases with the expansion plans as Phase 3A, Phase 3B and Phase 4.

In this context, AERA assigned KITCO Ltd. to carry out the analysis of capital expenditure of expansion of Delhi International Airport on Phase 3A proposed by DIAL. Accordingly, KITCO has carried out the following:

- 1. Examined the proposal of the Airport and has assessed the need for the proposed project and its capacity, with reference to passenger growth/cargo volumes/air traffic movements and also has suggested cost effective alternatives.*
- 2. Examined whether the building standards and designs are in line with IMG/IATA/ICAO norms.*

3. *Analysed the reasonableness of the proposed cost with reference to the tentative ceiling decided by the Authority based on the details of the rates and quantity as per Govt./Industry approved norms.*
4. *Reviewed the designs and specifications proposed, wherever the costs were excessive in the case of projects already in progress or where the contracts are already awarded. It was also examined whether proper procedures have been followed in the award of work.*
5. *Reviewed and justified the reasonableness of time schedule of completion of the work proposed by DIAL.*

The major components of the proposed capital expenditure is planned in 5 tender packages under the following heads:-

Packages	Estimated cost by DIAL
Expansion of Terminal 1	2,513.00
Airfield works including 4 th Runway & Eastern Parallel Cross Taxiways	4,681.00
Landside / Connectivity works	366.00
Modifications to Terminal 3	167.00
TOTAL	7,727.00
Others	905.00
GRAND TOTAL	8,632.00

The components in various packages are as below:-

PACKAGE 1 - Expansion of Terminal 1 and Apron

- *Expansion of departures/arrival buildings with a new architectural façade on the city side and integrating with existing Terminal buildings.*
- *Construction of node building & Pier with 22 PBBs*
- *Reconstruction of Apron with 82 aircraft parking stands.*
- *Redesign of existing drainage facility.*

- *Redesign of MEP systems to meet the requirement of the new terminal building and its associated facilities.*
- *Special Airport systems*

PACKAGE 2 - Airfield Works

- *Construction of 4th runway and associated Rapid Exit Taxiways*
- *Construction of North Parallel Taxiway for existing Runway and related Rapid Exit Taxiways (RETs)*

PACKAGE 3 - Landside Works

- *Kerb widening of Terminal 1*
- *Northern Access Road widening*
- *Widening of Central spine road*
- *Realignment of Radisson road and its integration with proposed eastern cross taxiway underpass.*

PACKAGE 4 - Eastern Parallel Cross Taxiways

- *New Eastern Parallel Cross Taxiways*

PACKAGE 5 - Modifications to Terminal 3

- *Construction of additional transfer area for I-I (international to international).*
- *Installation of 7th check in island along with its Baggage Handling & screening systems.*

For assessing the existing scenario and future requirements the following data shall gathered and reviewed.

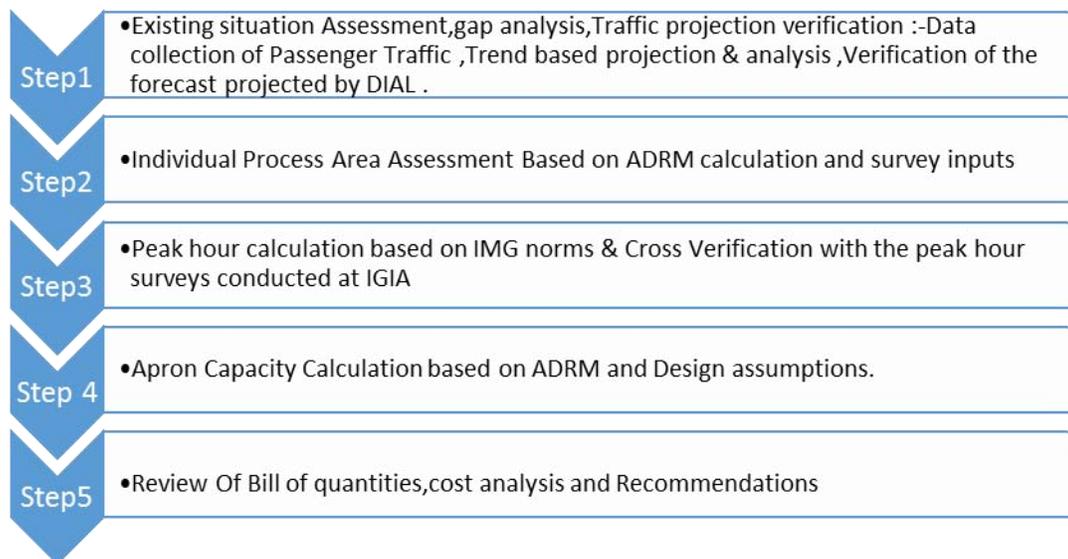
*Master plan report 2016 for IGIA (Delhi) prepared by Landrum& Brown;
MDP reports , Bill of Quantities, Drawings of 5 Packages submitted by DIAL
Order No. 07/2016-2017 dtd. 13th June 2016 issued by AERA in the matter of
Normative Approach to Building Blocks in Economic Regulation of Major
Airports- Capital Costs Reg.*

Report of the Inter Ministerial Group (IMG) – Norms & Standards for Capacity of Airport Terminals

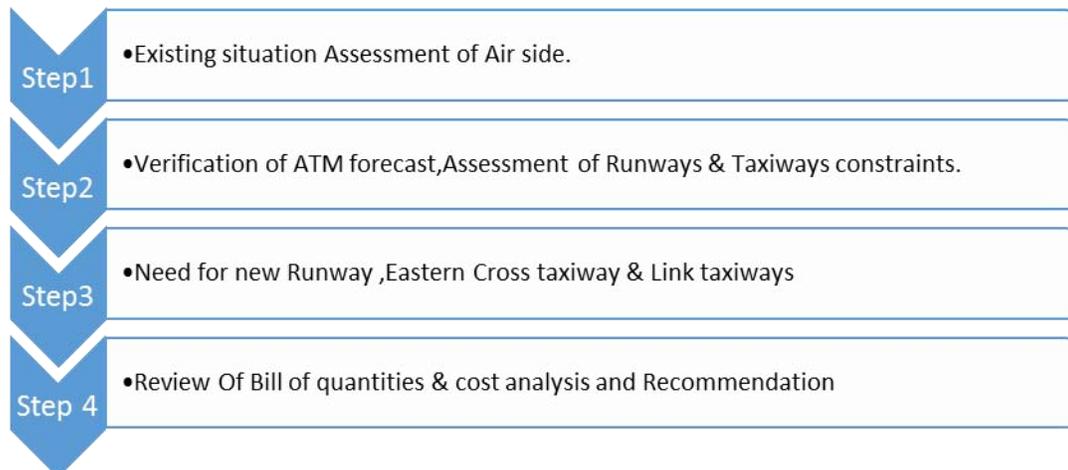
Operation, Management and Development agreement between Airport Authority of India and Delhi International Airport Private Limited for Delhi Airport Master Plan Report 2006 for IGIA Delhi prepared by Mott MacDonald.

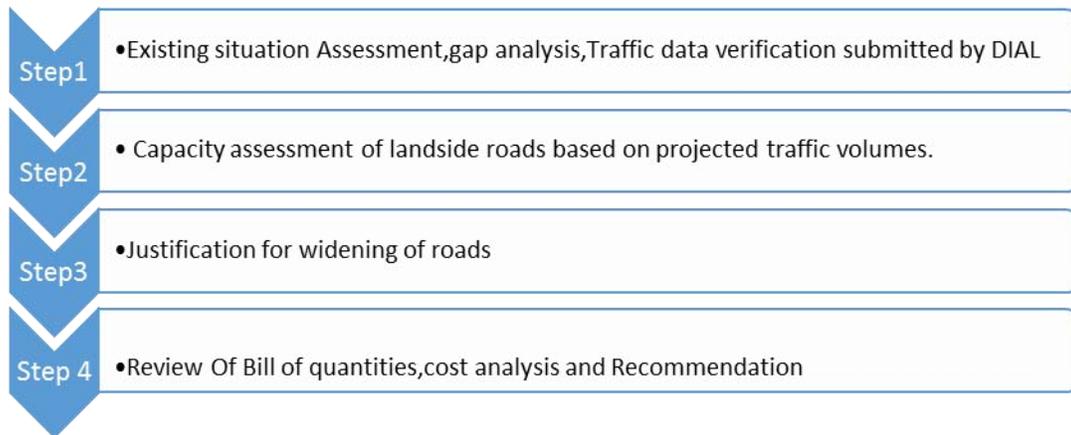
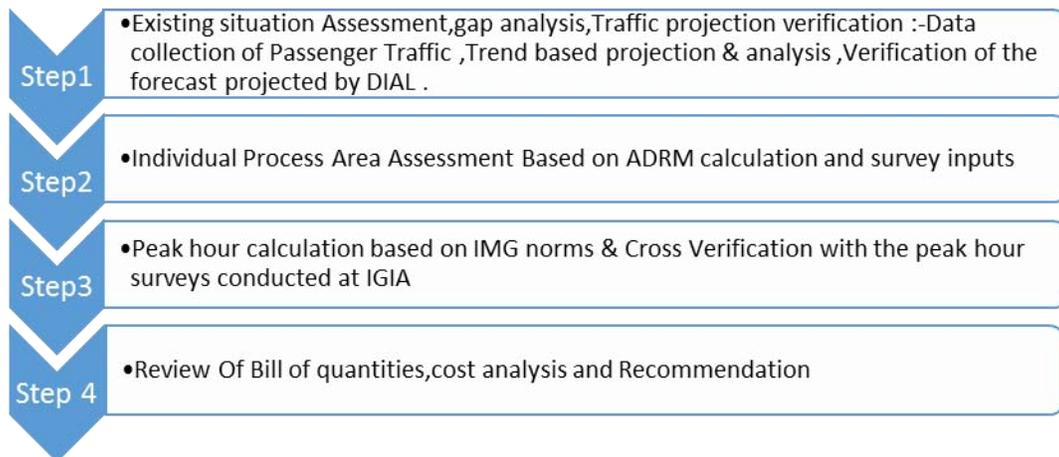
The methodology adopted for the evaluation of capital expenditure is summarized as below:-

Package 1



Package 2 &4



Package 3**Package 5**

The summary of the exercises performed by KITCO is briefed as below:-

1. The traffic projections have been verified by means of Trend based Projection using Data collected from Year 2006-2016. Design year in which the 35MAP in T1 & 40 MAP in T3 are achieved is found from the traffic projections.
2. The correlation with the forecast projected by DIAL is verified and differences highlighted.
3. The peak hour capacity based on IMG norms is verified and validated. It is cross checked with the peak hour surveys conducted at IGIA and peak hour projections based on collected data and found to be matching with the IMG norms.

4. *The total area required as per IMG norms per PHP is calculated and the terminal areas proposed are justified.*
5. *Each process area is evaluated based on ADRM calculations with survey inputs and LOS C expectations and found matching with what is required for the projected PHP*
6. *Area allocations for other ancillary facilities are also cross checked and found well within the industry standards and best practices.*
7. *ATM forecast is also verified in line with the PHP forecast*
8. *Apron capacity is calculated based on ADRM calculations and design assumption to provide 30% spare active stands is as per L&B master plan 2016.*
9. *The night parking stand demand is verified as per L&B master plan and validated as per the Airline demand*
10. *The area shown for GA apron is deducted from the total Apron area and the cost variation due to area variation is highlighted*
11. *Taxiway proposals are assessed in detail and evaluated based on the need to enhance the efficiency of the airside.*
12. *The need for aircrafts in T1 Apron including GA aircrafts to use Runway 11/29 is verified and validated based on ATM data and runway curfews and the need to connect T1 to Runway 11/29 using eastern cross taxiway, which reduces the travel time to T1 apron substantially is justified.*
13. *The need for a northern parallel taxiway for Runway 10/28 is highlighted to avoid crossing of aircrafts to T1 and is justified, as DIAL has decided to retain the T1 location.*
14. *Rapid exit taxiways from Runway 10/28 and all linkages to apron and runways are cross checked and found justified.*
15. *The drawings are verified as per ICAO standards and the area requirements for taxiway are validated and cross checked with the quantities considered for estimate preparation.*

16. Need for new runway 11/29 is assessed based on the combined runway capacity of existing 3 runways. AAI has calculated the combined capacity of the 3 runways, keeping in mind the restrictions in airspace, approach, obstacles, existing taxi network etc. as 67 ATM/ peak hour. L&B has reviewed the permutation/ combinations and has recalculated peak hour ATM of 84 based on simulations. IGIA has operated 84 ATMs per hour based on the standard of operations, prepared by L&B.
17. The ATM forecast is reviewed and found exceeding the combined capacity of 3 runways and therefore the need for fourth runway is justified.
18. The capacity assessment of land side roads has been done on the basis of existing and projected traffic volumes. Based on the capacity analysis, widening of roads is justified to maintain the desired level of service (LOS).
19. Capacity enhancement proposed by DIAL for the land side and airside works is for the design year 2035-36 whereas the T1 expansion is for the year 2025-26 and T3 enhancement is for year 2021-22. This is justified based on the fact that infrastructure developments can only be done on a long term basis, whereas buildings can be augmented with minimum interference with operational activities.

KITCO reviewed the cost estimates submitted by DIAL based on the information provided by DIAL and Govt./Industry approved norms. The revision to total capital cost is recommended as below:-

(Amount in Rs. Crore)

Packages	Estimated cost by DIAL	Recommended cost By KITCO
Expansion of Terminal 1	2,513.00	2,431.00
Airfield works including 4 th Runway & Eastern Parallel Cross Taxiways	4,681.00	4,320.00
Landside / Connectivity works	366.00	366.00

Packages	Estimated cost by DIAL	Recommended cost By KITCO
Modifications to Terminal 3	167.00	167.00
TOTAL	7,727.00	7,284.00
Others	905.00	685.60
GRAND TOTAL	8,632.00	7,969.60

An attempt has also been made to compare the cost incurred for the new International Passenger Terminal Building at Cochin, Expansion of the Terminal Building at Hyderabad and the Terminal at Kolkata constructed by AAI with the proposed Terminal expansion at Delhi. The comparison is given in the following table.

Comparison of cost

Sub	Cochin			Hyderabad			Kolkata			Delhi			Cost Difference from Cochin (Rs./Sqm)		
	Cost Rs. Cr	%	costper sqm	Cost Rs. Cr	%	costper sqm	Cost Rs. Cr	%	costper sqm	Cost Rs. Cr	%	costper sqm	Delhi	Hyderabad	Kolkata
Civil Works	401.47	47%	26765	335.43	23%	32566	957.16	43%	48173	442.81	18.21%	22945			
Spl finishes	70.26	8%	4684	191.6	13%	18602	56	3%	2818	366.00	15.06%	18965			
External Façade	47.98	6%	3199	117.12	8%	11371	167.12	8%	8411	67.82	2.79%	3514			
Roofing System	Incl.		Incl.	104.54	7%	10150	161.76	7%	8141	368.4	15.15%	19090	29,866	38,041	32,896
HVAC	121.5	14.31%	8100	56.64	4%	5499	144.88	7%	7292	180	7.40%	9327			
Electrical system				74.38	5%	7221	193.54	9%	9741	310	12.75%	16063			
Plumbing & Drainage				17.18	1.2%	1668	71.74	3%	3611	21	0.86%	1088			
Fire fighting system				10.18	0.7%	988	27.8	1%	1399	7	0.29%	363			
Fire detection				5.83	0.40%	566				15	0.62%	777	19,518	7,843	13,942
Vertical & Horizontal transport	207.95	25%	13863	536.92	37%	52128	424.72	19%	21376	653	26.86%	33837	19,974	38,265	7,512
PTB furniture															
Airport system															
Special works															
Total cost	849	100%		1450	100.0%		2,205	100%		2431.0	100.00%				
Area	150000			103000			198692			192985					
Cost Rs./sqm	56,611			140759			110962			125970			69,359	84,149	54,351

	Cochin	hyderabad	Delhi
Airside works			
Apron and taxiway for Code E + partly for Code F	Rs.4336per sqm		Rs.9042/sqm (for code F)
Runway		Rs.5705/sqm	Rs.5978/sqm

Chapter 1 - Introduction

1.1 Background

Delhi International Airport (P) Limited (DIAL) is operating, managing and developing the Indira Gandhi International Airport (IGIA). DIAL is a Joint Venture consortium between GMR Group (64%), Airports Authority of India (AAI) (26%) & Fraport AG (10%) and is head quartered in New Delhi, India. In January 2006, the consortium was awarded the concession to operate, manage and develop Indira Gandhi International Airport (IGIA), following an International Competitive Bidding process. DIAL signed the Operations, Management and Development Agreement (OMDA) with the AAI on April 4, 2006 for an initial Concession term of 30 years, with the option to extend the term for an additional 30 years.

Indira Gandhi International Airport (Delhi Airport) is the primary civil aviation hub for India and the National Capital Region of India. It is spread over an area of 5106 acres (2066 Ha), situated in Palam, South-West of New Delhi. IGI Airport is the busiest airport in India in terms of passenger traffic and second busiest in term of cargo traffic. The overall airport infrastructure has the capacity to handle 62 MAP and Cargo handling capacity of 1.5 MMTPA.

The airport has best in class facilities and infrastructure compatible with International Civil Aviation Organization (ICAO) standards and practices to handle largest of aircrafts and International traffic. At present, there are three active passenger terminals, in which Terminal 1 and Terminal 3 operates for scheduled aircraft services and the Terminal 2 currently supports in Haj Terminal service .It also has two main cargo Terminals to support cargo service demands. Terminal 1C & 1D is used only for Low Cost

Carriers(LCC) arrival and departure respectively with a total floor area of 64,140 m²

The integrated domestic and International Terminal 3 have 5.4 million sq ft. area with a design capacity of 34 MAP serves all international and full service domestic carriers. The 9 level passenger terminal building has 2 piers each 1.2 km long having 78 Passenger Boarding Bridges (including 3 Passenger Boarding Bridges for A380 or similar sized aircraft), 95 Immigration counters (49 Outbound and 46 Inbound Immigration counters), 6 Common check-in islands -168 check-in counters, In-line Baggage Handling System with capacity to handle 12,800 bags per hour, 12 Baggage reclaim belts including 2 belts for Out of Gauge (OOG) bags, 6.7 million sq ft. of apron area, 100 room Transit Hotel for Domestic and International passengers (68 rooms for domestic transit and 32 rooms for international transit), 96 automatic travelators /walkalators (Longest one being 118 mts in length), over 20,000 sq mtrs. of retail space, Multi-Level Car Park to accommodate 4300 cars, 7 MLD Water Treatment Plant and 15 MLD Sewage Treatment Plant (total quantity for entire airport, treatment plant inside airport premises only). The modular integrated Cargo Terminal-1 is spread over 70,000m² and Cargo Terminal 2 is 48,500 m². There is an exclusive apron adjoining it that can accommodate Code-F aircraft.

IGI Airport has total 3 runways out of which two are main runways and one is a secondary runway. The two main runways are runway 11/29, 4,430 m × 75 m (14,530 ft × 200 ft) with CAT IIIB instrument landing system (ILS) on both sides, runway 10/28, 3,810 m × 45 m (12,500 ft × 151 ft), and the secondary runway is 09/27, 2,813 m × 45 m (9,229 ft × 148 ft).

There are four certified ground handlers that handle the foreign flag carriers. The T1 Apron has 3 GSE staging areas in total about 12,155m². The T3 precinct has 40 areas designated for GSE storage totaling about 59,735 m². Three of the four MRO sites at IGIA contain maintenance hangars. The General Aviation

facilities are located in the T1 precinct in the north east corner of the airport having 28 code B aircraft parking stands.

Keeping in account of the present aviation demand and growth rate, DIAL has now proposed to expand the existing terminal and airside facilities along with associated facilities to enhance the passenger handling capacity of IGIA from current 62MAP to 109MAP and Cargo handling capacity 2.2 Million Metric Tonnes Per Annum (MMTPA) from 1.5 MMTPA as per demand forecasted. The proposed expansion project by DIAL will be carried out in three phases with the expansion plans as Phase 3A, Phase 3B and Phase 4.

In this context, AERA has assigned KITCO to carry out the analysis of Capital Expenditure on Expansion of Delhi International Airport Ltd. for Phase-3A)

1.2 Scope of Work

*AERA has awarded the work of consultancy services for analysis of Capital Expenditure on Delhi International Airport Ltd. for second control period (01/04/2014 to 31/03/2019) to **KITCO** vide letter dtd. 28.12.2017.*

The proposal for analysis of Capital Expenditure towards expansion of Delhi International Airport Ltd. comprises of the following packages:

- i) Expansion of Terminal 1 and Apron*
- ii) Airfield works including 4th Runway*
- iii) Landside/ Connectivity Works*
- iv) Eastern Parallel Cross Taxiways*
- v) Modifications to Terminal 3 and associated facilities*

The scope of services assigned to KITCO include

- i) To examine the proposal of the airport and assess the need for the proposed project and its capacity / scope with reference to Passenger growth/ Cargo volumes/ Air Traffic movement and also to suggest cost effective alternatives.*

- ii) To examine the building standards and designs proposed by the airport operator in line with IMG norms/IATA/ICAO norms.*
- iii) To analyze the reasonableness of the proposed cost with reference to the tentative ceiling decided by Authority vide order no 7 dated 13/06/2016 based on the details of the rates and quantity as per government / industry approved norms and advise the Authority on the justification of the costs.*
- iv) To review designs and specifications proposed in case the costs are assessed to be excessive where the Projects are already in progress or the contracts are already awarded. Further to examine whether proper procedures have been followed in the award of work.*
- v) To assist AERA in case any litigation arises in future in connection with the reasonableness of the cost estimates.*
- vi) To review and justify the reasonableness of time schedule of completion of work of proposed by DIAL*
- vii) To perform any other duties as may be deemed necessary and specified in the award letter.*
- viii) To assist AERA in Stakeholder Consultation process.*

Chapter 2 - Phase 3A Expansion Proposal by DIAL

Currently the expected annual throughput has grown more than 60 million passengers. The major development projects would be the expansion of Terminal 1, fourth runway, eastern cross field taxiway, aprons, MROs and other airfield improvements, improvements to central spine road and northern access road, reconfiguration of Terminal 3. A series of airfield improvements will be implemented with the existing runway system to maximize existing capacity. The development of 4th runway 11L-29R will be in the southern part of the airfield adjacent to existing runway 11R-29L. Terminal 1 will be expanded to handle a demand of 35 MAP, along with improvements to the landside and apron. Other scope of Phase 3A expansion and improvements are:

- Expansion of Terminal 1D (Departures);
- Extension of Terminal 1C (Arrivals);
- A new airside concourse building to provide contact aircraft parking stands;
- An expanded and redeveloped aircraft apron serving Terminal 1;
- New General Aviation (GA) Aprons;
- New parallel taxiway to existing Runway 10/28;
- A new fourth runway(Runway 11L/29R) with Rapid Exit Taxiways(RETs);
- New eastern cross-field taxiways linking the southern and northern parts of the airfield;
- Various other taxiway/ airfield layout improvements;
- Various landside road and tunnel improvements;
- Various ancillary/ support facility improvements; and
- Modifications to the transfer passenger facilities at Terminal3

Terminal 3 will be reconfigured to handle 40 MAP international passenger traffic & domestic passenger traffic. Internal bottlenecks of emigration and immigration

will be resolved to facilitate a high level of service for international passengers. At the same time, domestic passengers will have direct access to domestic Pier C and D through an infill between the south face of the terminal and Pier C/D.

The northern access road corridor will continue to be main corridor for traffic arriving from central and northeast Delhi to the south terminal precinct.

- Northern Access Road Corridor Widening: Expanding the corridor from the Central Spine Road running north to the tunnels to 5+5 lanes
- Roadway Widening: Widening the roads to the north of the existing tunnels to accommodate 5+5 lanes. The central spine road will be widened towards the median from current 4+4 lanes to 6+6 lanes.

The proposed expansion works of IGIA constitute the 5 packages and the details of these packages are elaborated in the succeeding section.

2.1 Brief About the Proposed Packages

The submission made by DIAL has been forwarded to KITCO by AERA. The major components of the proposed capital expenditure is subdivided in 5 packages under the following heads:

Table 1- Abstract of cost

Packages	Estimated cost in cr.
1 - Expansion of Terminal 1 and Apron	2,514.00
2 - Airfield works including 4 th Runway	3,561.00
3 - Landside / Connectivity works	366.00
4 - Eastern Parallel Cross Taxiways	1,118.00
5 - Modifications to Terminal 3	167.00
TOTAL	7,727.00
Others	905.00
GRAND TOTAL	8,632.00

PACKAGE 1 - Expansion of Terminal 1 and Apron

- Expansion of departures/arrival buildings with a new architectural façade on the city side and integrating with existing Terminal buildings.
- Construction of node building & Pier with 22 PBBs
- Reconstruction of Apron with 82 aircraft parking stands.
- Redesign of existing drainage facility.
- Redesign of MEP systems to meet the requirement of the new terminal building and its associated facilities.
- Special Airport systems

PACKAGE 2 - Airfield Works

- Construction of 4th runway and associated Rapid Exit Taxiways
- Construction of North Parallel Taxiway for existing Runway and related Rapid Exit Taxiways (RETs)

PACKAGE 3 - Landside Works

- Kerb widening of Terminal 1
- Northern Access Road widening
- Widening of Central spine road
- Realignment of Radisson road and its integration with proposed eastern cross taxiway underpass.

PACKAGE 4 - Eastern Parallel Cross Taxiways

- New Eastern Parallel Cross Taxiways

PACKAGE 5 - Modifications to Terminal 3

- Construction of additional transfer area for I-I (international to international).
- Installation of 7th check in island along with its Baggage Handling & screening systems.

Chapter 3 - Methodology Adopted for Evaluation

3.1 References

The detailed site study has been conducted for assessing the existing scenario and future requirements. Series of discussions with DIAL for understanding the proposal in detail was also carried out.

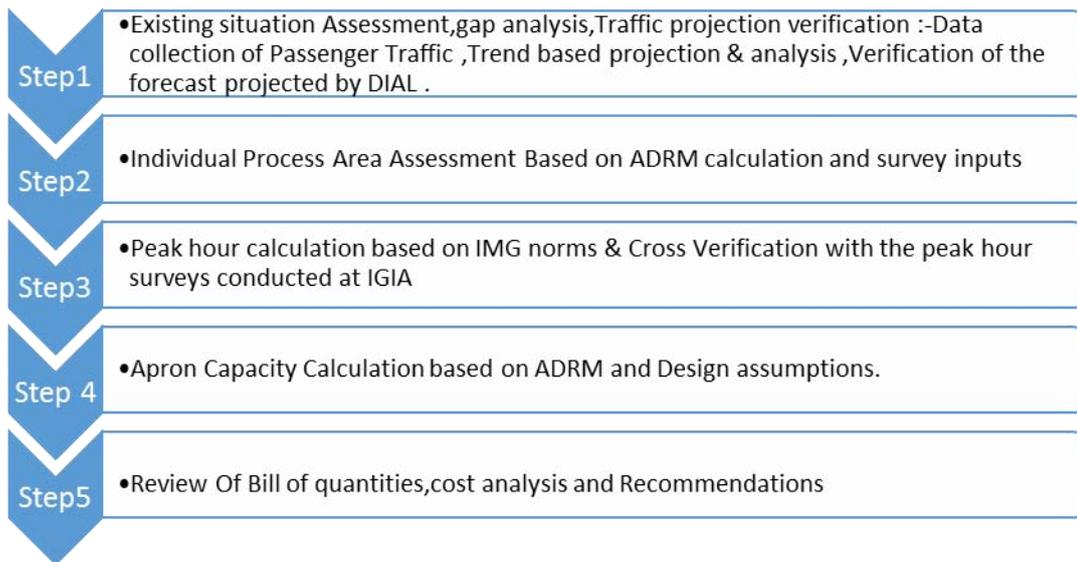
The following data has been gathered and reviewed:

- *Master plan report 2016 for IGIA (Delhi) prepared by Landrum& Brown;*
- *MDP reports , Bill of Quantities, Drawings of 5 Packages submitted by DIAL*
- *Order No. 07/2016-2017 dtd. 13th June 2016 issued by AERA in the matter of Normative Approach to Building Blocks in Economic Regulation of Major Airports- Capital Costs Reg.*
- *Report of the Inter Ministerial Group (IMG) – Norms & Standards for Capacity of Airport Terminals*
- *Operation, Management and Development agreement between Airport Authority of India and Delhi International Airport Private Limited for Delhi Airport*
- *Master Plan Report 2006 for IGIA Delhi prepared by Mott MacDonald*
- *Other Clarifications provided by DIAL.*

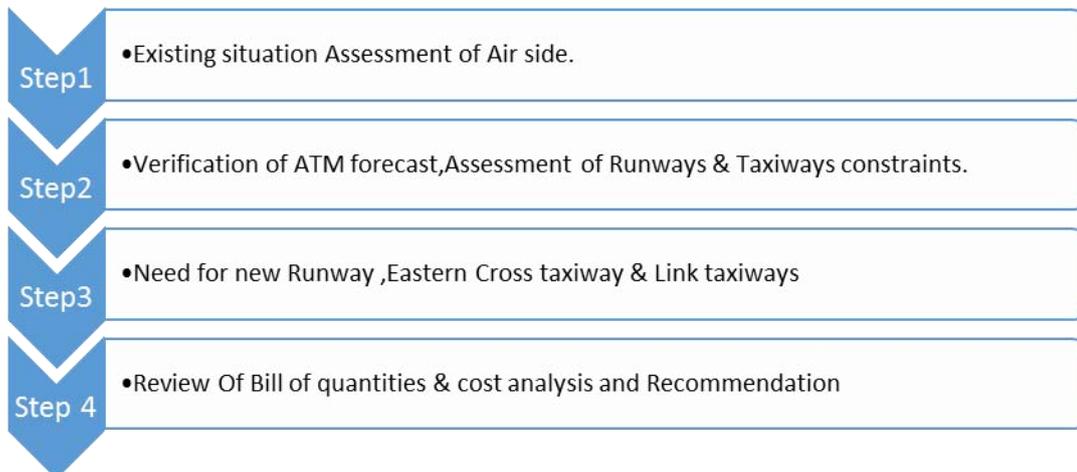
3.2 Methodology

The methodology adopted for the evaluation of Capital Expenditure for proposed expansion at Delhi International Airport is enumerated below:

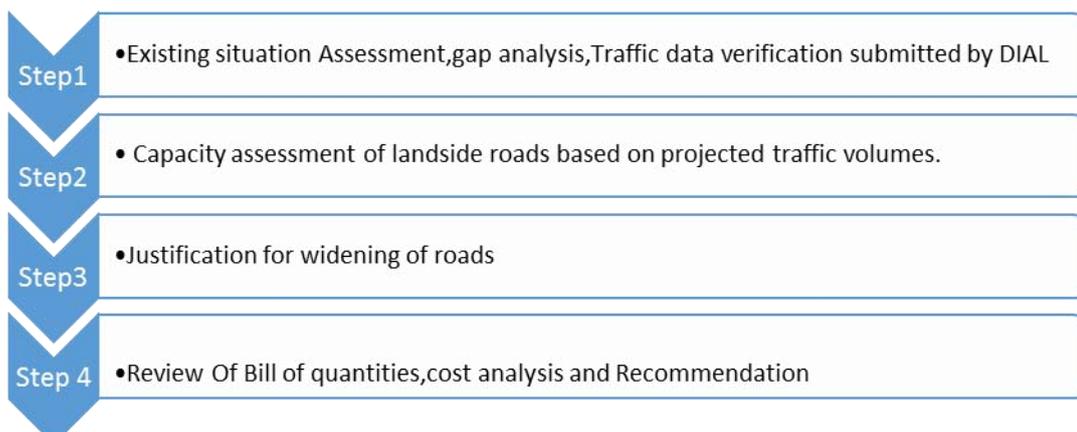
Package 1



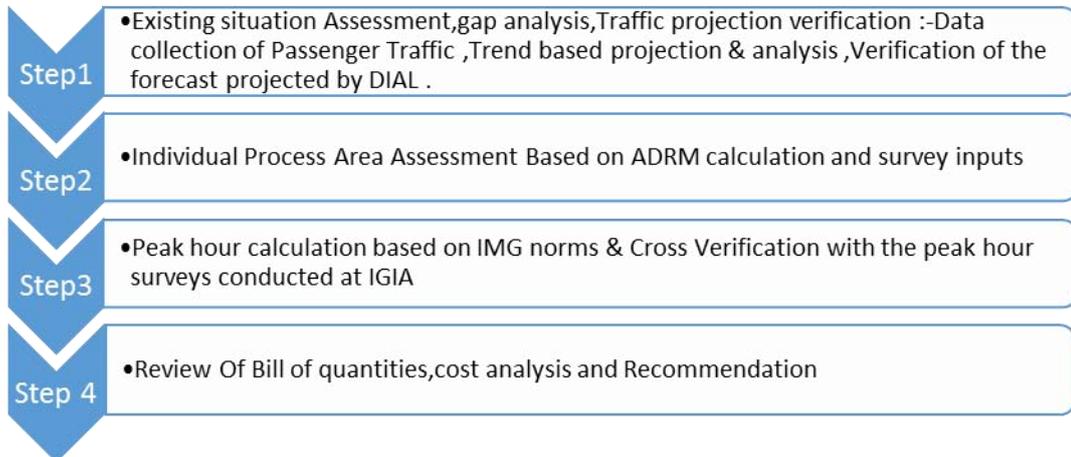
Package 2 &4



Package 3



Package 5



Chapter 4 - The Capacity Assessment

4.1 Expansion of Terminal 1 (Package 1)

4.1.1 Existing Scenario

Performance or Level of Service (LOS) criteria is the primary driver for various functional elements in a Terminal. International benchmarks and best in class practices were adopted for assessing terminal requirements. The current status of various aspects of IGIA has been studied in detail and the bottle-necks were identified in the existing facilities. These areas are used beyond their capacity to maximise existing utility.

Table 2 -Estimated Terminal Demand

Year	Daily ATMs			Annual ATMs		
	NTP	STP	TOTAL	NTP	STP	TOTAL
2013/14	335	474	809	116374	164660	281034
2015/16	376	556	932	130500	192900	323400
2020/21	538	783	1321	186700	271700	458400
2025/26	678	1011	1689	235400	350900	586300
2030/31	678	1279	1957	235400	443700	679100
2033/34	678	1415	2093	235400	491000	726400
2013/14	43035	70455	113490	13983621	22893365	36876986
2015/16	50352	83597	133949	16183000	26868000	43051000
2020/21	74966	120752	195718	24167000	38928000	63095000
2025/26	98201	161958	260159	30000000	53950000	83950000
2030/31	98201	212237	310438	30000000	70224000	100224000
2033/34	98201	240382	338583	30000000	79339000	109339000

source- L&Breport

Facilities at Terminal 1 would have to accommodate up to 35 MAP by 2025-26 from about 14 MAP in 2013-14. The study also addressed the needs of additional facilities such as Check-in, Security & Emigration & Immigration etc. Table No: 2 shows the daily ATM growth, annual ATM growth, daily passengers and annual passenger growth in the listed years. (source –L&B report)

4.1.2 Existing Terminal 1 Facilities:

Terminal 1 complex consists of two separate operational terminal buildings: Terminal 1D (T1D) for departures and Terminal 1C (T1C) for Arrival. Terminal 1D is operational since 2009 whereas Terminal 1C is an older building which was constructed in 1970s. Terminal 1A is located to adjacent to Terminal 1D but is not operational. Overview of the existing facilities provided in T1 D & T1C for various processes and functions are tabulated below in Table No:3.

Table 3- Existing Facilities

Description	Existing
Capacity	24 Million
Total Area (Dep+Arr)	64,140 m ²
Entry Gate	8 Gates (16 CISF Positions)
Check in Gates	4 Islands
CUSS	12
Self-Baggage Drop	Nil
Hand Baggage X-rays	18
Hand Baggage (per machine)	160- 180 Bags/ Hr
Screening Capacity	2,880 – 3,240 Bags/ Hr
Contact Stands	Nil
Bussing Gates	15
BMA	4 Baggage Carousels
Baggage System	Airline wise
Arrival Baggage Belt	8 Nos of 52m each
Arrival Terminal	Separate T1C
Arrival Area	8,000 m ²

4.1.3 Existing Passenger Traffic & Future Projections

Current domestic & International traffic handled during the years 2005-06 to 2016-17 has been collected from DIAL which is tabulated below in Table-4.

Table 4-Existing passenger traffic

Sl.No.	Year	T3 International Total	T3 Dom Total	T1 Dom Total	TOTAL
1	2006-07	6653366	6646867	7143211	20443444
2	2007-08	7342075	10604170	6025417	23971662
3	2008-09	7769313	9887517	5186585	22843415
4	2009-10	8314211	10940410	6870074	26124695
5	2010-11	9275774	11953318	8713795	29942887
6	2011-12	10750009	13568420	11563536	35881965
7	2012-13	11566102	9917302	12885007	34368411
8	2013-14	12681309	10271008	13924669	36876986
9	2014-15	13534424	11592945	15858186	40985555
10	2015-16	14152172	15429243	18842750	48424165
11	2016-17	15497384	18198673	24007039	57703096
12	2017-18	17437372	22005642	25982699	65425713

From the table it can be seen that in coming years the terminal is expected to become capacity constrained. There is an unprecedented growth witnessed in the passenger movement.

From the actual number of passengers handled in the listed years trend based projections were made up to 2025-26 which is tabulated below in Table No: 5.

Table 5- Traffic forecast by KITCO based on trend based projection on historical data collected from DIAL(2006-2016)

Sl.No.	Year	T3 Intl. Total	T3 Dom. Total	T1 Dom. Total	Total
1	2006-07	6653366	6646867	7143211	20443444
2	2007-08	7342075	10604170	6025417	23971662
3	2008-09	7769313	9887517	5186585	22843415
4	2009-10	8314211	10940410	6870074	26124695
5	2010-11	9275774	11953318	8713795	29942887
6	2011-12	10750009	13568420	11563536	35881965
7	2012-13	11566102	9917302	12885007	34368411
8	2013-14	12681309	10271008	13924669	36876986
9	2014-15	13534424	11592945	15858186	40985555
10	2015-16	14152172	15429243	18842750	48424165
11	2016-17	15497384	18198673	24007039	57703096
12	2017-18	17437372	22005642	25982699	65425713
13	2018-19	17471329	18735848	25050780	61257958
14	2019-20	18428797	19682190	26891888	65002874
15	2020-21	19386264	20628532	28732995	68747791
16	2021-22	20343731	21574874	30574103	72492708
17	2022-23	21301198	22521215	32415210	76237624
18	2023-24	22258666	23467557	34256318	79982541
19	2024-25	23216133	24413899	36097426	83727457
20	2025-26	24173600	25360241	37938533	87472374

Terminal (T1) presently has passenger capacity of 24MAP which is projected to grow up to 35MAP ahead of the year 2025-26.

The Landrum & Brown Master plan 2016 Report also indicates that maximum capacity of future Terminal 1 is 30MAP. The strong passenger growth experienced at Terminal 1 in recent years gives a clarity that a passenger throughput of 30MAP will be achieved significantly in advance of the date originally forecasted

in the Landrum and Brown Report 2016, ie, in 2025-26. Therefore DIAL believes that it would be prudent to base the phase 3A works on a higher forecast at 35MAP. In the trend based projection made by KITCO, the 35 MAP is projected for the year 2024-25.



Figure 1: Traffic forecast by L&B

The above figure 1 shows the traffic forecast study conducted by L&B in 2016 master plan report. Projected traffic in the year 2017-18 is 65 MAP and this matches with the actual passenger traffic data also.

The actual and forecasted airport traffic data indicates that there is a significant increase in aircraft movement and passenger traffic in IGI Airport and the same is expected to increase further in the coming years. The existing facilities are inadequate to cater services of handling increased volume of aircrafts and passenger traffic. Thus the need for the airport capacity enhancement with

respect to aircrafts and passenger growth is justified. The drastic change in traffic growth indicates that an extensive expansion is needed to accommodate future demands of 35MAP for T 1.

The new Terminal's design caters to meet the future requirement of 35MAP and provides 13 remote gates and 22 contact stands which is accommodated in the pier. The current terminal is operating in excess of 24MAP and served only by 13 remote gates.

The aesthetics and façade is improved by integrating the Terminal 1 into a new single architectural element.

4.1.4 New Terminal

The New Terminal comprises of 4 levels including basement. T1 C is demolished and rebuilt to integrate with T1 D and new terminal T1 is evolved. From the detailed structural assessment of T1C done by AECOM and considering the following factors leads to the culmination that T1C shall be demolished and rebuilt.

1. Generally Life span of a building is 50 years and the building T1C is reaching the limit within 5 years
2. Characteristic compressive strength of existing concrete is in the range of 11 to 18 MPa, whereas the minimum concrete strength should not be less than 20MPa for a reinforced concrete structure as per IS:456-2000
3. Difficulty in assessing the strength of foundation due to the non availability of drawings. Delhi being in a very sensitive seismic zone, it is essential to follow the seismic provisions as well as ductile detailing as per IS 1893:2016 and IS 13920:2016, which is not followed in T1C structure.
4. Aesthetics of the Terminal in totality not up to the mark.

The salient features of the new Terminal is given in Table 6.

Table 6- Salient Features of New Terminal

Description	Existing	Proposed
Total Area (Dep+Arr)	64,140 m ²	1,92,985 m ²
Entry Gate	8 Gates (16 CISF Positions)	13 Gates (26 CISF Positions)
Check in Gates	4 Islands	5 Islands
CUSS	12	108
Self-Baggage Drop	Nil	36 (1 for every 3 CUSS machines)
Hand Baggage X-rays	18	20 (Expandable to 25)
Hand Baggage (per machine)	160- 180 Bags/ Hr	250 – 300 Bags/ Hr (ATRS)
Screening Capacity	2,880 – 3,240 Bags/ Hr	5,000 – 6,000 Bags/ Hr
Contact Stands	Nil	22
Bussing Gates	15	13
BMA	4 Baggage Carousels	9 Baggage Carousels
Baggage System	Airline wise	Flight wise (Flexible)
Arrival Baggage Belt	8 Nos of 52m each	10 Nos of 70m each
Arrival Terminal	Separate T1C	Integrated T1
Arrival Area	8,000 m ²	18,000 m ² (New)

Based on the design assumptions given in Table No-7 and the basis of planning followed as per figure 2, individual area assessments were validated as per IATA calculations and the functional areas provided as per standards. Table 8 shows the individual area calculations and remarks.

Table 7-Design Assumptions based on Survey reports

Sl.No	Description	Design Assumptions
1	T1D Door entry Check	12.5 seconds
2	Self check-in kiosk	60 seconds
3	Baggage Drop-in	82 seconds
4	Airline Check-in	90 seconds
5	Security Screening	24 seconds

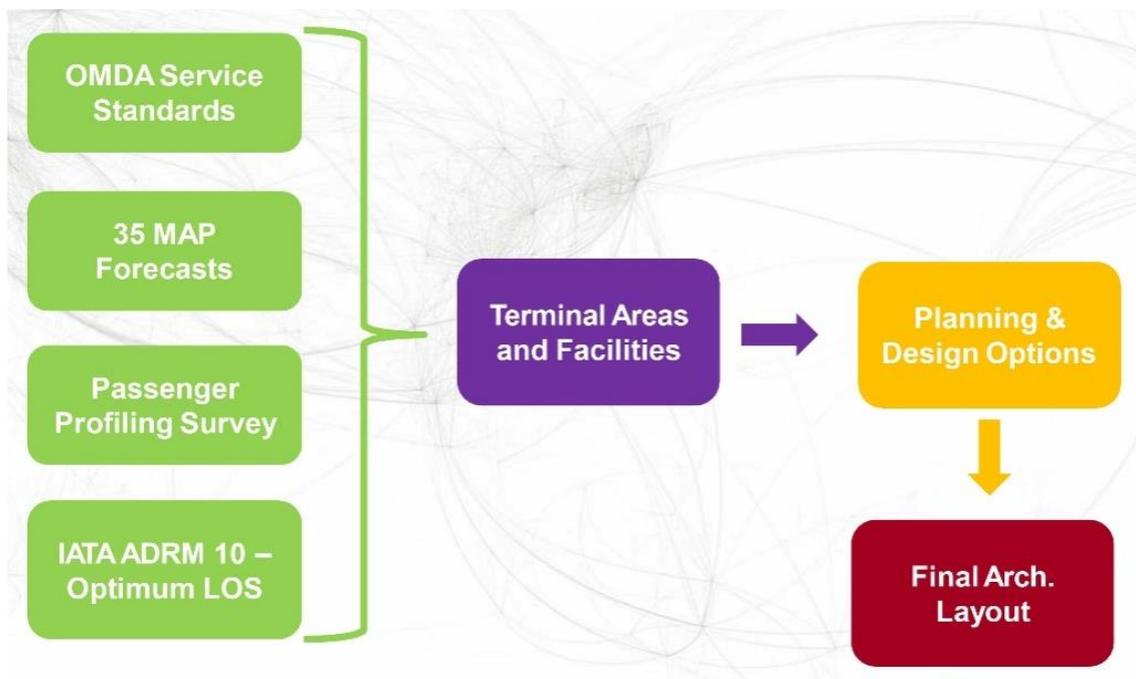
**Figure 2: Planning Basis**

Table 8- Individual area calculations

Total Terminal Area	GMR	Remarks by KITCO
<i>Terminal Entry Chk & Space for fare wellers</i>	<i>2314sqm</i>	<i>As per ADRM</i>
<i>Check-in Hall</i>	<i>8437sqm</i>	<i>-do-</i>
<i>Departure Security</i>	<i>6528sqm</i>	<i>-do-</i>
<i>Transfer security</i>	<i>2127sqm</i>	<i>-do-</i>
<i>Contact gates (22no)</i>	<i>6135sqm</i>	<i>-do-</i>
<i>Remote gates (13 no)</i>	<i>4733sqm</i>	<i>-do-</i>
<i>Departure baggage make up area</i>	<i>9043sqm</i>	<i>-do-</i>
<i>Baggage reclaim & Arrival hall</i>	<i>9300sqm</i>	<i>-do-</i>
<i>Arrival meet & greet area</i>	<i>3313sqm</i>	<i>-do-</i>
	<i>51,930 sqm</i>	
<i>Toilets</i>	<i>5464sqm</i>	<i>10% of total process area Found nominal</i>
<i>Airport offices</i>	<i>5798sqm</i>	<i>-do-</i>
<i>Airline offices</i>	<i>5141sqm</i>	<i>-do-</i>
<i>Ramp accommodation</i>	<i>7535sqm</i>	<i>-do-</i>
<i>Circulation/ MEP/ structure</i>	<i>95,298sqm</i>	<i>49% of total area, acceptable based on unit area/ PHP</i>
<i>Commercial areas</i>	<i>22503sqm</i>	<i>12% of total area, Within the IMG norms i.e. 20% of overall area</i>
<i>BOH Area</i>	<i>1349sqm</i>	<i>acceptable</i>
TOTAL AREA	192985sqm	<i>Justified</i>

4.1.5 Validation of Peak Hour Assessment with IMG norms

Peak hour calculations are assessed as per IMG norms and the area required for each process is analyzed and all assumptions are validated.

Passenger Busy Hour rates obtained from DIAL is as given below in Table No- 9

Table 9 - Peak Hour Pax

Description	Annual Pax(MAP)	Peak Hr Ratio	30th Busy Hr
Departure	17.5	0.0285%	4998
Arrival	17.5	0.0274%	4795

Corresponding to the passenger traffic forecast of 35MAP, the total peak –hour passenger has been estimated as 9,793 based on the above 30th busy hour rate.

The area provided / Peak hour pax - 1, 92,985/9793

- 19.7sqm which is within the limit as per IMG norms.

Table No-10 shows the comparison with IMG area norms (Annexure-IV)

Table 10- Comparison with IMG area norms

Terminal	Area provided	Planned Capacity/ annum	Approx. Peak hour pax	Area provided/ PHP	Area Norm as per IMG Area/php
Terminal 1	1,92,985sqm	35MAP	9793	19.7sqm	20 sqm

Thus the total terminal area of 1,92,985 sqm provided by DIAL is within the IMG norms and it can be concluded that this area caters to the projected traffic of 35MAP. A comparison of terminal area/PHP with the standards or AAI, IATA, IMG is shown in Figure No-3.

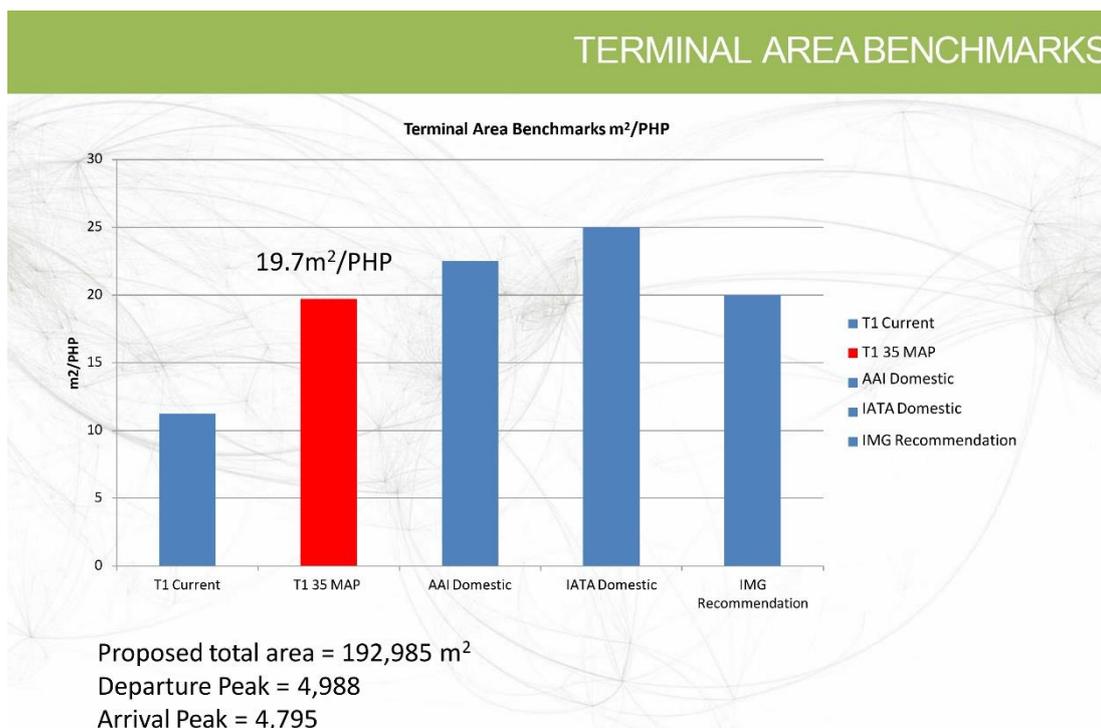


Figure 3: Terminal Area Benchmark

4.2 Apron Development (Package-1)

4.2.1 Existing scenario assessment of Aircraft Stand Demand and other Facilities:

T1 Apron presently has 71 stands out of which 55 aircraft stands is fit for Code C aircraft for Scheduled operations and another 28 stands for General Aviation aircraft. Since there are no contact stands currently all aircrafts are remotely parked and therefore bussing operations of passengers between the terminal and the aircraft are significant. DIAL has proposed 22 contact stands for the T1 apron. The Apron currently has an area of 2,82,000 sqm. The proposed apron area development by DIAL is 7,16,288 sqm. It has been observed that an area of 86,750sqm is considered for General Aviation aircraft which can be deducted from the proposed area.

As per ADRM, the no. of operational apron stands is calculated using the following formula.

Apron Stands, $S = (T_i/60) \times N_i + a = 42$ stands required for operational purpose in T1

T_i = gate occupancy time in minutes of aircraft group code (60 mts)

N_i = No. of arriving aircraft during peak hour (32 projected equivalent to 35MAP)

a = No. of spare stands (30% spare assumed)

As 4 Airlines is using IGIA as a hub, the request for night parking facility corresponds to **40** stands matching 35MAP. Hence the total requirement is **82** Code C stands T1 Apron. Since the night parking facility is a revenue generating segment for airport operators, this shall be captured for revenue generation. Proposed apron layout is shown in Figure 4.

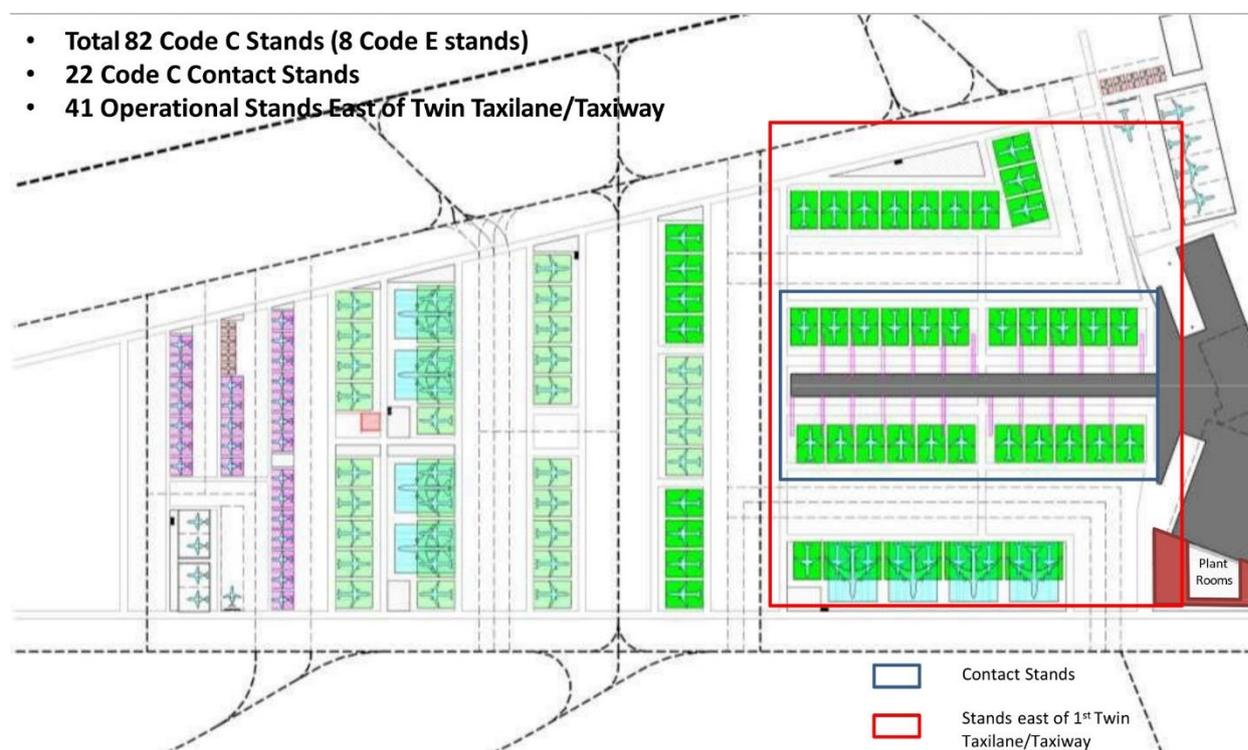


Figure 4: T1 Apron layout

4.2.2 Inference on Terminal & Apron (Package-1)

T1 Terminal area requirement is justified with respect to IMG norms as detailed in the preceding section.

The Apron area proposed by DIAL includes the General Aviation area also. It is recommended that this area (86,750 sqm) can be deducted from the total area.

Thus the total apron area gets reduced from 7,16,255 sqm to 6,29,685 sqm.

Existing T1 apron pavement is of varying age and for various design parameters. Therefore, it is recommended to redo the entire pavement area (operational stands & night stands area) for the optimum design layout.

4.3 Airfield Works (Package 2 & 4)

4.3.1 Aircraft Movements

The airport had a CAGR of 7.9 percent for the period 1995-96 to 2015-16. IGIA handled 344 thousand schedule movements in FY2015-16 registering a growth of 14.4%. It is expected that average aircraft sizes and load factors will increase over time. The passenger aircraft movement is projected to grow from 281,034 movements in 2013/14 to 726,400 movements in 2033/34.

4.3.2 Existing Scenario Assessment

4.3.2.1 Airside Capacity

The North Terminal Precinct NTP (Runway 9-27 and 10-28) serves primarily Code C aircrafts and the South Terminal Precinct STP (Runway 10-28 and 11-29) handles other larger aircrafts. Though Runway 11/29 has a length of 4430 mtr, approach 29 is limited due to the existing Shiva Statue. With a view to plan for future airside facilities, the design aircraft for the NTP will be Code E and for the STP will be Code F. Sometimes Code B or C standards are also used for planning specific elements of the airside and other facilities.

Under both east and west flow conditions, which could vary throughout the day, the ATC uses the IGIA's runways dynamically to maximize operational efficiency and to balance the available capacity with arrival and departure demands. Currently, across the year, the airport operates in west flow for about 68.3% and in east flow for 31.7% of the time. Based on the application of existing ATC procedures and the use of current ATC technology, the peak hour runway capacity was estimated for the existing 3-runway system. The estimated capacity of the current airfield was 75 ATMs per hour based on the analysis of IGIA flight strip data though the airfield has operated at a higher capacity at times.

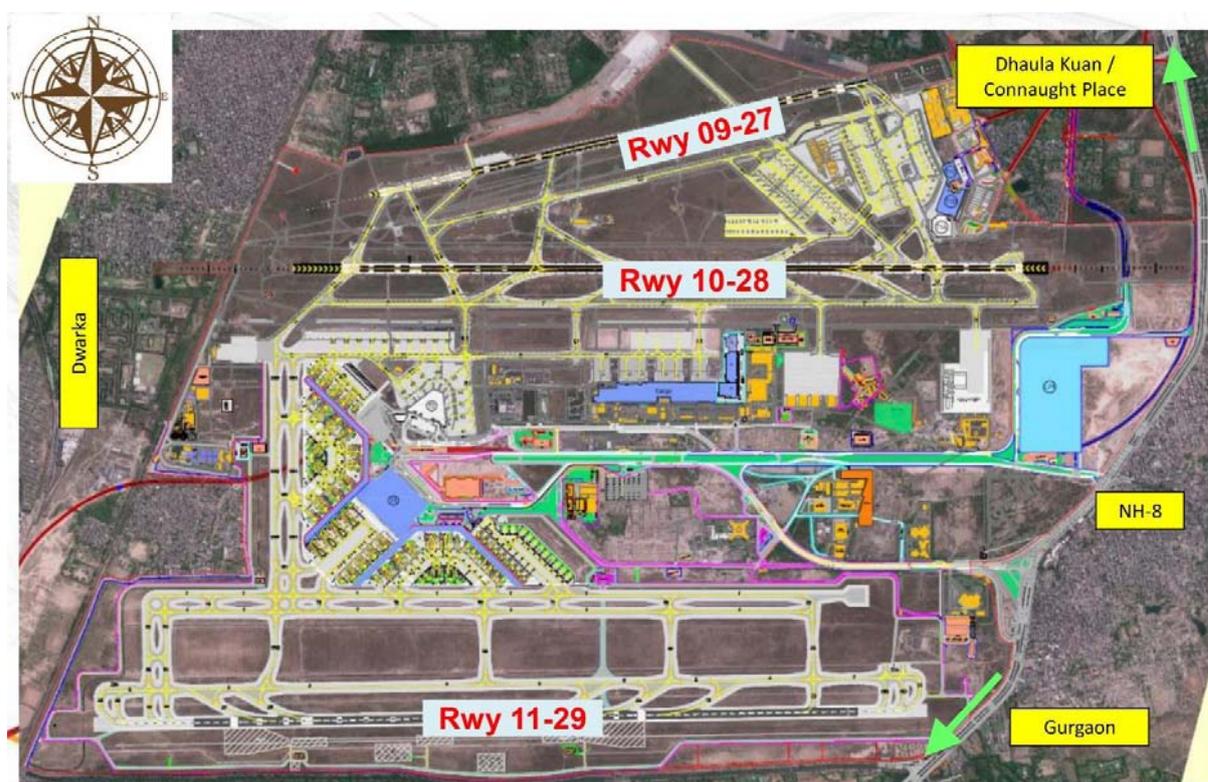


Figure 5: Existing Runway Locations

4.3.2.2 Runway Capacity

The existing runway system (Figure 5) along with taxiway improvements would serve 86 ATMs per hour, using a highly dynamic runway use strategy. The 3-runway system with ATC and taxiway improvements would be able to handle

between 593,500 and 620,500 annual ATMs at a delay of 10 to 15 minutes per ATM, a portion of which would be attributable to ground infrastructure. The declared peak hour capacity of the three runway system at IGI Airport is 67 but presently, it is being operated at a peak of 73 ATM/hr under the profiled schedule.

This forecast is equivalent to 77.5 MAP to 81.8 MAP based on the aviation activity forecast. Therefore, the 3-runway system would accommodate the growing demand at IGIA through 2024-25. The 4th runway in the southern part of the airport along with the taxiway improvements would accommodate 776,000 to 790,500 annual ATMs or 108 to 110.7 MAP based on the assumed delay target. This 4-runway system would accommodate the projected demand at IGIA up to the year 2033-34.

DIAL has proposed the following to cater this demand which were analyzed by KITCO

- 4th Runway (code-F compliant) and associated taxiway connection /links.*
- New parallel taxiway to existing runway 10/28 and associated taxiway connection/links to suit Code E aircraft operations.*

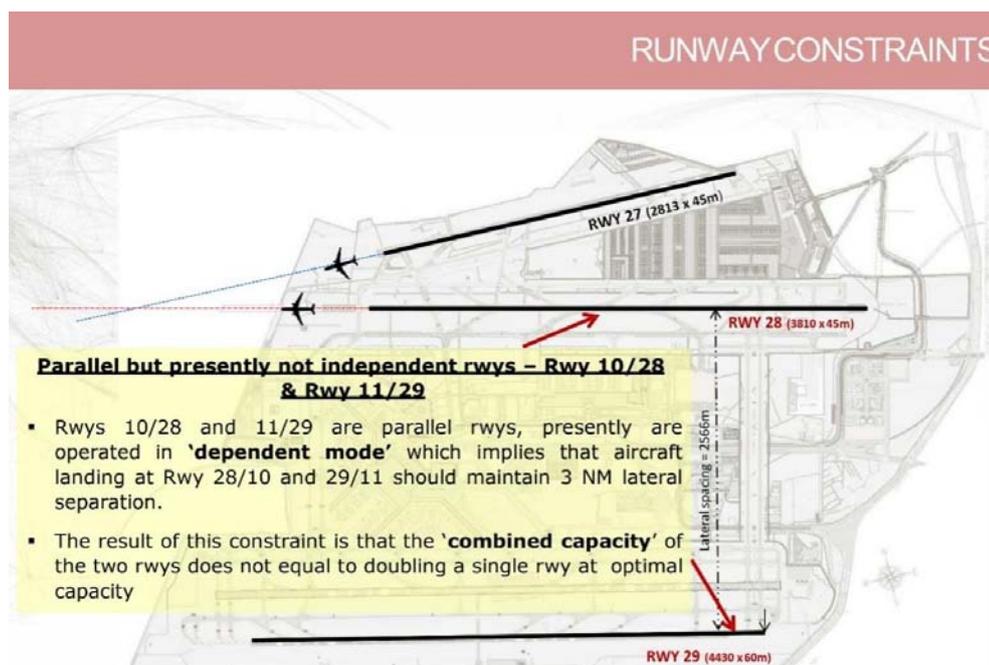


Figure 6: Runway

Existing runway constraints is depicted in Figure No-6. As per ADRM, maximum combined capacity of two dependent close parallel, mixed mode runway is 97 ATM/hr under optimum conditions and the efficiency is reduced to 84 ATM/hr in IGIA due to following factors

Runway 09/27 - Restriction on use by GA/ Non-scheduled flights due to VIP Residential area (Approach 27 almost fully discarded)

Runway 10/28 - Efficiency affected by crossing of aircrafts to & from T1

Runway 11/29 - Efficiency affected by GA/ Non-scheduled flights (ROT high & 7nm wake vortex separation as per ATC)

And obstacle of Shiva Statue with threshold displacement on Rwy29

Table 11 – Runway utilization – January 2018

	APR&DEP	ARR	DEP
09	5.2%	-	10.3%
27	13.5%	26.76%	0.2%
10	11.4%	18.1%	4.64%
28	23.3%	7.62%	39.1%
11	15.3%	13.8%	16.9%
29	31.2%	33.64%	28.8%

As per the table no-13, it is seen that Hindon Military Airspace (VIR-155A) on East is restricting use of Rwy 27,28,29

.Apart from the factors affecting ATM forecast like VVIP operations requiring shutdown at that part of airport even during peak hours & Night Curfew, there are certain other parameters that affect the peak hr. ATM which are as follows:

Rwy 9/27 – Arriving aircrafts are more as taxiing time to T1 apron is less

Rwy 10/28 – Handles 44 % of total departures

Rwy 11/29 – Handles 47% of both departures & Arrivals in the airport

Achieved peak hour ATM's for the year 2013 to 2018 is shown in figure-7

Though IGIA has handled 82 ATM/hr, as per L&B report based on simulation, the maximum ATM's that can be handled is not more than 84 ATM/hr. Therefore, fourth runway is required if the airport has to handle more than 84 ATM/hr.

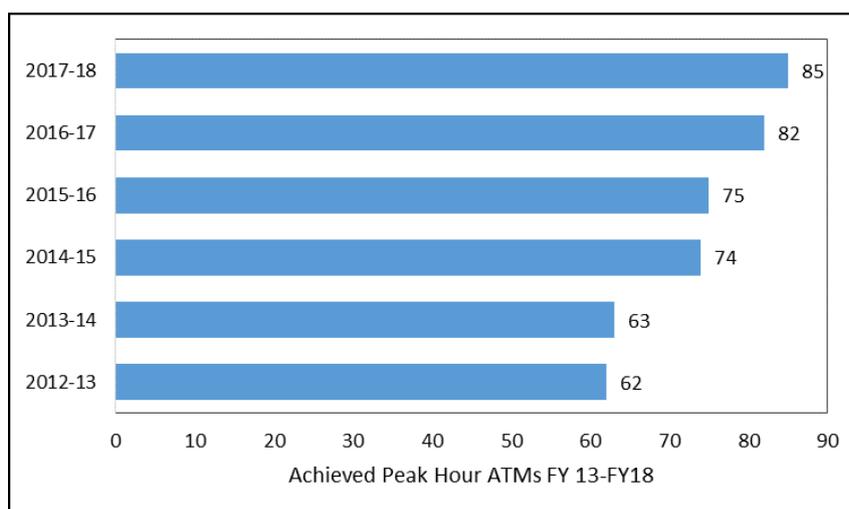


Figure 7: Achieved Peak Hour ATMs FY13- FY18 (source-L&B report)

KITCO also reviewed the 2006 masterplan report by Mott mac and 2015 masterplan report prepared by L&B. It has been observed that no realignment of Rwy 09/27 is possible until 2034. Subsequently the Rwy 09/27 shall be made non functional in due course when the new runway becomes operational. Hence a full reconstruction of this runway is not recommended and DIAL could consider

to overlay the affected portion to strengthen. This would reduce the cost and avoid working at close proximity to active runway.

4.3.2.3 Existing Capacity Assessment of Taxiway Configuration



Figure 8: Taxiway Location

Absence of a parallel taxiway on the north side of the Runway 10/28 is increasing the taxiing time of the low cost aircrafts to T1.

The existing cross taxiway on the west is so far away from the T1 that the taxiing time required for aircrafts from the existing Runway 10/29 to T1 Apron is 17.7 minutes.

Rapid exit taxiways from existing Runway 10/28 & new 11/29 improves the runway occupancy time and adds to the overall efficiency factor.

DIAL intent constructing cross taxiway, parallel taxiway and RETs to compensate the above deficiencies. These proposals were reviewed by KITCO.

The objective is to:

- Reduce the taxi distances for aircraft, thereby saving precious time fuel, emissions and ultimately increasing the capacity of the airport.*
- Provide flexibility to the Air Traffic Controllers in managing the aircraft movements.*
- Allow for optimal use of both runways for departing and arriving aircraft from both the Terminal 1 & Terminal 3 areas.*

The proposed parallel eastern cross-taxiways ET-1 and ET-2 are approximately 2.1km long. The width of each taxiway is 60m both being separated by an open space of 37.5m width. While connecting the runways 11-29 and 10-28, these taxiways shall cross the Radisson Road, the Central Spine road and the proposed Cargo Road. Hence taxiway crossings are required at all these three locations. The width of each taxiway crossing shall be 84m and both the parallel structures shall be separated by an open space of 13.5m.

Separate structures shall be provided for the crossing of the service roads which run parallel to the cross taxiways. These structures will be situated at 57.5m from the taxiway centerlines. The width of these structures will be between 10m.

Based on the existing levels of the runways and the existing roads and permissible gradient of the taxiway, an underpass is proposed at the crossing of the Radisson Road.

The Central Spine road is located approximately 1150m and 850m from the southern and northern limits of the proposed cross taxiway respectively. Hence it is apparent that sufficient length of gradient is available to elevate the taxiway and cross the spine road by a flyover.

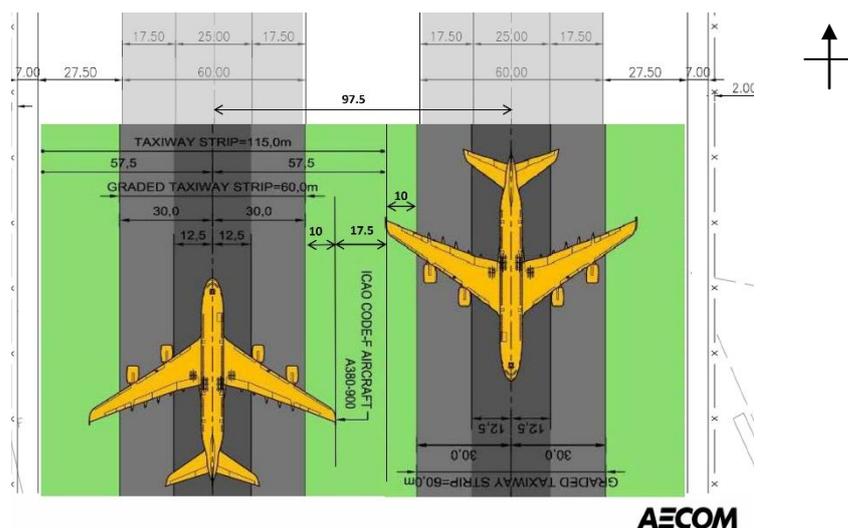


Figure 9: Eastern Cross Taxiway Configuration

4.3.3 Inference on Airfield Works (Package 2 & 4)

Need for new runway 11/29 is assessed based on the combined runway capacities of existing 3 runways & review of ATM forecasts .It is found that that the forecast is exceeding the combined capacity. Hence the fourth runway is justified.

Taxiway proposals are assessed in detail and evaluated based on the need to enhance the efficiency of the airside.

The need for a northern parallel taxiway for Runway 10/28 is highlighted to avoid crossing of aircrafts to T1 and is justified, as DIAL has decided to retain the T1 location.

For runway 09/27 , it is recommended to do the overlay for strengthening the affected portion instead of full reconstruction.

4.4 Landside Works (Package 3)

The projected increase in air traffic and terminal expansion, necessitates the augmentation of land side connectivity and other terminal kerb side facilities.

Northern Access Road, Central Spine Road and Radisson road are the three major access roads to the airport. The northern access road connects to Central spine road which is the primary access to the Terminal 3 and Radisson road provides access from NH 8. Figure 11 shows the key plan of existing land side road networks.

Scope of land side work includes:

- Recommendations detailing out proposals for improving terminal facilities such as kerb arrangements for pick up and drop offs, parking requirements and capacity augmentation requirements for approach roads to departure and arrival terminals to meet the demand of 35 MAP as envisaged in the expansion plan of Terminal 1.*
- Augmentation of the Northern Access Road to 2 x 5 lane facility along with widening of the existing underpass to 2 x 6 lane facility.*
- New 4-lane flyover at Aerocity Metro Station junction for T1 to T3 right turns traffic.*
- Widening of the Central Spine Road (approx. 1.5 km) to 2 x 6-lane facility and integrating the road with the new aerocity metro station junction flyover.*
- Improvement of a section of the Radisson Road (approx. 1.1 km) in view of 2034 Masterplan and integrating with the provision of new Eastern Cross taxiway underpass structure*

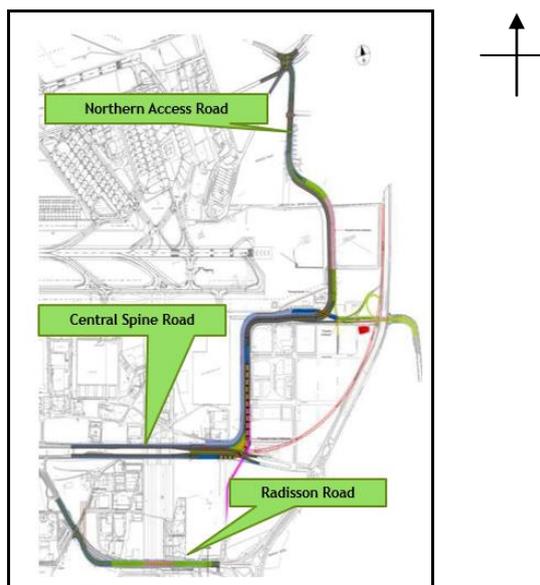


Figure 10: Land Side Roads

- *Northern Access Road widening*

The Northern Access road starts at the NSG signalized junction and terminates at Aerocity metro station junction. The road is approximately 2.9 km long and serves as the main link between the Terminal 1 and Terminal 3 of the IGI Airport. The existing 6 lane, 370 m long underpass runs beneath the approach of the runway 10-28.

- *Widening of Central Spine Road*

The Central Spine road starts from NH-8 at Mahipalpur junction and terminates at Terminal-3 of IGI Airport. The Northern Access road meets the Central Spine with a signalized T-junction near Aerocity Metro Station, located at about 500m from the Mahipalpur junction. This first 500m stretch of the Central Spine road has dual carriageway of 2 x 3-lane configuration; the carriageways being separated by a 25m wide median. From the T-junction with Northern Access road, the Central Spine Road is 2 x 4-lane with median varying between 9m and 48m.

- *Radisson Road*

The existing 2.0 km (approx.) long Radisson road starts from NH-8 in front of the Radisson Hotel and terminates on the Central Spine road. Currently the road is of 2x4-lane configuration with 2.6m wide median separating the both side

carriageways. A defunct toll plaza of NH-8 exists about 250m from the start of this road.

3.5.1 Landside Road Capacity Assessment

Table 12 - Landside Road Capacity Assessment

Traffic Survey Details							
Location Description	Direction	Roadway Lanes	2015/16	2020/21	2025/26	2030/31	2033/34
Northern Access Road	Delhi - T3	3	3020	4388	5196	6082	5986
	T3 - Delhi	3	2996	4354	6023	6773	6480
Central Spine Road	T3 - Aerocity	4	2693	3913	5619	6203	5820
	Aerocity - T3	4	1948	2830	4620	5289	4901
Radisson Road	Radisson - Airport	4	310	451	636	758	837
	Airport - Radisson	4	126	183	5	271	270

Determining when additional roadway capacity may be needed is accomplished through a level of service (LOS) analysis. LOS can be estimated based on the ratio of vehicle demand to capacity (i.e., V/C ratio).

3.5.2 Inference on Land Side Works (Package-3)

Table 93 - Inference on road widening

	Existing	Proposed	Remarks By KITCO
Northern Access Road	2X3	2X5	As per the Master Plan, Northern Access road has already reached level of service F, which marks the forced flow or breakdown condition. Hence widening of the existing road to 2X5 configuration is acceptable.

	-	Proposed Super Elevation at CH 2+100 4%	As per IRC:86-1983 , minimum radius to limit the super elevation to 4% is 105m. Curves having radius less than 105m, it shall be limited to 7%. At Chainage 2+100 , super elevation has been limited to 4% .
Central Spine Road	2X4	2X6	As per the Master Plan, widening of the existing road to 2X5 configuration is necessary in 2020-2021 under LOS F condition. However, considering the projected increase in the air traffic, augmentation of landside connectivity is unavoidable. Hence it is acceptable to go in line with expansion in the very near future.
Radisson Road	2X4	2X4	Traffic projection reveals that Radisson road have sufficient capacity to operate till design period. Level of service of Radisson road is LOS B. Hence it is not necessary to widen the road.

- Kerb widening of Terminal 1

Table 104 - Inference on Kerb Widening

	Proposed-No. of Kerbs		Remarks By KITCO
	T1D	T1C	
Cars	38	42	As per average occupancy and hourly traffic volume estimated from passenger terminal survey output, assumed modal
Taxis	61	72	

Bus	3	3	<i>share and annual demand of 35 MAP, the proposed kerb lengths/no. of kerbs are justified. (Basis for some of the assumptions used in traffic volume estimation has not been provided in the report)</i>
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4.6 Assessment of Terminal 3 capacity enhancement (Package 5)

T3 has an existing total built up area of 5, 54,000sqm. As per IMG norms, the terminal is sufficient to handle a Peak Hour Pax of 22,160, which will match with 56MAP. The building was designed for the higher capacity, but the current infrastructure at the contact points were done only for 30 MAP. Currently, the terminal is handling 34 MAP and DIAL wants to upgrade the infrastructure to 40 MAP for the Design year 2022. Therefore, the shortage in each process area was evaluated as per ADRM calculations based on survey inputs and Level of Service (LoS) C levels. Main shortage in infrastructure was found in the number of check-in counters, arrival hall baggage belts and kerb length requirements in Arrival & Departure concourse. Therefore, DIAL has proposed upgradation of the facilities that has been highlighted in the gap analysis and lump sum costing has been done for the components.

4.7 Cost Effective Options

KITCO analyzed various cost effective alternatives which are detailed below:

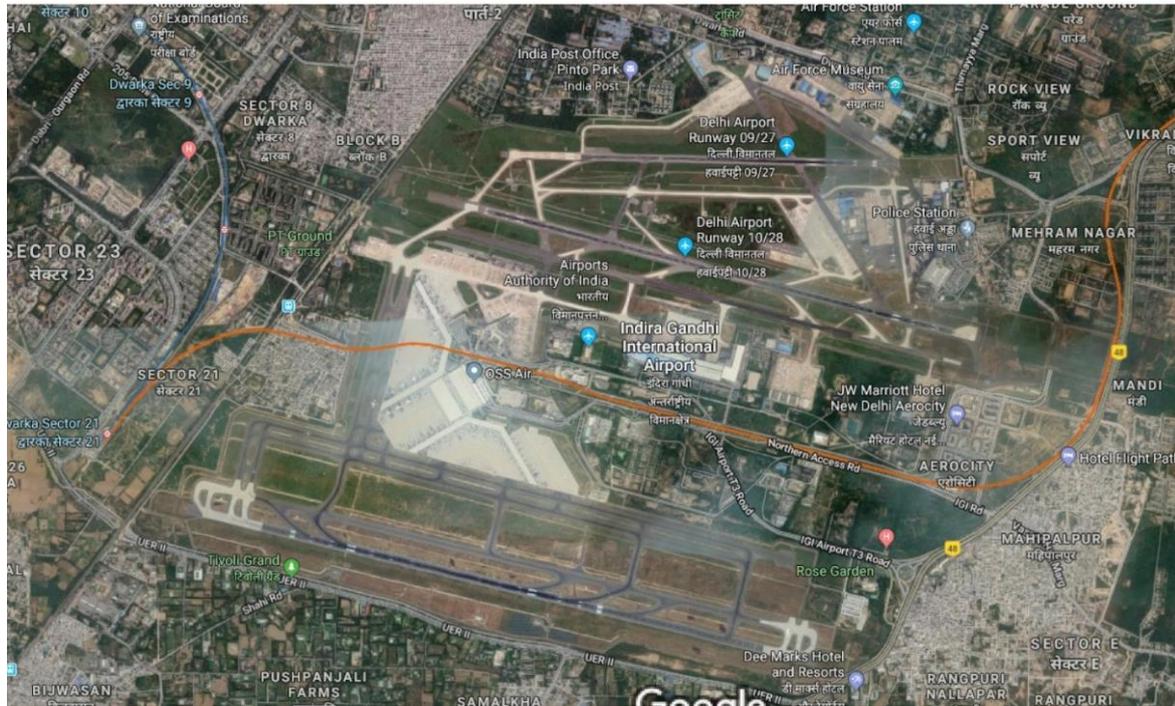


Figure 11: Option 1 – Alternative option instead of new Runway

4.7.1 Option1 – Alternative option instead of new runway

KITCO analyzed the option of enhancing the existing runway capacities by adding a northern parallel taxiway to Runway 10/28 and eastern cross taxiway from Runway 11/29. The ATM's that can be handled is enhanced only marginally.

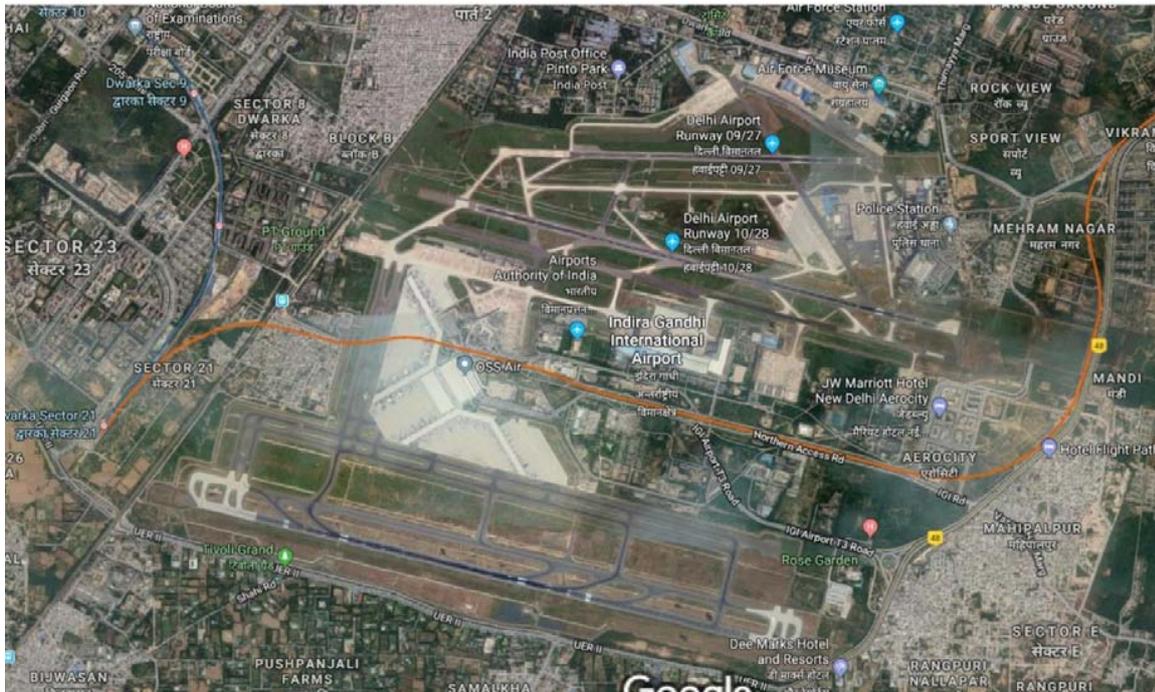


Figure 12: Option 2 – Alternative option instead of northside parallel taxiway for Runway 10/28

4.7.2 Option2- Alternate option instead of northside parallel taxiway

KITCO analyzed the option of providing new runway 11/29 and cross taxiway without providing northern parallel taxiway to runway 10/28. In this case, the aircraft movements to T1 affects the efficiency of runway 10/28 considerably and the ATM distribution is south centered and in favour of T3 only. In this option, refurbishment of runway 9/27 is inevitable.

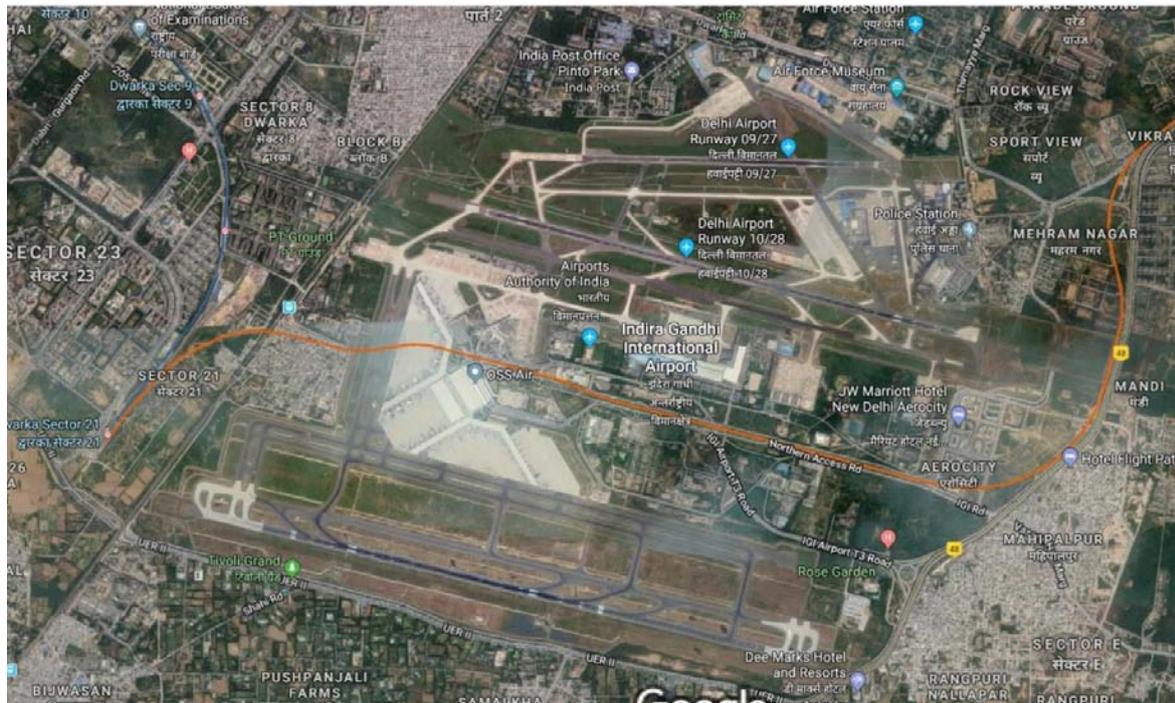


Figure 13: Option 3 – Alternate option instead of Eastern Cross taxiway

4.7.3 Option 3- Alternate option instead of Eastern cross taxiway

KITCO analyzed the option without eastern cross taxiway, which warrants the relocation of T1 to T2, the northern parallel taxiway is also not required in this option. But in this option the central spine road widening is beyond what is possible to cater the demand of passenger flow to T3 & T1. Therefore the option may be discarded.

Costs for each options were calculated and compared which is tabulated below in Table No-15.

Table 15- Summary of Cost for different options

SUMMARY OF COST FOR DIFFERENT OPTIONS						
Sl No:	Package	Description	DIAL Estimate	Option 1	Option 2	Option 3
Cost in Rs. Crore						
1	1	Terminal and Apron	2512.00	2512.00	2512.00	2941.55
2	1,2 & 4	Airside works	4681.00	4371.56	4531.63	3413.63
3	3	Landside works	366.00	366.00	366.00	1148.60
4	5	Terminal 3	233.00	233.00	233.00	233.00
5		Others	911.00	875.00	894.00	905.00
		Total cost	8703.00	8357.56	8536.63	8641.78
		Savings		345.44	166.37	61.22

Out of the 5 packages, Airside Works offers multiple combination options, which can minimize the total cost with enhance runway capacity. Main components for identified as New Runway, Northern Parallel Taxi Way and Eastern Cross Taxi Way. The Implication of total capacity, when one of the three main component is removed is analyzed and justification is provided.

The packages Terminal and Apron does not offer scope for alternate options except for reduction in Apron area. Terminal-3 package involves minimal modifications to accommodate transfers and enhance passenger capacity. Hence not much of a change is envisaged.

Even though option 1 seems to have a saving which is negligible compared to the total cost, the construction of new runway becomes inevitable in the year 2025-2026. Deferring the construction works of runway till that time is not a recommendable option due to the escalation in construction costs.

Hence the proposal by DIAL for construction of new runway, parallel taxiway, cross taxiway and associated connection taxiways are justified.

Chapter 5 – Cost Analysis

5.1 Cost Distribution

Cost Distribution of each package is given in table below and also represented in pie chart in Figure 14.

Table 16 - Cost distribution of each package

Package 1	31%
Package 2	46%
Package 3	5%
Package 4	15%
Package 5	3%

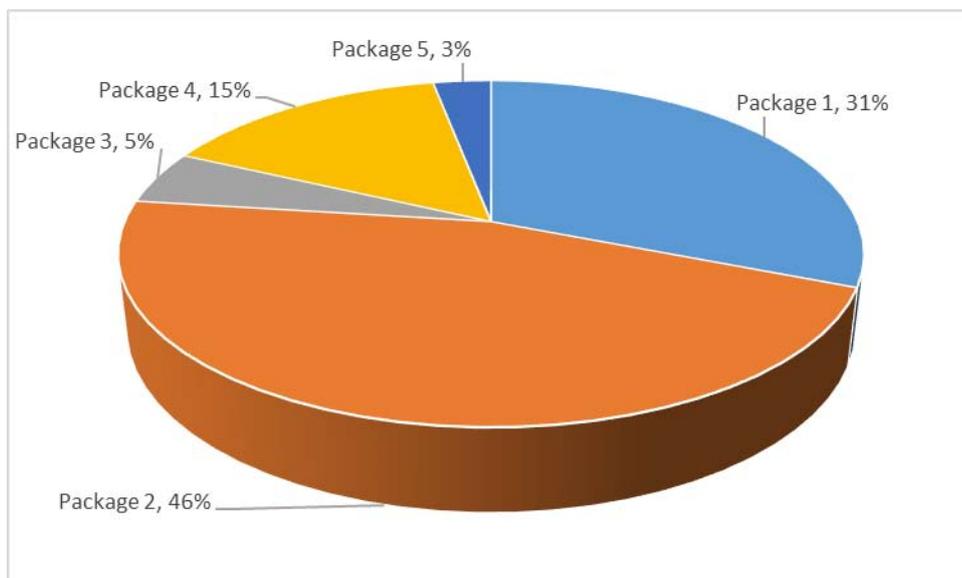


Figure 14: Cost Distribution

5.2 Capital Cost Proposal Methodology

DIAL has prepared the capital cost proposal by adopting the following methodology

- Bills of Quantities for various items of work has been prepared.
- Equipment sizing / requirement has been evaluated & considered.
- Unit rates for various items of civil works has been taken from the Delhi schedule of rates (Apr2016).
- Appropriate price adjustment has been incorporated for the current base date of Sept 2017 in case of DSR rates. Adjustment as provided by CPWD- Building cost index @ 8.82% for Delhi has been considered. Additional 7.87% has been considered for Employer portion of PF, ESI and other labour compliances that is not included in DSR.
- Wherever rates are not available in Delhi Schedule of rates (mainly due to difference in specifications or specialized items), market rates have been considered. These include items related to airside pavements, Façade works, Roofing sheeting and structure, rock excavation by controlled blasting.
- For MEP, AGL, Specialized equipment/ System costs are based on quotations from suppliers / manufacturers.
- An factor of 17% (on an average) has been considered
->to account for difficulties / constraints for working in an operating airport like restricted access, stoppages, VVIP movement, low productivity etc. This factor has not been considered for the supply portion in the case of specialized equipment.
->Estimated Cost Escalation / rupee devaluation during construction period from base date Sept 17 to Sept 2021.
- Based on experience in similar projects costs towards following has been considered under “ Others”.
->Preliminaries (Approx. 2%) (Items considered under preliminaries has been informed earlier)
- Design development / supervision (4%)
- Contingencies (5%)

The rate submitted by DIAL has been reviewed and following are the observations compared to the AERA CEILING RATES.

5.3 Passenger Terminal Building:

Construction of Terminal Building includes fully Air- conditioned and meeting the building code for fire protection system including fire and smoke detection & alarm system, sprinkler and hydrant system complying to the relevant statutory requirements, water supply and sanitary, Substance Equipment for Power supply including Standby generating units and related system, Passenger facilitation including flight information display and security surveillances, directional and information signage etc., Airlines related services of check-in, CUTE, CUSS, Baggage reconciliation system. Equipment namely in-line X-ray screening, standalone screening, required numbers of Baggage conveyors both for arrival and departure, escalators, Travellators and Elevators and passenger Boarding Bridges, other passenger services, Aircraft operational services as part of Terminal process facilities, the ceiling cost / sqm is Rs.65,000 as per AERA.

While reviewing the DIAL costing, KITCO considered the factors like operational difficulties, constrained material conveyance, anticipated dollar escalation, system modifications to adapt the revised requirements, and locational importance. KITCO also compared the rates of recently completed airports.

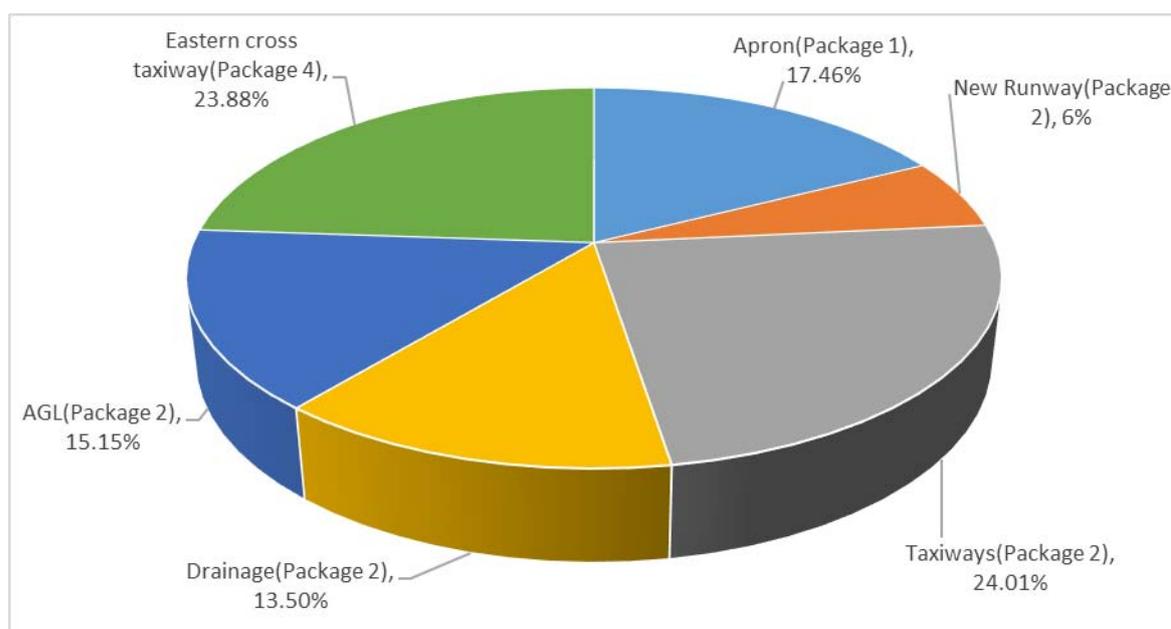
Accordingly, the rate/sqm recommended for Passenger Terminal Building is Rs.1,25,968/sqm against Rs.1,37,472/ sqm for 1,92985 sqm area. DIAL had re submitted the MDP of Terminal 1 & Apron Works (package 1) vide letter no. DIAL/2017-18/CEO-Office/1550 in which total area of Terminal indicated is 1,92,985 sqm area against 1,66,278 sqm area. An amount of Rs.2513 crores is proposed for Civil works, MEP & Airport systems which has been reworked to Rs.2431 crores as per the details of costing sheet attached as Annexure I.

5.4 Airfield works including Eastern Cross Taxiway

The cost distribution of airfield works is given in Table No-19 and also represented using pie chart in Figure No-15.

Table 117- Cost distribution of airfield works

Apron(Package 1)	17.46%
New Runway(Package 2)	6%
Taxiways(Package 2)	24.01%
Drainage(Package 2)	13.50%
AGL(Package 2)	15.15%
Eastern cross taxiway(Package 4)	23.88%

**Figure 15: Cost Distribution of Air field works**

For Construction of pavement (Apron, Taxiway, Runway), pavement for Code E aircraft, the ceiling cost is Rs.4700/Sqm as per AERA.

The costing proposed by DIAL is Rs.4681 crore KITCO considered the factors like operational difficulties, constrained material conveyance, Anticipated cost escalation, Design for heavier aircraft (code F) while evaluating the airfield costing. The revised cost works out to Rs. 4320 crores. Major reduction incurred is in the apron area which is detailed in Chapter 3.0.

1) The rate/sqm recommended for Apron is Rs.9778/sqm for 629685 sqm against Rs.11,127/sqm for an area of 7,16,255 sqm,

2) For taxiway - Rs.8306/sqm against Rs.8754.08/sqm for an area of 931461 sqm and

3) For runway - Rs.5978/sqm against Rs.6848.50/sqm for 505086 sqm.

Details of costing attached as Annexure I.

In Package 5 for Terminal 3 works, DIAL resubmitted the revised costing as Rs.167 crore against Rs.233 crore, vide email dtd.10.3.18

5.5 Others

5.5.1 Preliminary works include demolition, relocation, enabling, diversions etc.

Cost of preliminary works @ 2% of the estimated cost of works is considered in the proposal. This is catered towards demolition, relocation & re-routing of utilities, traffic management systems, temporary signage, temporary roads & access gates etc. These are provisional sums and generally vary between 1% to 5% depending on the total estimated cost of works. Thus, the provision of 2% is considered reasonable.

5.5.2 Design development and supervision

Fee for design, development and supervision considered is @ 4% of the estimated cost of works. This is reasonable and justified.

5.5.3 Permits, Survey & insurance

A lumpsum amount of Rs. 30.00 crores is provisioned in the capital cost proposal towards insurance & permits which is reasonable.

5.5.4 Operational Capex

An amount of Rs. 30.00 crores is provisioned towards operational capex which is accounted for equipment like Runway sweeping machine, runway paint marking machines (big & small), runway rubber removal machines, passenger trolleys, motorized lifting platform, etc. Once the assets are created, operational expenditure shall be met from revenue budget. Hence the cost towards operational capex is not justified.

5.5.5 Contingencies

Cost for contingencies is provisioned in the capital cost proposal @ approx.5% of the estimated cost of works. Generally, contingencies for projects of this extent are catered at 3% of the estimated cost. Considering the magnitude of the project, the provision of 3% towards contingencies is considered adequate as presently followed by the government organizations such as AAI and CPWD.

In consideration of the above, the provision of 3% is considered reasonable for contingencies for this magnitude of work.

5.6 Construction Schedule

DIAL has submitted the construction programme and phasing plan with date of commencement as April 2018 and completion in October 2021. The total duration for the construction of Terminal and Apron parts of the phase 3A project is 42 months which is found to be reasonable and is justified. Detailed capital cost scheduling is attached as **Annexure-II**.

5.7 Tendering Process

In order to ensure best quality and competitive cost from the vendors, transparent bidding process shall be followed.

5.8 Comparison of Basic Cost

Based on the available data, an attempt has been made to compare the cost incurred and specifications for the new international passenger terminal buildings at Cochin, expansion of terminal building at Hyderabad, terminal at Kolkata constructed by AAI, proposed terminal expansion at Delhi. A broad comparison of these are tabulated in Table Nos-21-23.(Annexure III).

5.9 Work to be executed through other (Joint ventures / concessionaires)

Costs mentioned in this head is not evaluated as details are not received from DIAL.

Chapter 6 - Conclusion

6.1 Summary of the exercise performed by KITCO

1. The traffic projections has been verified by means of trend based projection using Data collected from Year 2006-2016.
2. Design year in which the 35MAP in T1 & 40 MAP in T3 are achieved is found from the traffic projections.
3. The correlation with the forecast projected by DIAL is verified and differences highlighted.
4. The peak hour capacity based on IMG norms is verified and validated. It is cross checked with the peak hour surveys conducted at IGIA and peak hour projections based on collected data and found to be matching with the IMG norms.
5. The total area required as per IMG norms per PHP is calculated and the terminal areas are justified.
6. Each process area is evaluated based on ADRM calculations with survey inputs and LOS C expectations and found matching with what is required for the projected PHP
7. Area allocations for other ancillary facilities are also cross checked and found well within the industry standards and best practices.
8. ATM forecast is also verified in line with the PHP forecast
9. Apron capacity is calculated based on ADRM calculations and design assumption to provide 30% spare active stands is as per L&B master plan 2016.
10. The night parking stand demand is verified as per L&B master plan and validated as per the Airline demand
11. The area shown for GA apron is deducted from the total Apron area and the cost variation due to area variation is highlighted

12. Taxiway proposals are assessed in detail and evaluated based on the need to enhance the efficiency of the airside.
13. The need for aircrafts in T1 Apron including GA aircrafts to use Runway 11/29 is verified and validated based on ATM data and runway curfews and the need to connect T1 to Runway 11/29 using eastern cross taxiway, which reduces the travel time to T1 apron substantially is justified.
14. The need for a northern parallel taxiway for Runway 10/28 is highlighted to avoid crossing of aircrafts to T1 and is justified, as DIAL has decided to retain the T1 location.
15. Rapid exit taxiways from Runway 10/28 and all linkages to apron and runways are cross checked and found justified.
16. The drawings are verified as per ICAO standards and the area requirements for taxiway are validated and cross checked with the quantities considered for estimate preparation.
17. Need for new runway 11/29 is assessed based on the combined runway capacity of existing 3 runways. AAI has calculated the combined capacity of the 3 runways, keeping in mind the restrictions in airspace, approach, obstacles, existing taxi network etc. as 67 ATM/ peak hour. L&B has reviewed the permutation/ combinations and has recalculated peak hour ATM of 84 based on simulations. IGIA has operated 84 ATMs per hour based on the standard of operations, prepared by L&B.
18. The ATM forecast is reviewed and found exceeding the combined capacity of 3 runways and therefore the need for fourth runway is justified.
19. The capacity assessment of land side roads has been done on the basis of existing and projected traffic volumes. Based on the capacity analysis, widening of roads is justified to maintain the desired level of service (LOS).
20. Capacity enhancement proposed by DIAL for the land side and airside works is for the design year 2035-36 whereas the T1 expansion is for the year 2025-26 and T3 enhancement is for year 2021-22. This is justified based on the fact that infrastructure developments can only be done on a long term basis, whereas buildings can be augmented with minimum interference with operational activities.

6.2 The outcome of the exercise with reference to scope of work are summarized as below:

6.2.1 To examine the proposal of the airport and assess the need for the proposed project and its capacity/scope with reference to passenger growth/ Cargo volumes/ Air Traffic Movement and also to suggest cost effective alternatives

The proposal for expansion of the IGIA submitted by DIAL is justified in view of the traffic forecast and ATM projections for the design year and is detailed in Chapter 2.0

6.2.2 To examine the building standards and designs proposed by the airport operator in line with IMG norms/IATA/ICAO norms

The total area proposed for T1 building is satisfying the IMG Area norm for Domestic Terminals and is well within the limit and is discussed in detail in Chapter 2.0

6.2.3 To analyze the reasonableness of the proposed cost with reference to the tentative ceiling decided by Authority vide order no.7 dated 13/06/16 based on the details of the rates and quantity as per government /industry approved norms and advise the Authority on the justification of the costs

Detailed review of the cost estimate submitted by DIAL has been carried out by KITCO based on the information provided by DIAL and Government/industry approved norms. Details of analysis is briefed in Chapter 3.0. The revision to total capital cost is recommended as below in Table No-20.

Table 18 - Details of Capital Cost recommended*(Amount in Rs. Crore)*

Packages	Estimated cost by DIAL	Recommended cost By KITCO
1 - Expansion of Terminal 1	2,513.00	2,431.00
2&4 - Airfield works including 4 th Runway & Eastern Parallel Cross Taxiways	4,681.00	4,320.00
3 - Landside / Connectivity works	366.00	366.00
5 - Modifications to Terminal 3	167.00	167.00
TOTAL	7,727.00	7,284.00
Others	905.00	685.60
GRAND TOTAL	8,632.00	7,969.60

ANNEXURES

Annexure-I**Summary of Areas & Recommended Costs for Phase-3A Expansion Works – Civil Works**

MDP PACKAGE	S.NO	DESCRIPTION	Area (Sqm)	Cost per area(Rs./Sqm)	Recommended cost (Rs. crore)
PACKAGE 1	I	MAIN PACKAGES	192985	125968	2431
		PASSENGER TERMINAL BUILDING			
	A	Civil and Structural works including façade, roofing			
	B	Finishes & Interior works			
	C	MEP Systems			
	D	SPECIALISED SYSTEMS			
	(I)	Airport Systems			
(II)	IT Systems				
		AIRFIELD WORKS			
PACKAGE 1	A	Apron excepting associated AGL works	629685	9778	616.00
PACKAGE 2	B	Runway	505086	5978	301.90
	C	Taxiways	931461	8306	773.7
	(i)	North side			
		Other Works- Preparation of Basic Strip Area, Back Filling & Dismantling Works			117.38
	(ii)	South side			
		Other Works- Preparation of Basic Strip Area, Back Filling & Dismantling Works			103.79
	D	Drainage			
	(i)	North side			518.43
	(ii)	South side			74.00
	E	Airfield Ground Lightning for all airside works including Eastern Cross Taxiway			652.00
F	Other Associated works like Electric Substation, SRFF, ARFF equipment etc			57.00	

MDP PACKAGE	S.NO	DESCRIPTION	Area (Sqm)	Cost per area(Rs./Sqm)	Recommended cost (Rs. crore)
PACKAGE 4	H	EASTERN CROSS TAXIWAY expecting associated AGL works	691081	16003.9	1106.00
		SUB TOTAL - AIRSIDE			4,320
PACKAGE 3		LANDSIDE WORKS	145370	25177.1	366.00
		GRAND TOTAL			7,117
PACKAGE 5		TERMINAL 3 (Transfer areas-I to I, and baggage handling equipment			167.00
	I	TOTAL VALUE OF MAIN PACKAGES			7,284

Summary of Estimated Costs & Recommended Costs – Expansion of Delhi Airport Phase-3A

MDP PACKAGE	S.NO	DESCRIPTION	COST PROPOSED BY DIAL (Rs. Crore)	COST RECOMMENDED BY KITCO (Rs. Crore)	EXTENT OF ESTIMATE PRUNED BY KITCO (Rs. Crore)
	I	MAIN PACKAGES			
PACKAGE 1		PASSENGER TERMINAL BUILDING			
	A	Civil and Structural works including façade, roofing	906	879.03	26.97
	B	Finishes & Interior works	366	366.00	0
		SUB TOTAL- STRUCTURES AND FINISHES	1,272	1245.03	26.97
	C	MEP Systems			
	(i)	HVAC	185		
	(ii)	Electrical	315		
	(iii)	FF, Detection & suppression systems	20		
	(iv)	Fire alarm system	11		
	(v)	PHE	26		
		SUB TOTAL- MEP SYSTEMS	558	533.00	25
	D	SPECIALISED SYSTEMS			
	(I)	Airport Systems			
	(i)	PBB, GPU, PCA, VDGS			
		Passenger Boarding Bridges	150		
		Visual Docking Guidance System	98		
		GPU- pit connection for remote stands	32		
	PCA- pit connection for remote stands	34			

MDP PACKAGE	S.NO	DESCRIPTION	COST PROPOSED BY DIAL (Rs. Crore)	COST RECOMMENDED BY KITCO (Rs. Crore)	EXTENT OF ESTIMATE PRUNED BY KITCO (Rs. Crore)
	(ii)	Screening systems- Passenger Screening systems	34		
	(iii)	Baggage handling systems	111		
	(iv)	Screening systems- Hold Baggage Screening systems	82		
	(v)	Vertical and Horizontal Transportation systems	115		
	(vi)	Automatic tray retrieval	27		
	(II)	IT Systems	cost considered under (III)		
		Sub total- specialised systems	683	653.00	30
		SUB TOTAL -TERMINAL	2,513	2,431	81.97
		AIRFIELD WORKS			
PACKAGE 1	A	Apron excepting associated AGL works	817	616.00	201.0
PACKAGE 2	B	New Runway 11L/29R	281	260.41	20.59
	C	Taxiways			
	(i)	North side (North Parallel taxiway, connecting taxiways, RETs+ Runway 09-27, Echo-2 etc)	888	813.86	74.14
	(ii)	South side (RET S1 & S2, Y5, exit taxiway-1,2,3, S-3, Z2 taxiways etc)	236	222.54	13.46
	D	Drainage			
	(i)	North side	558	518.43	39.6
	(ii)	South side	74	74.00	0
	E	Airfield Ground Lightning for all airside works including Eastern Cross Taxiway	652	652.00	0
F	Other Associated works like Electric Substation, SRFF, ARFF equipment etc	57	57.00	0	

MDP PACKAGE	S.NO	DESCRIPTION	COST PROPOSED BY DIAL (Rs. Crore)	COST RECOMMENDED BY KITCO (Rs. Crore)	EXTENT OF ESTIMATE PRUNED BY KITCO (Rs. Crore)
PACKAGE 4	H	EASTERN CROSS TAXIWAY expecting associated AGL works	1,118	1106	12.4
		SUB TOTAL - AIRSIDE	4,681	4,320	361.2
PACKAGE 3					
		Flyover at northern access road	64	64.00	
		Foot over bridge	1	1.00	
		Flyover at T1 D/T1C	55	55.00	
		Northern Access, Central Spine and other roads etc	133	133.00	
		Roads- T1C & T1D at grade	29	29.00	
		Multi level Car Park	cost considered under (III)		
		Other works like External /Utilities/ Canopy etc	84	84.00	
		LANDSIDE -SUB TOTAL	366	366.00	
		GRAND TOTAL	7,560	7,117	443.12
PACKAGE 5		TERMINAL 3 (Transfer areas-I to I,and baggage handling equipment	167	167.00	0
	I	TOTAL VALUE OF MAIN PACKAGES	7,727	7,284	443.124
	II	OTHERS			
	a	Preliminary works including demolition, relocation, enabling, diversions etc- 2%	150	145.7	
	b	Design Development & Supervision - 4%	309	291.4	
	c	Permits, Survey, Insurance	30	30.0	
	d	Operational capex	30	0.0	
	e	Contingencies- 3%	386	218.5	

MDP PACKAGE	S.NO	DESCRIPTION	COST PROPOSED BY DIAL (Rs. Crore)	COST RECOMMENDED BY KITCO (Rs. Crore)	EXTENT OF ESTIMATE PRUNED BY KITCO (Rs. Crore)
	II	SUB TOTAL-OTHERS	905	685.6	219.4
		TOTAL (I+II)- excluding financing and interest costs	8,632	7969.6	662.4
	Notes	These costs are based on preliminary estimates of works, services and other facilities/ support costs			
	III	Phase 3A WORKS EXECUTED THROUGH OTHERS (JOINT VENTURES/ CONCESSIONAIRES			
	a	Information Technology and Associated Systems	140	140	
	b	Ground Power and Pre-conditioned Air Units	137		
	c	Multi level car park (underground)	374		
		Total (III)	651		
	Notes	These costs are based on preliminary estimates of works, services and other facilities/ support costs			

Annexure-II

Key Construction Milestone – Expansion of Delhi Airport Phase-3A

Sl.No	DESCRIPTION	START DATE	END DATE	TOTAL COST RECOMMENDED BY KITCO (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2018 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2019 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2020 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2021 (in Crore)	REMARKS
1	Terminal 1	July (2018)	SEP (2021)	2431					
a	Terminal 1- Arrival New Building (Phase I)	JULY (2018)	JUNE (2019)	2431	607.75	729.3	607.75	486.2	
b	Terminal 1 – Arrival Old Building (Demolition & Construction) (Phase II)	JULY (2019)	DEC (2020)						
c	Node Building (Phase 1 and II)	JULY (2018)	DEC (2019)						
d	Pier (Phase III)	OCT (2020)	SEP (2021)						
2	Air Field Works & Terminal 1 Apron	JULY (2018)	MARCH (2021)	3214					
a	Phase I	JULY (2018)	AUG (2019)	3214	642.8	964.2	964.2	642.8	
b	Phase II	JUNE (2019)	JUL (2020)						

Sl.No	DESCRIPTION	START DATE	END DATE	TOTAL COST RECOMMENDED BY KITCO (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2018 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2019 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2020 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2021 (in Crore)	REMARKS
c	Phase III	AUG (2020)	MARCH (2021)						
3	Eastern Cross Taxiway (ECT)	JULY (2018)	AUG (2020)	1106					
a	Phase I	JULY(2018)	JUNE (2019)	1106	221.2	553	331.8	0	
b	Phase II	APRIL (2019)	NOV (2019)						
c	Phase III	DEC (2019)	AUG (2020)						
4	Terminal 1 Landside	JULY(2018)	AUG (2021)	366					
a	Phase I	JULY (2018)	JUNE (2019)	366	73.2	109.8	109.8	73.2	
b	Phase II	JUNE (2019)	MAY (2020)						
c	Phase III	JUNE (2020)	JULY (2021)						
5	Terminal 3	JULY (2018)	JUNE (2020)	167	33.4	83.5	50.1	0	
A	Total cost (1+2+3+4+5)			7284					

SI.No	DESCRIPTION	START DATE	END DATE	TOTAL COST RECOMMENDED BY KITCO (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2018 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2019 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2020 (in Crore)	RECOMMENDATION FOR CAPITAL UTILIZATION IN YEAR 2021 (in Crore)	REMARKS
8	OTHERS			685.60					
a	Preliminary works including demolition, relocation, enabling, diversions etc @2% of A			145.7	72.84	43.70	14.57	14.57	
b	Design Development & Supervision @4%			291.4	58.27	87.41	87.41	58.27	
c	Permits, Survey, Insurance			30.00	6.00	9.00	9.00	6.00	
d	Operational capex			0					
e	Contingencies @3%			218.5	32.78	54.63	65.56	65.56	
9	Total Cost recommended by KITCO			7969.60	1748.24	2634.54	2240.18	1346.60	

Annexure-III

Comparison of cost

Sub	Cochin			Hyderabad			Kolkata			Delhi			Cost Difference from Cochin (Rs./Sqm)			
	Cost Rs. Cr	%	costper sqm	Cost Rs. Cr	%	costper sqm	Cost Rs. Cr	%	costper sqm	Cost Rs. Cr	%	costper sqm	Delhi	Hyderabad	Kolkata	
Civil Works	401.47	47%	26765	335.43	23%	32566	957.16	43%	48173	442.81	18.21%	22945				
Spl finishes	70.26	8%	4684	191.6	13%	18602	56	3%	2818	366.00	15.06%	18965				
External Façade	47.98	6%	3199	117.12	8%	11371	167.12	8%	8411	67.82	2.79%	3514				
Roofing System	Incl.		Incl.	104.54	7%	10150	161.76	7%	8141	368.4	15.15%	19090	29,866	38,041	32,896	
HVAC	121.5	14.31%	8100	56.64	4%	5499	144.88	7%	7292	180	7.40%	9327				
Electrical system				74.38	5%	7221	193.54	9%	9741	310	12.75%	16063				
Plumbing & Drainage				17.18	1.2%	1668	71.74	3%	3611	21	0.86%	1088				
Fire fighting system				10.18	0.7%	988	27.8	1%	1399	7	0.29%	363				
Fire detection				5.83	0.40%	566		0%	0	15	0.62%	777	19,518	7,843	13,942	
Vertical & Horizontal transport	207.95	25%	13863	536.92	37%	52128	424.72	19%	21376	653	26.86%	33837	19,974	38,265	7,512	
PTB furniture																
Airport system																
Special works																
Total cost	849	100%		1450	100.0%		2,205	100%		2431.0	100.00%					
Area	150000			103000			198692			192985						
Cost Rs./sqm	56,611			140759			110962			125970			69,359	84,149	54,351	

	Cochin	hyderabad	Delhi
Airside works			
Apron and taxiway for Code E + partly for Code F	Rs.4336per sqm		Rs.9042/sqm (for code F)
Runway		Rs.5705/sqm	Rs.5978/sqm

Comparison of Specifications of Terminal Buildings

Sl. No.	Criteria	Cochin	Other terminals	Delhi
1	Façade Glazing	Combination of Single & Double Glazed for 35 to 40% area	60-85% double Glazed paneling	Double Glazed paneling
2	Internal Wall finishes/cladding	Wooden panel with Laminates	ACP wall cladding with perforations.	Glass/gypsum board partitions
3	Roofing Sheeting system	3 layered system without Skylights (Kingspan)	5 layered system with Skylights for natural lighting.	9 layered system with Skylights for natural lighting.
4	False ceiling system	Hunter Douglas	Premium imported false ceiling	1. Aluminium Perforated Ceiling manufactured by M/s. Hunter Douglas India Pvt. Ltd. 2. calcium silicate false ceiling
5	Sanitary fixtures & fittings	Local Makes	Premium imported sanitary ware.	Premium imported sanitary ware.
6	Flooring in Passenger Movement areas	Vitrified Tiles	Granite Flooring	Granite ,vitrified tile flooring
7	Passenger Loading Bridges	Non-Glazed	Mostly Glazed	Fully glazed
8	Passenger Seating system	Wooden Sofas with cushion	Imported PU Based seating	

Sl. No.	Criteria	Cochin	Other terminals	Delhi
9	No. of floors levels of the terminal	Four levels	Six or more for other terminals	Four levels
10	Foundation of Terminal building	Pile foundations		Isolated footing
11	Tendering Process	Bid process adopted by CIAL appears to be better than other airport operators. Based on the details collected, it has been observed that there is very healthy competition and as such the bid received are lower than the estimated cost.	Due to invitation of bids from selective short-listed bidders, the competition gets restricted resulting in substantial higher bids than the estimate. The concessionaire should ensure adequate/healthy competition in order to get reasonable bids. It is also observed that Terminal cost (per sqm) executed by AAI like Chennai, Kolkata of similar magnitude is lower than Delhi, Mumbai, Hyderabad and Bangalore.	In order to ensure best quality and competitive cost from the vendors, transparent bidding process shall be followed.
12	Equipment	The cost of Airport system like PLB Escalators, Lifts, Travellators, VGDS, etc. is lesser	The cost of Airport systems is much higher.	The cost of Airport systems is much higher.
13	Terminal	Separate Domestic and international	Integrated Terminal	Separate Domestic and international
14	ASQ Rating	Lower	Higher	Higher

Governing Parameters (Reference: Highlights of IMG report)**Report of the Inter-Ministerial Group (IMG) on Norms & Standards for Capacity of Airport Terminals (2009)**

IMG has deliberated in detail on various key issues and made following recommendations:

Growth Rate for Traffic Projections

Keeping in view the trend in air traffic in last few years, a span of five years be adopted for the projects planned during the current five-year plan period, i.e., up to 2011-12. Thereafter, as the growth rate stabilizes, the span for making projections should be increased to 7 years for a more realistic assessment.

Target year for Capacity Creation (Design Year)

Following norms could be adopted for capacity creation:

-Smaller air ports (< 5.0 MAP) - 10th year from Planning year.

-Bigger airports (> 5.0 MAP) - 7th year from Planning year.

Peak Hour Projections

Methodology given in ICAO Manual on Air Traffic Forecasting by finding ratios from historical data and recent studies be adopted. As per ICAO Manual, forecasts of peak period passengers are to be obtained from annual forecasts by applying ratios of busy period traffic; to annual traffic derived from actual data at various airports.

Actual data for the past five years should be analyzed to determine the Peak Hour Traffic and the trend growth thereof. Projections for the Design Year should be made based on the trend growth in the past. AAI should make arrangements for data collection of Peak Hour Traffic in respect of all non-metro Airports, so that same is available at the time of planning expansion of these Airports.

In absence of actual data, the Peak Hour Traffic may be estimated based on ratios given in Table-1 below.

Table 1- Ratio based Peak Hour Traffic for estimation

SL. No	Traffic (in MAP)	Ratio for International Terminal	Ratio for Domestic Terminal
		PH/PD	PH/PD
1	1.0-5.0	0.30000	0.250000
2	0.5-1.0	0.3500	0.3500
3	Less than 0.5	0.4500	0.4500

In the event that requisite data is not available for airports with traffic above 5 million passengers per annum, the above ratio-based norms may be considered in the interim.

Level of Services in Target Year

Level of Services 'C' as per IATA Airport Development Reference Manual (Jan 2004) denotes good service at a reasonable cost. Therefore, this level could be used for design for target demand in the design year. The unit area specified in paragraph E below represents Level of Service 'C'. Net impact of this norm would be that in the initial years, the passengers may experience LOS 'A' or 'B' and as the traffic increases LOS 'C' would be achieved.

Unit Area Norms

Overall space/area norm should be such as to provide a reasonable level of service for all components required in a Terminal Building. Commercial or Retail area providing amenities like food & beverages, book shops, counters for car rental, vending machines, public rest rooms etc., normally require 8-12 per cent of the overall area, and should be planned and provided accordingly. In bigger airports, i.e., with annual passenger traffic exceeding 10 million, commercial area could be up to 20per cent of overall area. Keeping in view the IATA norms and

discussion above, the norms as given in Table-2, are considered appropriate for Indian Airports.

Table 2 -Area Norms for type of Airports

SL.No	Nature of Terminal	Area Norm-sqm/php
1	Domestic Terminals	
	Traffic up to 100 php	12
	Traffic between 100-150 php	15
	Traffic between 150-1000 php	18
	Traffic above 1000 php	20
2	Integrated terminal for handling both domestic and international	25
3	International Terminals	27.5

Unit Cost of Construction

IMG recommended that the Appraisal Committee should specify the ceiling unit cost and the architect s/ engineers of AAI should plan and implement the project within the ceiling, subject to revision on account of increase in WPI.

Airports developed through Public Private Partnerships

In the case of airports developed through Public Private Partnerships, the project authorities may adopt a case by case approach with respect to norms relating to unit area and unit costs. Based on the judicious consideration of international best practices and financial viability, the norms may be specified in each case prior to inviting bids for private participation.

Highlights of AERA Order No. 07/2016-17

In the matter of Normative Approach to Building blocks in economic regulation of major airports - Capital Costs, AERA Vide Order No. 07/2016-17 issued orders as given below:

Pending finalization of a norm in this regard after going through a more rigorous process, the tentative ceiling cost of Rs.65,000/- per sqm of the terminal

building and Rs.4,700 per sqm for the Runway/taxiway/ Apron (excluding earthwork up to sub grade level) is approved as a reasonable benchmark for evaluating capital costs to be incurred by Airport Operators of major airports for the purpose of tariff determination on a tentative basis.

The airport operators are advised to relook at the costs proposed in their submissions and justify the increase, if any, over and above the ceiling rates as indicated above.

The Airport operators are expected to evaluate the costs in adoption of various alternatives finishes and the corresponding benefits that accrue to users in case of adoption of such alternative higher specifications.

In case the rates are higher than the ceiling rate approved by the Authority, the justifications, so submitted by the airport operators on actual incurrence of the cost shall be examined by a duly constituted Committee of experts to be constituted by Authority and based on their recommendations the final costs will be adopted.

These ceiling rates shall apply only in case of new projects where the works are yet to be awarded. In case of awarded projects, the capital costs will need to be examined by the committee approved for the purpose.

APPENDICES

Queries and mails

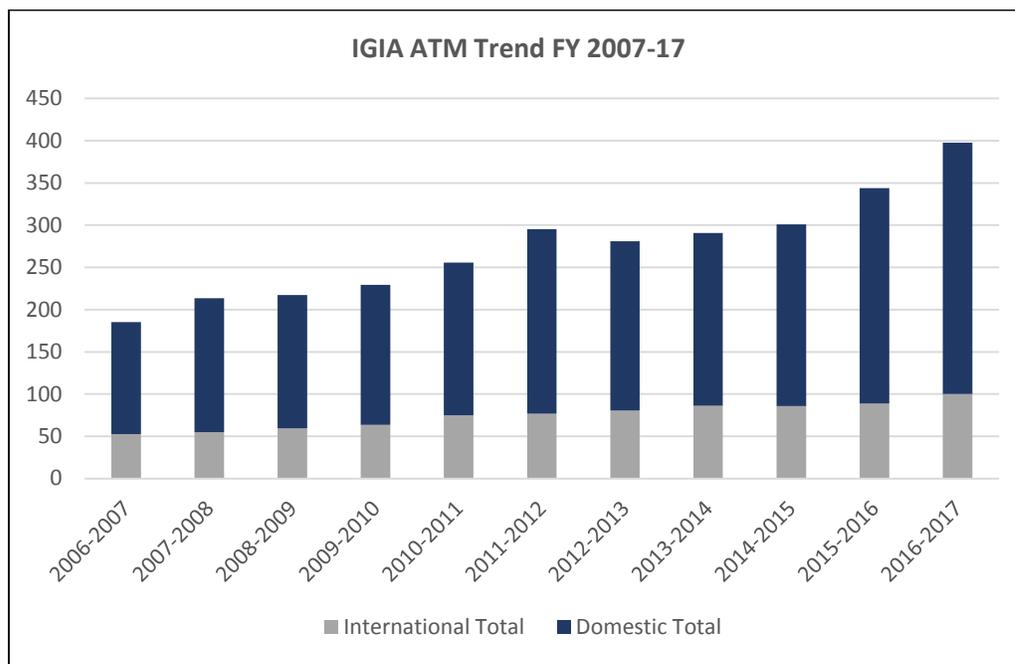
Response to KITCO E-mail dated: 31st January, 2018.

1. Past trends in aircraft movements from the year 2006 /07 to 2016/17, total ATMs, peak hr ATM and bifurcation of domestic & International air traffic movements.

Response:

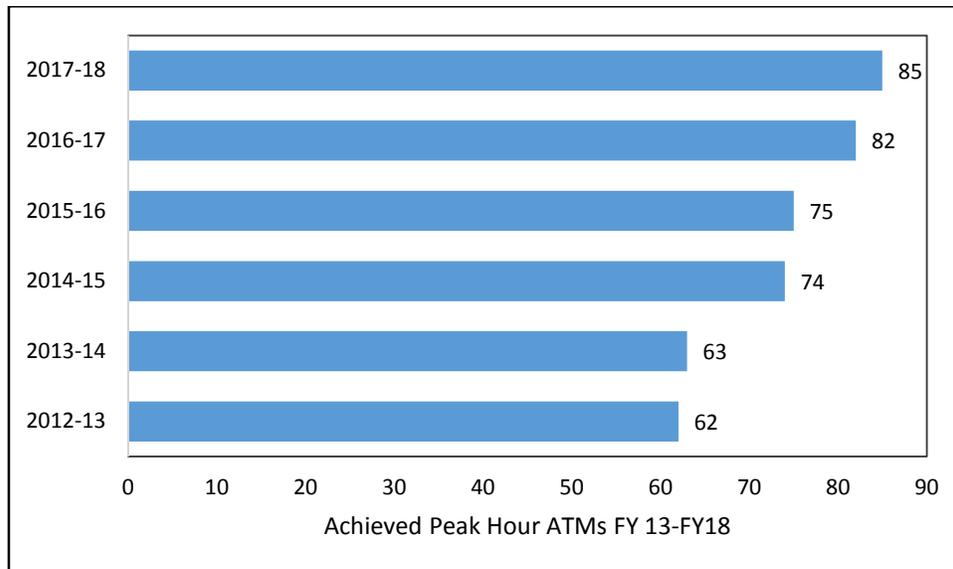
Refer below table for Aircraft Movements year wise total ATMs alongwith bifurcation for Domestic & International.

	International			Domestic			G. Total
	Sch.	Non.Sch	Total	Sch.	Non.Sch	Total	
2006-2007	49.9	2.6	52.5	129.5	3.1	132.6	185.1
2007-2008	51.8	3.1	54.9	155.4	3.2	158.6	213.5
2008-2009	56.7	2.8	59.5	156.6	1.3	157.9	217.4
2009-2010	60.5	3	63.5	164.6	1.2	165.8	229.3
2010-2011	70.1	4.7	74.8	179.5	1.3	180.8	255.6
2011-2012	73.1	3.8	76.9	216.6	1.9	218.5	295.4
2012-2013	77	3.4	80.4	197.9	2.5	200.4	280.8
2013-2014	84.9	1.3	86.2	203.7	0.9	204.6	290.8
2014-2015	85	0.8	85.8	214.7	0.4	215.1	300.9
2015-2016	87.8	1.2	89	254.7	0.3	255	344
2016-2017	98.9	1.4	100.3	297.1	0.4	297.5	397.8



Peak Hour ATMs:

This is to be informed that, we have peak hour data from 2013 onwards.



2. Also provide us the reference portions of ADRM 9 & 10 (reference pages only) which you have mentioned in the report for terminal facility requirements and areas, since we have only the 7th edition of ADRM.

Response:

With reference to ADRM 9 & 10, ADRM 10 has been used for Design Development of Phase 3A. ADRM 10 is a licensed document & available only in soft form, which cannot be copied or printed. As discussed telephonically yesterday by Shri T J Reddy (CDO), you can see the relevant portion on the laptop that we going to carry to the meeting at your HQ on 6th Feb, 2018.

3. Detailed project cost break-up along with quantities and unit rates for all packages.

Response: In line with mail from our CDO, our costing team would be present on 7th Feb, 2018 to discuss the cost detail with KITCO (Refer below mail from CDO, dated: 2nd Feb, 2018).

Further, to my trailing mail, this is to inform you that our DIAL and AECOM teams dealing with the costing of the project would be available at your HQ on 7th Feb 2018. This is as per the discussions our CEO had with Mr Rakesh of KITCO on 1st Feb 2018.

Dated: 9th February, 2018

REPLY TO KITCO QUERIES RAISED DURING THE MEETING ON 6TH & 7TH FEB, 2018
AT HQ, COCHIN

S.No.	Query	Reply
1	Rock excavation photographs	<p>Rock profile in T1 Area</p> <p>Attached as Annexure-1.</p>
2	Glass Canopy Specifications	<p>Please refer to façade specification covered in pages -97 to 130 of technical specification attached herewith.</p> <p>For glass canopy specifications refer item no. g, mentioned on page no. 99 of above specification.</p> <p>Also, refer attached drawing for glass canopy locations and typical section details as per drawing AECOM-DIAL-TB-AR-PD-DWG-GA-WP02A-0013 (R1) & AECOM_DIAL_TB_AR_PD_DWG_GA_WP03_4102-R1</p> <p>Attached as an Annexure-2.</p>
3	Roof Sheeting Specifications & Drawings	<p>The roof sheeting designs being adopted for Terminal 1 is the same as that of roof sheeting of Terminal 3 at IGI Airport.</p> <p>Please refer attached specification & drawing indicating the typical roofing system detail for Terminal1. (AECOM_DIAL_TB_AR_PD_DWG_GA_WP02_5104-R1).</p>

S.No.	Query	Reply
		<p>We are also attaching Terminal 3 built-up reference & Terminal 3 roof drawing.</p> <p>Attached as Annexure-3.</p>
4	Façade Glass – Item description & specification & Scope details in drawings	<p>Please refer to the Façade specifications & drawing for façade scope plan & glazing details. (AECOM_DIAL_TB_AR_PD_DWG_GA_WP03_0011-R0 to dwg. 0015-R0 and AECOM_DIAL_TB_AR_PD_DWG_GA_WP03_5103 R1). For existing Terminal 1D Façade modifications, please refer the attached Sketch 0221.</p> <p>Attached as an Annexure-4.</p>
5	Cradle System Specification	<ol style="list-style-type: none"> 1. Please refer attached reference specifications for the glass cleaning system. 2. DIAL is adopting the same system for glass cleaning arrangement for the Terminal 1 also. 3. Please refer attached Sketch no. 0222, indicating the gantry system track location for the internal and external façade cleaning system for Terminal 1. 4. Also refer attached drawings and Specification related to Terminal 3, wherein similar façade cleaning system has been installed for external & internal façade cleaning. <p>Attached as an Annexure-5.</p>
6	Landscape basis	Attached as an Annexure-6.
7	ETFE Quote + Specification	ETFE performance Specification along with quotation are enclosed for your reference.

S.No.	Query	Reply
		Attached as an Annexure-7.
8	Roof Drain Gutter Specification	Roof sheeting performance specifications are enclosed for reference. Please refer attached drawing indicating the typical roof gutter & roof system detail for clarity. (AECOM_DIAL_TB_AR_PD_DWG_GA_WP02_5101-R1 to 5104-R1). Attached as an Annexure-8.
9	Interiors details- back up of Rs 366 cr –Area wise	Attached as an Annexure-9.
10	11/29 – Cross Section	Already shared by Mr. Rajiv Ojha on 7 th Feb, 2018. (Re-sending the same). Attached as an Annexure-10.
11	Perimeter Road – location and cross sectional detail	For Cross-section detail: A typical cross section of Perimeter Road may be taken as (from top to bottom) 40 BC, 60 DBM, 250 WMM, 200 GSB and 500 subgrade. Location Measurement Detail: Total length of perimeter road construction is 1032.56 m break up is below: Sheet:1: 273.82 m. Sheet:2: 307.32 m. Sheet:3: 451.42 m. Attached as an Annexure-11.
12	Fresh summary sheet	Attached as an Annexure-12.
13	Operating equipment	Attached as an Annexure-13.
14	HVAC- Check low side cost – mainly	We are forwarding the quote received from one of the reputed HVAC

S.No.	Query	Reply
	pipes	<p>vendor against each item of the complete HVAC works. Further following clarifications on the subject may please be noted:</p> <ol style="list-style-type: none"> 1. Based on combined experience, an overall internal estimate was prepared for the works. 2. Attached quotation from vendor was similar at overall cost level. 3. The costs incurred in T3 were about Rs 400 cr for 20000 TR or Rs 2 lakhs / Tonne <p>On comparison for 9000 TR at T1, the cost works out to about Rs.180 cr (<i>which is comparable with the Terminal 3 cost constructed nine years ago</i>).</p> <ol style="list-style-type: none"> 4. As the Internal estimate was in line with the above, thus same was submitted as part of project cost. 5. Sample rate built up Calculation for one of piping item is attached <p>Attached as an Annexure-14.</p>
15	PBB, VHT cost check based on quotes	Attached as an Annexure-15.
16	PHE- Syphonic system- check	<p>Cost of Syphonic Drainage System already included in PHE BoQ item no 7 as Annex A. Missed out Annex A is attached to main BoQ</p> <p>Attached as an Annexure-16.</p>
17	DBR for Electrical revised	Attached as an Annexure-17.
18	Fire Fighting pipe rates	This point was discussed and all points were closed during the meeting on 7 th Feb, 2018 at KITCO Office
19	Spares cost considered in AGL – Quantity Calculation Sheet	AGL BoQ, already shared on 6 th Feb, 2018 via e-mail from Shri Sujit Nag, which consist of 10% extra spare cost. Wherever, it is required.

S.No.	Query	Reply
		Attached as an Annexure-19.
20	Rate analysis for PQC & PMB	Attached as an Annexure-20
21	Cost of Terminal 3 after revision of scope.	<p>Revised scope consists of only I-I (International to International) transfer & modification/ upgradation of BHS.</p> <p>Revised cost works out to Rs.167 cr.</p> <p>T3 transfer peak hours assessment are being forwarded separately.</p> <p>Attached as an Annexure-21.</p>
22	Aircraft departure details for pavement.	<p>The aircraft numbers are given on page no-12 to 14 in section 3 of Airfield MDP (package-2). Which brings out the number and type of specific aircrafts used in design of runway and taxiway. The figures used for taxiway design have also been used in design of Apron.</p> <p>Attached as an Annexure-22.</p>

Response to KITCO E-mail dated: 23rd January, 2018.

Point No 1: Design year fixed for the Terminal expansion T1 and T3.

Response: Design Year for T-1 Expansion = 2022-23
Design Year for T-3 Modifications = 2020-21

Point No 2: Existing actual area of Terminals T1 & T3.

Response: Existing Floor Areas of T1) =54000 Sq.m Approx.
Existing Floor Area of Terminal 3 = 553,887 Sq.M

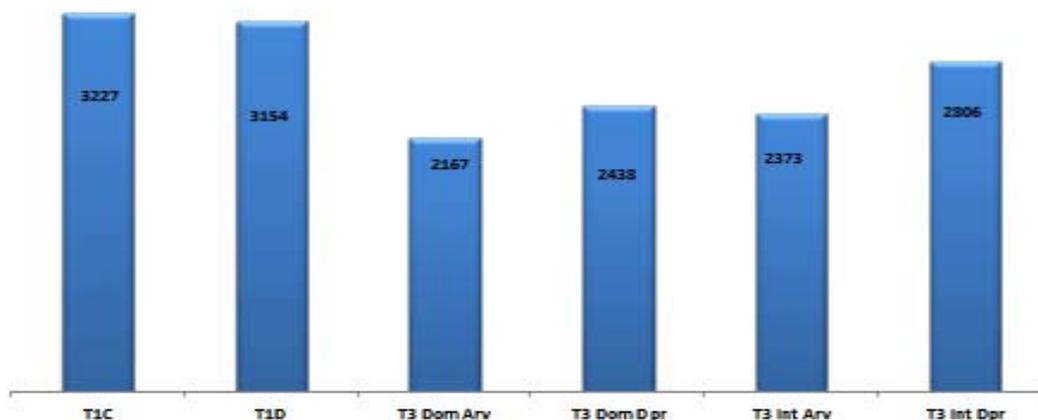
Point No 3: Actual no. of passengers handled in T1 & T3 (arrival & Departure separate) for years from 2006-07 to 2016-17 & peak hour traffic.

Response:

trm wise yearly traffic

fy-c	T3 Int Dpr	T3 Int Arv	T3 Transit	T3 Int Total	T3 Dom Dpr	T3 Dom Arv	T3 Dom Total	T1 Dom Dpr	T1 Dom Arv	T1 Dom Total
2006-07	3304566	3098968	249832	6653366	3364311	3282556	6646867	3602702	3540509	7143211
2007-08	3651000	3443256	247819	7342075	5347198	5256972	10604170	3081067	2944350	6025417
2008-09	3855900	3738540	174873	7769313	4990653	4896864	9887517	2624209	2562376	5186585
2009-10	4058609	4022568	233034	8314211	5579584	5360826	10940410	3440689	3429385	6870074
2010-11	4567252	4420952	287570	9275774	6128539	5824779	11953318	4394086	4319709	8713795
2011-12	5240486	5191874	317649	10750009	7008236	6560184	13568420	5712885	5850651	11563536
2012-13	5652456	5542095	371551	11566102	5089023	4828279	9917302	6331462	6553545	12885007
2013-14	6269487	6128248	283574	12681309	5267520	5003488	10271008	6885781	7038888	13924669
2014-15	6760876	6560266	213282	13534424	5943140	5649805	11592945	7853680	8004506	15858186
2015-16	7171253	6810089	170830	14152172	7823557	7605686	15429243	9524703	9318047	18842750
2016-17	7836434	7542486	118464	15497384	9220310	8978363	18198673	12112741	11894298	24007039

Terminal wise Peak hour pax GAR



The international departure terminal has a peak hour pax of 2806 and the arrival terminal has a peak hour pax 2373. T3 domestic has a peak hour pax of 2438 in departure and 2167 in arrival terminals. Terminal 1 has a departure peak of 3154 pax and arrival peak of 3227 pax.

Point No 4: Existing Air Traffic Movements (ATM s) with segregation with peak hour details

Response:

JAN 2018 YTD	371467
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Runway utilization:

	ARR&DEP	ARR	DEP
09	5.2%	-	10.3%
27	13.5%	26.76%	0.2%
10	11.4%	18.1%	4.64%
28	23.3%	7.62%	39.1%
11	15.3%	13.8%	16.9%
29	31.2%	33.64%	28.8%

Point No: 5 Existing capacity of each runway and combined capacity also.

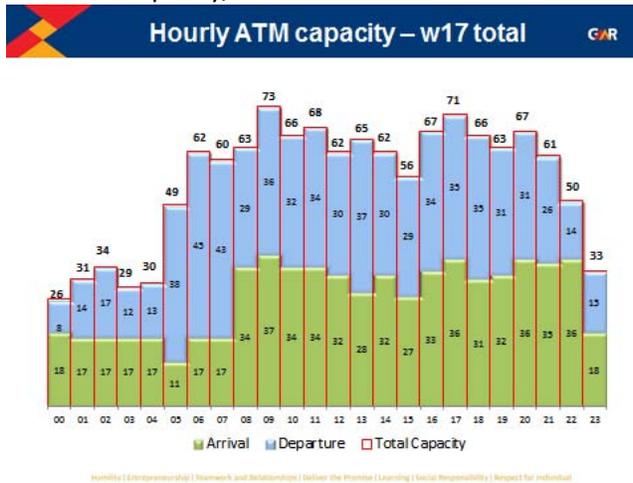
Response:

Combined Scheduled Peak hour capacity: 73 ATMs

Combined Achieved peak hour: 85 ATMs

MAX DEP capacity/HR: 36 ATMs

MAX ARR capacity/HR: 37 ATMs



Point No: 6 Critical aircraft for which each existing run way caters.

Response:

09/27 – Code E

10/28 – Code F

11/29 – Code F

ESTIMATE OF OPERATIONAL EQUIPMENT

S.No	Item	Qty	Rate	Amount	
1	Runway sweeping machine	2	6,50,00,000	13,00,00,000	
2	Runway paint marking machines- big	1	1,25,00,000	1,25,00,000	
3	Runway paint marking machines- small	2	35,00,000	70,00,000	
4	runway rubber removal machines	1	6,50,00,000	6,50,00,000	
5	Passenger trolleys	2500	26,000	6,50,00,000	
6	Motorised lifting platform	3	75,00,000	2,25,00,000	
			Total	30,20,00,000	
			say	30 cr	

Function	Area/m ²	Remarks
Terminal entry check and space for farewellers	281	2314 Forecourt Area
Check-in Hall	8,437	
Departures security	6,528	
Transfers security	2,127	
Contact gates (22 No.)	6,135	
Bus gates (13 No.)	4,733	
Departures baggage make-up area	9,043	
Baggage reclaim and arrivals hall (excluding commercial)	9,300	
Arrivals meeter/greeter area	3,313	
Toilets	5,464	
Airport offices	5,798	
Airline offices	5,141	
Ramp accommodation	7,535	
Circulation/structure/MEP	95,298	
Commercial areas	22,503	
Back of house areas	1,349	
Grand Total	1,92,985	

TAX INVOICE
(See Rule Sec-23)

Original for Recipient
Duplicate for Supplier/Transporter
Triplicate for Supplier



OOMS POLYMER MODIFIED BITUMEN PRIVATE LIMITED

Head Office Address: R.O. UNIT NO.807, 8TH FLOOR BLOCK-B, UNITECH BUSINESS ZONE GOLF COURSE, EXTN. ROAD, SECTOR-50 Gurgaon, Haryana -122002 (India) Tel: 0124-4093600 Email :

OOMS POLYMER MODIFIED BITUMEN PRIVATE LIMITED Khasra No419/1 On NH-2 Vill -Dautana, Tehsil- Chatta, Distt - Mathura - 281401 (U.P)		Purchase Order No : _____ Date : _____
GSTIN/Unique ID : 09AAACO4150E1ZR Invoice No. : OPMB/KK/0106 Invoice Date : 26.09.2017 State : UP	State Code : 09	Transport Name : SUNNY TRANSPORT G.R.No. : 1168 Vehicle Number : UP85AT7348 Transportation Mode : By Road Date of Supply : 26.09.2017 Place of Supply : HARYANA

Details of Receiver Billed to: Name : C. P. ARORA ENGINEERS CONTRACTOR Address : VILLAGE- SOLDHA, TEHSIL- BAHADURGARH DISTT- JHAJJAR, HARYANA State : HARYANA State Code : 06 GSTIN/Unique ID : 06AACCC4651Q1ZC		Details of Consignee Shipped to: Name : C. P. ARORA ENGINEERS CONTRACTOR Address : VILLAGE- SOLDHA, TEHSIL- BAHADURGARH DISTT- JHAJJAR, HARYANA State : HARYANA State Code : 06 GSTIN/Unique ID : 06AACCC4651Q1ZC	
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Sr. No.	Name of Product / Service	HSN	Unit	Qty (MT)	Rate	Amount	Less: Discount	Taxable Value	CGST		SGST		IGST		Total
									Rate %	Amount	Rate %	Amount	Rate %	Amount	
1	PMB (ELASTOMERIC) SBS BASED	2715	MT	19.990	49,000.00	979,510.00		979,510.00	9		9		18	176,311.80	1,155,822
	Freight Insurance Packing & Forwarding					19,990.00		19,990.00	9		9		18	3,598.20	23,588
Total :				19.990		999,500		999,500						179,910.00	1,179,410

Terms: *Goods once sold will not be taken back or exchanged. *All Disputes are subject to Delhi Court Jurisdiction.	Total Amount Before Tax : 999,500 Add : CGST : 9% Add : SGST : 9% Add : IGST : 18% Tax Amount : GST : 179,910.00 Total Invoice Amount : 1,179,410 GST Payable on Reverse Charge :
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Total Invoice Value (Inwords) : ELEVEN LAC SEVENTY NINE THOUSAND FOUR HUNDRED TEN ONLY

Declaration: We Declare that this invoice Shows the actual Price of the goods described and that all particulars are true and correct.

Electronic reference Number

Certified that the particulars given above are true and correct.
For OOMS Polymer Modified Bitumen Pvt. Ltd.





sindhu anna <sindhuanna999@gmail.com>

Chilled water pipe rates from DSR / chiller rates

5 messages

Diksha Singh <Diksha.Singh@gmrgroup.in>

Tue, Apr 3, 2018 at 3:49 PM

To: sindhu anna george <sindhuannageorge@kitco.in>, sindhu anna <sindhuanna999@gmail.com>, "amitrajkhhera@kitco.in" <amitrajkhhera@kitco.in>
Cc: T J Reddy <tj.reddy@gmrgroup.in>, Sridhar CR <CR.Sridhar@gmrgroup.in>

Dear Madam,

Please refer below working further to our discussion on

Piping calculation:

DSR rate for 200 mm pipe – Rs 4120 / lm (S.no 16.3.5)

Escalation to 2017 , + labour component (7.8%) + 17% for escalation + working in operational area – Rs 5650 /lm

Chillers :

	INR Lakhs
Chiller Price (US)- York	259.7
VFD Price(add 10%)	25.97
Total Price	285.67
Dollar variation @ 10%	314.237
Contractor's O&P @15%	361.3726

up to date) at joints repairing or damage to banding etc. as per specifications and as required complete in all respect.

Note:-The Pipes of sizes 150 mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150 mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35 mm thick M.S. Sheet for pipes upto 350 mm dia. and from minimum 7mm thick MS sheet for pipes of 400 mm dia and above.

16.3.1	400 mm dia. (75 mm thick insulation)	meter	9497
16.3.2	350 mm dia. (75 mm thick insulation)	meter	6374
16.3.3	300 mm dia. (75 mm thick insulation)	meter	5809
16.3.4	250 mm dia. (75 mm thick insulation)	meter	4923
16.3.5	200 mm dia. (75 mm thick insulation)	meter	4120
16.3.6	150 mm dia. (75 mm thick insulation)	meter	2779
16.3.7	125 mm dia. (50 mm thick insulation)	meter	2330
16.3.8	100 mm dia. (50 mm thick insulation)	meter	1981
16.3.9	80 mm dia. (50 mm thick insulation)	meter	1555
16.3.10	65 mm dia. (50 mm thick insulation)	meter	1343
16.3.11	50 mm dia. (50 mm thick insulation)	meter	1109

Regards,

Diksha Singh

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2 attachments **DSRE_M 2016.pdf**
1707K **Price Break up sheet_IGI.PDF**
255K

Diksha Singh <Diksha.Singh@gmrgroup.in>

Tue, Apr 3, 2018 at 3:54 PM

To: sindhu anna george <sindhuannageorge@kitco.in>, sindhu anna <sindhuanna999@gmail.com>, "amitrajkhhera@kitco.in" <amitrajkhhera@kitco.in>
Cc: T J Reddy <tj.reddy@gmrgroup.in>, Sridhar CR <CR.Sridhar@gmrgroup.in>

[Quoted text hidden]

2 attachments **DSRE_M 2016.pdf**
1707K **Price Break up sheet_IGI.PDF**
255K

Diksha Singh <Diksha.Singh@gmrgroup.in>

Tue, Apr 3, 2018 at 4:00 PM

To: sindhu anna george <sindhuannageorge@kitco.in>, sindhu anna <sindhuanna999@gmail.com>, "amitrajkhhera@kitco.in" <amitrajkhhera@kitco.in>
Cc: T J Reddy <tj.reddy@gmrgroup.in>, Sridhar CR <CR.Sridhar@gmrgroup.in>

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255K

Diksha Singh <Diksha.Singh@gmrgroup.in>

Tue, Apr 3, 2018 at 5:30 PM

To: sindhu anna george <sindhuannageorge@kitco.in>, sindhu anna <sindhuanna999@gmail.com>, "amitrajkhhera@kitco.in" <amitrajkhhera@kitco.in>
Cc: T J Reddy <tj.reddy@gmrgroup.in>, Sridhar CR <CR.Sridhar@gmrgroup.in>

[Quoted text hidden]

2 attachments **DSRE_M 2016.pdf**
1707K **Price Break up sheet_IGI.PDF**
255K

sindhu anna <sindhuanna999@gmail.com>

Tue, Apr 3, 2018 at 6:26 PM

To: Ajish unnithan <ajishunnithankitco@gmail.com>

Regards,

Sindhu Anna George
Consultant
Kitco Ltd.
Kochi.

[Quoted text hidden]

2 attachments **DSRE_M 2016.pdf**
1707K **Price Break up sheet_IGI.PDF**
255K



sindhu anna <sindhuanna999@gmail.com>

Basis of selection of specialised Equipment at the IGI Airport, New Delhi.

2 messages

Sridhar CR <CR.Sridhar@gmrgroup.in>

Wed, Apr 4, 2018 at 12:56 PM

To: sindhu anna george <sindhuannageorge@kitco.in>, sindhu anna <sindhuanna999@gmail.com>, "amitrajkhhera@kitco.in" <amitrajkhhera@kitco.in>

Cc: Diksha Singh <Diksha.Singh@gmrgroup.in>, T J Reddy <tj.reddy@gmrgroup.in>, Indana Prabhakara Rao <IndanaPrabhakara.Rao@gmrgroup.in>

Dear Madam,

Further to the discussions yesterday on the above subject, please find below the explanation for use of same "makes" wrt to specialized equipment like PBB, GPU, CPA, VDGS, Screening systems, BHS, VHT , automatic tray retrieval systems etc.

-

IGI Airport being in public domain selection of specialized equipment as above should be made keeping in mind the following important aspects.

1. Leading manufacturer in the field who has wide experience of design, sourcing of material, manufacturing & provide long term support with spare parts.
2. Capability of providing adequate support for supervision during erecting, testing & commissioning.
3. Has proven field records of achieving very high serviceability during the operation & maintenance.
4. Has proven record of being significantly energy efficient.
5. Overall life cycle cost to the purchaser should be low so that, OPEX & CAPEX to be incurred during the lifetime for the purpose of running maintaining and rehabilitating the same is advantageous & cheaper.

While, any airport undergoes an expansion, it is always advisable that the systems which has proven its worth with respect to overall energy efficiency, life cycle costing & serviceability & the point mentioned above, preference should be given to such system manufacturers and installer. Further, OMDA requires under Schedule 3 (Objective Service Quality Requirements) that DIAL achieve and maintain targets which are linked to the performance of specialized systems. Therefore, it is prudent to adopt / implement systems that are already tried and tested.

Major expansion planning such as Phase 3A Works of IGI Airport, New Delhi needs also to take care the aspect of spare parts planning, annual maintenance cost (AMC) logistical support from the manufacturer, system expandability and accordingly, it was envisaged that similar proven systems as adopted for Terminal 3 should be considered.

Rgds

Sridhar CR

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sindhu anna <sindhuanna999@gmail.com>
To: Ajish unnithan <ajishunnithankitco@gmail.com>

Wed, Apr 4, 2018 at 12:58 PM

Regards,

Sindhu Anna George
Consultant
Kitco Ltd.
Kochi.

[Quoted text hidden]

SUMMARY OF ESTIMATED COSTS FOR PHASE 3A EXPANSION WORKS SUBMITTED BY DIAL			
MDP PACKAGE	Sr.NO	DESCRIPTION	ESTIMATED COST IN CRORES
	I	MAIN PACKAGES	
		PASSENGER TERMINAL BUILDING	
	A	Civil and Structural works including façade, roofing	906
	B	Finishes & Interior Works	366
		SUB TOTAL - STRUCTURE AND FINISHES	1,273
	C	MEP Systems	
	(i)	HVAC	187
	(ii)	Electrical	314
	(iii)	FF, Detection & suppression systems	21
	(iv)	Fire alarm system	10
	(v)	PHE	27
		SUB TOTAL- MEP SYSTEMS	558
	D	SPECIALISED SYSTEMS	
	(I)	Airport Systems	
	(i)	PBB, GPU, PCA, VDGS	
		Passenger Boarding Bridges	155
		Visual Docking Guidance Systems	76
		GPU- pit connection for remote stands	24
		PCA- pit connection for remote stands	47
	(ii)	Screening systems- Passenger Screening systems	32
	(iii)	Baggage handling systems	115
	(iv)	Screening systems- Hold Baggage Screening systems	84
	(v)	Vertical and Horizontal Transportation systems	123
	(vi)	Automatic tray retrieval	28
	(II)	IT Systems	cost considered under (III)
		SUB TOTAL- SPECIALISED SYSTEMS	683
		SUB TOTAL- TERMINAL	2,514

SUMMARY OF ESTIMATED COSTS FOR PHASE 3A EXPANSION WORKS SUBMITTED BY DIAL			
MDP PACKAGE	Sr.NO	DESCRIPTION	ESTIMATED COST IN CRORES
		AIRFIELD WORKS	
PACKAGE 1	A	Apron excepting associated AGL works	797
	B	New Runway 11L/29R	276
	C	Taxiways	
	(i)	North side (North Parallel taxiway, connecting taxiways, RETs + Runway 09-27, Echo-2 etc)	872
	(ii)	South side (RET S1& S2, Y5, exit taxiway-1,2,3, S-3, Z2 taxiways etc)	235
PACKAGE 2	D	Drainage	
	(i)	North side	580
	(ii)	South side	79
	E	Airfield Ground Lighting for all airside works including Eastern Cross Taxiway	622
	F	Other Associated works like Electric Substation, SRFF, ARFF equipment etc	100
PACKAGE 4	H	EASTERN CROSS TAXIWAY excepting associated AGL works	1,118
		SUB TOTAL- AIRSIDE	4,679
PACKAGE 3		LAND SIDE	
	A	Flyover at northern access road	61
	B	Foot over bridge	1
	C	Flyover at T1 D/T1C	51
	D	Northern Access, Central Spine and other roads etc	127
	E	Roads- T1C & T1D at grade	31
	F	Multi level Car Park	cost considered under (III)
	G	Other works like External Utilities/ Canopy etc	96
		SUB TOTAL- LANDSIDE	366
PACKAGE 5		TERMINAL 3 (Transfer areas- I to I , and baggage handling equipment)	167
	I	TOTAL VALUE OF MAIN PACKAGES	7,726

SUMMARY OF ESTIMATED COSTS FOR PHASE 3A EXPANSION WORKS SUBMITTED BY DIAL			
MDP PACKAGE	Sr.NO	DESCRIPTION	ESTIMATED COST IN CRORES
	II	OTHERS	
	a	Preliminary works including demolition, relocation, enabling, diversions etc	150
	b	Design Development & supervision	309
	c	Permits, Survey , Insurance	30
	d	Operational capex	30
	e	Contingencies	386
	II	SUB TOTAL-OTHERS	905
		TOTAL(I + II)- excluding financing and interest costs	8,632
	Notes	These costs are based on preliminary estimates of works, services and other facilities / support costs	

	III	Phase 3A WORKS EXECUTED THROUGH OTHERS (JOINT VENTURES / CONCESSIONAIRES)	
	a	Information Technology and Associated Systems	140
	b	Ground Power and Pre-conditioned Air Units	137
	c	Multi level car park (underground)	374
		Total (III)	651
	Notes	These costs are based on preliminary estimates of works, services and other facilities / support costs	

Quotations



INR PRICE BREAK UP SHEET

Dated - 28/11/2017

IGI- Terminal 1

S.No	CHILLER CONFIGURATION	WATER COOLED CENTRIFUGAL CHILLER			
	Capacity	1000 TR	1000 TR	1090 TR	1090 TR
	Plant	China	US	China	US
	Model Number	YK CHILLER	YK CHILLER	YK CHILLER	YK CHILLER
1	CIF Nhava Sheva Price in USD	\$200,000	\$270,000.0	\$225,000	\$298,000
3	Exchange Rate 1 USD = Rs.65/-	INR 13,000,000	\$17,550,000.0	INR 14,625,000	INR 19,370,000
4	basic Custom Duty @ 7.5%	INR 975,000	\$1,316,250.0	INR 1,096,875	INR 1,452,750
5	cess @3% on above	INR 29,250	\$39,487.5	INR 32,906	INR 43,583
6	Total Price on above(In Lacs.)	INR 14,004,250.0	\$18,905,737.5	INR 15,754,781.3	INR 20,866,332.5
7	GST @ 28% on above	INR 3,921,190.0	\$5,293,606.5	INR 4,411,338.8	INR 5,842,573.1
8	Port Clearance, local transportation, loading,unloading, marine cum Erection Insurance, commissioning, Supply of refrigerant and adaptor box	INR 1,400,000.0	INR 1,500,000.0	INR 1,400,000.0	INR 1,500,000.0
9	GST @18% on above	INR 252,000.0	INR 270,000.0	INR 252,000.0	INR 270,000.0
10	Total Price on above(In Lacs.)	INR 195.8	INR 259.7	INR 218.2	INR 284.8
11	No. of Chillers	9	9	9	9
12	Grand Total (In Lacs.)	INR 1,762.0	INR 2,337.2	INR 1,963.6	INR 2,563.1

Note:

- 1 US\$ = INR 65. Any change in the same will affect the landed price of chiller.
- INR price includes all taxes at present rate
- Any Changes in Statutory taxes/duties or imposition of new levies will be to your account
- Port Clearance,Local transportation, Transit Insurance, Erection Insurance & Commissioning shown in break up above
- Warranty of Chillers will be 12 months from date of commissioning or 18 months from the date of dispatch whichever ends earlier.

QUOTATION

Date:	10/01/2018			
Party	C.P.Arora Engg.cont.pvt.ltd. Village: Soldha Bahadurgarh	ORDER TO BE RAISED ON :	Modi Infra Solution 9,Leela Mansion, Rajbhawan Road, Civil Lines, Jaipur-302006 GSTIN :-08ABFFM6647P1ZH	A/C No: 2312079941 Bank: Kotak Mahindra Bank IFCS: KKBK0000271

KIND ATTN: Mr. S.B.Tripathi

Dear Sir,

As per earlier discussed with you here is our quote for supplying aggregates to your site.

PRODUCT	3 STAGE	2 STAGE
10 MM/ 20 MM/ DUST	1400 RS. + 5% GST	1150 RS. + 5% GST

TERMS & CONDITIONS:

1. Validity of offer: 10 Days from the date of this quotation.
2. Above Rate Including Royalty Fee
3. Payment Terms:- on advance payment only.

Thank you for giving us the opportunity to bid for your business .We look forward for your valuable order.

Sincerely Yours,



Signing Authority
M/s Modi Infra Solution



Muskaan Engitech Pvt.Ltd.

AN ISO 9001 : 2008 COMPANY



Reference No. mepl/17/aecom/400322

Dt.24/08/2017

Sub: Expression of Interest

For the Execution of Aecom Airport Parking, Delhi, (Excavation).

To,

The Project Incharge
M/s AECOM
9th floor, Infinity Tower 5c
DLF Cyber City, DLF Phase II, Gurugram (INDIA)

Site:-
Excavation Work
Airport Parking
New Delhi, INDIA

Kind Attend:- Mr. Suresh Kumar

Dear Sir,

With references to your above site Project, we would like to express our interest for the same as we are in this field from past few years & willing to forward our best rates for the persuasion at your end.

Hope you will consider the same & assist us to start the further process at our end at the earliest.

Awaiting for the positive response.

Enclosed: -

1. Annexure-A

Thank you,

For Muskaan Engitech Pvt. Ltd.

(Director signatory)



Muskaan Engitech Pvt. Ltd.

Respected Sir,

Annexure -A

The Following excavation work item wise rate for you kind persual.

DETAILED B.O.Q FOR Excavation of trench in all kinds of soil, Soft Rock and Hard Rock			
PROJECT	Delhi Airport Parking		
LOCATION	AECOM, Delhi Airport Parking		
S. No.	Item Description	Unit	Amount
A	EXCAVATION, BACKFILLING & TRANSPORTATION		
1	Earth work		
1.1	Excavation for rock (where Control blasting is required) including trimming of excavation bottom, disposal & stacking of excavated materials all complete as per specifications and drawings and instructions of Engineer.	cum	2,033.90
2	Carriage of Disposal		
	Extra over item No. 1 above carriage of all types of excavated materials beyond the initial lead of 0.5 km. included in item no. 1 above upto anywhere within site area as per instructions of engineer.		
2.1	per cum per km	Cum/per km	15.00
Total Amount			

Terms and Condition:

Technical conditions

- 1 If the work is held up due to any hindrance or any other way, an idle charge for the machinery + Staff will also have to be paid by AECOM
- 2 AECOM has to consider for an extra item if any, the rates for the same shall be settled through negotiation.
- 3 Measurements + survey of the area will have to be taken jointly.
- 4 Diesel will be provided The AECOM at site for the this project. The diesel will be deduct as per RA bill.
- 5 The dewatering in scope of AECOM if required.

Muskaan Engitech Pvt. Ltd.

Others.

1. GST extra @ 18%
2. Mobilization charges @ 15% of the total amount of the work order shall have to be paid by AECOM on arrival of machineries and materials at site.
3. If there is any adhoc increase in Diesel and Material rates from the current rates shall have to be paid by AECOM separately.
4. Monthly payments during the month's work shall have to be paid by AECOM

For Muskaan Engitech Pvt. Ltd.



(Director signatory)

DIAL CALCULATION

Earth work /cum = 2033.90/-

Disposal /cum to Govt

Approved dumping yard @ 30km = 450/- (= 15x30)

SUB TOTAL = 2483.90/-

Add for Escalation during
Construction as well as working
in operating Environment

397.42/-

Total = 2881.32/-

Internally evaluation rate is Rs 2837.38/-
has been considered

GEOTECH INVESTIGATION REPORT

ASL NO. 363

**PROJECT:
EXPANSION OF AIRPORT
TERMINAL – 1, DELHI**

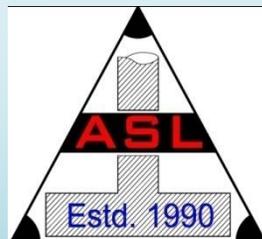
2016-2017

Prepared By -



T-2398

ISO/IEC: 17025-2005
accredited lab



www.arunsoillab.com

ARUN SOIL LAB PVT. LTD.

Geotech & Material Consultants for Civil Engineering Projects
E-11, First Floor, Lekhraj Market-I, Indira Nagar, Lucknow- 226016
Phone: 2341943; Telefax: 4001043; Mobile: 9415025566, 9415501637, 38
arunsoillab.asl@gmail.com; info@arunsoillab.com

"QUALITY CONSCIOUSNESS IS OUR CORE CONCEPT"

ACKNOWLEDGEMENT

WE ARE GRATEFUL TO AECOM INDIA PRIVATE LIMITED FOR PROVIDING US THE OPPORTUNITY TO CARRY OUT THESE INVESTIGATIONS.

THE CO-OPERATION EXTENDED BY THEIR ENGINEERS DURING FIELD INVESTIGATIONS IS THANKFULLY ACKNOWLEDGED.

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	B. S.P.T. VALUES	2
	C. WATER TABLE	2
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SUB-SOIL INVESTIGATION REPORT FOR PROPOSED EXPANSION OF AIRPORT TERMINAL – 1, DELHI

INTRODUCTION

The work of sub-soil exploration was awarded to us by AECOM India Private Limited vide their Order No. dated The object of the investigation was to study the geo-technical properties of soil both in field and laboratory and determine safe allowable pressure for the foundation soil.

The fieldwork consisted of fourteen bore holes of 10.00 metre depth each and seven bore holes of 15.00 metre depth each. The fieldwork was conducted from 08/11/2016 to 30/11/2016. The location of the bore holes is shown in the Site Plan.

REFERENCES

1. **IS: 1892-1974** for field work including existent ground water table.
2. **IS: 2132-1986** for sampling in Undisturbed and Disturbed form.
3. **IS: 2131-1981** for Standard Penetration Test.
4. **IS: 2720** for all laboratory tests on soil samples collected.
5. **IS: 6403-1981** for determination of Bearing Capacity.
6. **IS: 8009(Part I)-1976** for calculation of settlement of foundations.
7. **IS: 1904-1986** for permissible maximum settlement, differential settlement and angular distortion.

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INTERPRETATION OF THE LAB TEST RESULTS

GENERAL NATURE OF SOIL STRATA

The results of lab tests and bore hole log charts of bore holes 1A, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21 and 22 indicate that the strata at the site is found to comprise of both cohesive as well as non-cohesive soil except filled up soil being present from top up to 0.50 metre depth below ground level at the borehole location 1A and borehole 20.

The cohesive type soil comprises of either silty clay soil of low plasticity and compressibility or clayey gravel or clayey silt soil of low plasticity and compressibility belonging to 'CL', 'GC' and 'CL-ML', 'ML' group of IS classification and having 62 to 92 percent material finer than 75 micron.

However, the non-cohesive type soil is found to comprise of either sandy silt 'ML' type soil or silty sand 'SM' type soil having 28 to 83 percent fines.

The results of classification tests indicate that the natural soil stratum present at the Site is found to comprise of both fine-grained soils (clayey soil) and coarse-grained soils (sandy soil).

S.P.T. VALUES

The S.P.T. values obtained in the respective clayey layer region present as per bore-log charts enclosed are found to range from 5 to 54 indicating 'Medium' to 'Hard' consistency.

However, the S.P.T. values obtained in the respective sandy layer region present as per bore-log charts enclosed are found to range from 7 to 85 indicating 'Loose' to 'Very Dense' relative density.

The results of S.P.T. values indicate that the stratum at the Site is 'Loose' to 'Very Well' compacted.

WATER TABLE

Water Table at the Site was not observed up to 15.00 metre depth explored below ground level on the day of soil investigation during the second to fifth week of November 2016. However, the existing water table may rise by some amount in the post-monsoon period. Therefore, a water table at a depth of (Df+B) metre below ground level and beyond has been adopted for calculation purposes.

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BEARING CAPACITY CALCULATIONS

The Safe Bearing Capacity of the proposed STRUCTURE without any distress is determined from the considerations of the following criteria.

[A] SHEAR CRITERIA

The soil beneath the foundation shall be safe from risk of shear failure.

[B] SETTLEMENT CRITERIA

The foundation should not settle or deflect to an extent causing damage to the Structure or impair its usefulness.

The Bearing Capacity Calculations for the Foundation shall be governed as per IS: 6403-1981, IS: 8009(Part-I)-1976 and IS: 1904-1986 on the basis of available information regarding the proposed design.

BEARING CAPACITY ON SHEAR CONSIDERATIONS**ULTIMATE NET BEARING CAPACITY**

As per IS: 6403-1981, the Ultimate Net Bearing Capacity 'qd' on shear consideration for a Structure is given by the formula: -

FOR GENERAL SHEAR FAILURE

$$q_d = c.N_c.S_c.d_c.i_c + q(N_q - 1).s_q.d_q.i_q + 1/2 B.r.N_r.S_r.d_r.i_r.W'$$

FOR LOCAL SHEAR FAILURE

$$q'd = 2/3 c.N'c.S'c.d'c.i'c + q(N'q - 1).S'q.d'q.i'q + 1/2 B.r.N'r.S'r.d'r.i'r.W'$$

FOR ISOLATED RCC RECTANGULAR COLUMN FOOTING [ON BOREHOLE 1A]

Isolated RCC Rectangular Column Footing with the size of the base of the footing as 3.00 metre x 2.00 metre at a foundation depth of 1.80 metre below ground level.

BEARING CAPACITY ON SHEAR CONSIDERATIONS**Governing shear parameters are from Bore Hole No. 1A**

Failure Mode - General Shear

Foundation Type - ISOLATED RECTANGULAR

SIZE : 3.00m x 2.00m

Depth of Foundation : 1.80m

Existing Ground level : 0.00m

Ground Water Table level: -15.00m

Void Ratio: 0.598

Bulk density (W)of soil above Foundation base : 17.16kN/m³.

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Bulk density (W) of soil below Foundation base : 18.83kN/m³.

Cohesion C : 14.71kN/m²

Factor of Safety : 3.00

Shape factor Depth Factor Inclination Factor

Sc = 1.133 Dc = 1.267 Ic = 1.000

Sq = 1.133 Dq = 1.133 Iq = 1.000

Sg = 0.733 Dg = 1.133 Ig = 1.000

Water Table Correction Factor W' = 1.000

Effective surcharge at base level q = 30.89kN/m².

****For General Shear Failure****

Ultimate Net B.C. = $Q_{ult_n} = C \cdot N_c \cdot S_c \cdot D_c \cdot I_c + q \cdot (N_q - 1) \cdot S_q \cdot D_q \cdot I_q + 0.5 \cdot B \cdot W \cdot N_g \cdot S_g \cdot D_g \cdot I_g \cdot W'$

Angle of Internal Friction(phi) : 22.00

Bearing Capacity Factors

Nc = 16.89

Nq = 7.83

Ng = 7.13

Thus $Q_{ult_n} = 739.26 \text{ kN/m}^2$.

Net Safe Bearing Capacity (Qns) = 246.42kN/m².

Failure mode - Local shear

Foundation type - ISOLATED RECTANGULAR

SIZE : 3.00m x 2.00m

Depth of foundation : 1.80m

Existing ground level : 0.00m

Ground water table level: -15.00m

Void ratio: 0.598

Bulk density (W) of soil above Foundation base : 17.16kN/m³.

Bulk density (W) of soil below Foundation base : 18.83kN/m³.

Cohesion C' : 9.81kN/m²

Factor of safety : 3.00

Shape factor Depth factor Inclination factor

Sc = 1.133 Dc = 1.235 Ic = 1.000

Sq = 1.133 Dq = 1.117 Iq = 1.000

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$S_g = 0.733$ $D_g = 1.117$ $I_g = 1.000$

Water table correction factor $W' = 1.000$

Effective surcharge at base level $q = 30.89 \text{ kN/m}^2$.

****For local shear Failure****

Ultimate Net B.C. = $Q_{ult_n} = C' \cdot N'_c \cdot Sc \cdot Dc \cdot Ic + q \cdot (N'_q - 1) \cdot Sq \cdot Dq \cdot Iq + 0.5 \cdot B \cdot W \cdot N'_g \cdot Sg \cdot Dg \cdot Ig \cdot W'$

Effective angle of internal friction (ϕ') : 15.07

Bearing capacity factors

$N'_c = 11.03$

$N'_q = 3.97$

$N'_g = 2.68$

Thus $Q_{ult_n} = 308.92 \text{ kN/m}^2$.

Net Safe bearing capacity (Q_{ns}) = 102.97 kN/m^2 .

Failure Mode - Intermediate Between General & Local Shear

Under Local Shear Failure Mode Net Ultimate Bearing Capacity = 308.92 kN/m^2 .

Under General Shear Failure Mode Net Ultimate Bearing Capacity = 739.26 kN/m^2 .

Void Ratio: 0.598

Thus Ultimate net Bearing Capacity (Q_{ult_n}) = 635.98 kN/m^2 .

Net Safe Bearing Capacity (Q_{ns}) = 211.99 kN/m^2 .

BEARING CAPACITY ON SETTLEMENT CONSIDERATIONS

Governing settlement parameters are from Bore Hole No. 1A

Foundation shape: RECTANGLE

Foundation size:

Length = 3.000 m Breadth = 2.000 m Depth of foundation = 1.800 m

Existing ground level = 0.000m

Ground water table level = -15.000m

Applied pressure at foundation base = 211.990 kN/m^2

****Parameters for layer no. 1****

Stress increment method - 2:1 Slope Theory

Layer thickness = 1.800m

Saturated bulk density = 17.163 kN/m^3

****Parameters for layer no. 2****

Consolidation settlement with C_c

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Stress increment method - 2:1 Slope Theory

Layer thickness = 0.700m

Saturated bulk density = 18.830kN/m³

Compression index = 0.10700

Initial void ratio = 0.598

****Parameters for layer no. 3****

Consolidation settlement with Cc

Stress increment method - 2:1 Slope Theory

Layer thickness = 1.500m

Saturated bulk density = 18.928kN/m³

Compression index = 0.10000

Initial void ratio = 0.600

****Parameters for layer no. 4****

Consolidation settlement with Cc

Stress increment method - 2:1 Slope Theory

Layer thickness = 0.800m

Saturated bulk density = 18.830kN/m³

Compression index = 0.11300

Initial void ratio = 0.581

****End of input parameters ****

****Increment of stresses for all layers****

Increment in stress at middle of layer 1= 0.000kN/m²

Increment in stress(2V:1H Slope) at centre of layer 2= 161.567kN/m²

Increment in stress(2V:1H Slope) at centre of layer 3= 82.849kN/m²

Increment in stress(2V:1H Slope) at centre of layer 4= 49.377kN/m²

****Effective stresses for all layers****

Effective Stress at centre of layer 1= 15.447kN/m²

Effective Stress at centre of layer 2= 37.484kN/m²

Effective Stress at centre of layer 3= 58.270kN/m²

Effective Stress at centre of layer 4= 79.998kN/m²

****Layer 2 settlement****

Normally consolidated as per configuration

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Consolidation settlement of this layer 2 = $H \cdot C_c \cdot \text{Log}\left\{\frac{(P+\Delta eP)}{P}\right\} / (1+E_o) = 33.987\text{mm}$.

****Layer 3 settlement****

Normally consolidated as per configuration

Consolidation settlement of this layer 3 = $H \cdot C_c \cdot \text{Log}\left\{\frac{(P+\Delta eP)}{P}\right\} / (1+E_o) = 36.013\text{mm}$.

****Layer 4 settlement****

Normally consolidated as per configuration

Consolidation settlement of this layer 4 = $H \cdot C_c \cdot \text{Log}\left\{\frac{(P+\Delta eP)}{P}\right\} / (1+E_o) = 11.937\text{mm}$.

Total settlement of all layers below foundation base = 81.9mm.

Depth Correction factor= 1.000

Rigidity correction factor= 0.800

Total settlement of all layers below foundation base with depth correction factor= 81.9mm.

Total settlement of all layers below foundation base with rigidity factor= 65.5mm.

FINAL TRIAL

Foundation shape:RECTANGLE

Foundation size:

Length = 3.000 m Breadth = 2.000 m Depth of foundation = 1.800 m

Existing ground level = 0.000m

Ground water table level = -15.000m

Applied pressure at foundation base = 184.000kN/m²

****Parameters for layer no. 1****

Stress increment method - 2:1 Slope Theory

Layer thickness = 1.800m

Saturated bulk density = 17.163kN/m³

****Parameters for layer no. 2****

Consolidation settlement with C_c

Stress increment method - 2:1 Slope Theory

Layer thickness = 0.700m

Saturated bulk density = 18.830kN/m³

Compression index = 0.10700

Initial void ratio = 0.598

****Parameters for layer no. 3****

Consolidation settlement with C_c

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Stress increment method - 2:1 Slope Theory

Layer thickness = 1.500m

Saturated bulk density = 18.928kN/m³

Compression index = 0.10000

Initial void ratio = 0.600

****Parameters for layer no. 4****

Consolidation settlement with Cc

Stress increment method - 2:1 Slope Theory

Layer thickness = 0.800m

Saturated bulk density = 18.830kN/m³

Compression index = 0.11300

Initial void ratio = 0.581

****End of input parameters ****

****Increment of stresses for all layers****

Increment in stress at middle of layer 1= 0.000kN/m²

Increment in stress(2V:1H Slope) at centre of layer 2= 140.235kN/m²

Increment in stress(2V:1H Slope) at centre of layer 3= 71.910kN/m²

Increment in stress(2V:1H Slope) at centre of layer 4= 42.857kN/m²

****Effective stresses for all layers****

Effective Stress at centre of layer 1= 15.447kN/m²

Effective Stress at centre of layer 2= 37.484kN/m²

Effective Stress at centre of layer 3= 58.270kN/m²

Effective Stress at centre of layer 4= 79.998kN/m²

****Layer 2 settlement****

Normally consolidated as per configuration

Consolidation settlement of this layer 2 = $H \cdot C_c \cdot \log\left\{\frac{(P+DeIP)/P}{(1+E_o)}\right\}$ = 31.680mm.

****Layer 3 settlement****

Normally consolidated as per configuration

Consolidation settlement of this layer 3 = $H \cdot C_c \cdot \log\left\{\frac{(P+DeIP)/P}{(1+E_o)}\right\}$ = 32.728mm.

****Layer 4 settlement****

Normally consolidated as per configuration

Consolidation settlement of this layer 4 = $H \cdot C_c \cdot \log\left\{\frac{(P+DeIP)/P}{(1+E_o)}\right\}$ = 10.653mm.

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Total settlement of all layers below foundation base = 75.1mm.

Depth Correction factor= 1.000

Rigidity correction factor= 0.800

Total settlement of all layers below foundation base with depth correction factor= 75.1mm.

Total settlement of all layers below foundation base with rigidity factor= 60.0mm.

BEARING CAPACITY CALCULATIONS TABLE

Sl. No.	Description	On BH 1
1.	Depth of foundation below ground level (m)	1.80
2.	Length of footing (m)	3.00
3.	Width of footing (m)	2.00
4.	Water Table below ground level assumed (m)	-15.00
5.	Cohesion (Kg/sqcm.)	0.15
6.	Angle of Internal Friction (\emptyset)	22
7.	Density above foundation level (gms/cc)	1.75
8.	Density below foundation level (gms/cc)	1.92
9.	Overburden (tonne/sqm.)	3.15
10.	Void Ratio (e_0)	0.598
11.	Net Safe Bearing Capacity (tonne/sqm.)	21.62
12.	Settlement produced (mm)	65.50
13.	Safe Allowable Pressure (tonne/sqm.)	18.76
14.	Settlement produced for safe allowable pressure as in Sl. No. 13 and within safe permissible limit as per IS: 1904-1986 (mm)	60.00

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HARMFUL SALTS

Soil samples obtained from 0.00-0.50 metre, 1.50-1.85 metre and 1.85-2.30 metre depth below ground level from all the 20 bore holes were tested for the presence of harmful salts like Carbonates, Bicarbonates, Chlorides and Sulphates. The results given in Table below indicate that the harmful salts are present above safe permissible limits.

TABLE

BOREHOLE NO	DEPTH IN METRES	CARBONATES %	BICARBONATES %	CHLORIDES %	SULPHATES %	P ^H VALUE
	0.00-0.50	0.021	0.201	0.033	0.010	7.0
01	1.50-1.85	NIL	0.168	0.040	NIL	7.5
	1.85-2.30	0.021	0.134	0.033	NIL	7.0
	0.00-0.50	NIL	0.134	0.026	0.050	7.0
02	1.50-1.85	0.021	0.101	0.020	0.010	7.0
	1.85-2.30	NIL	0.101	0.013	NIL	7.5
	0.00-0.50	0.021	0.168	0.040	NIL	7.0
03	1.50-1.85	NIL	0.201	0.046	NIL	6.5
	1.85-2.30	NIL	0.134	0.040	NIL	7.0
	0.00-0.50	NIL	0.0672	0.026	0.010	6.5
04	1.50-1.85	NIL	0.201	0.033	NIL	7.0
	1.85-2.30	0.021	0.168	0.026	NIL	7.5
	0.00-0.50	0.021	0.201	0.013	NIL	7.0
05	1.50-1.85	NIL	0.201	0.013	NIL	7.5
	1.85-2.30	NIL	0.168	0.020	0.050	7.5
	0.00-0.50	NIL	0.134	0.026	NIL	7.0
06	1.50-1.85	0.021	0.101	0.020	NIL	6.5
	1.85-2.30	0.021	0.134	0.013	NIL	7.0
	0.00-0.50	0.021	0.134	0.026	NIL	7.0
07	1.00-1.35	NIL	0.101	0.020	NIL	7.5
	1.35-1.80	NIL	0.134	0.033	NIL	7.5
	0.00-0.50	NIL	0.134	0.020	0.010	7.0
08	1.00-1.35	NIL	0.168	0.013	NIL	7.5
	1.35-1.80	0.021	0.101	0.013	NIL	7.0

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BOREHOLE NO	DEPTH IN METRES	CARBONATES %	BICARBONATES %	CHLORIDES %	SULPHATES %	P ^H VALUE
	0.00-0.50	NIL	0.201	0.026	0.050	6.5
09	1.00-1.35	0.021	0.201	0.033	NIL	7.0
	1.35-1.80	NIL	0.168	0.040	0.010	7.0
	0.00-0.50	0.021	0.134	0.020	NIL	7.5
10	1.00-1.35	0.021	0.101	0.020	NIL	7.5
	1.35-1.80	NIL	0.101	0.026	0.010	7.0
	0.00-0.50	0.021	0.201	0.013	NIL	6.5
13	1.00-1.35	NIL	0.168	0.020	NIL	7.0
	1.35-1.80	0.021	0.134	0.013	NIL	6.5
	0.00-0.50	NIL	0.134	0.033	NIL	7.5
14	1.00-1.35	NIL	0.101	0.026	0.010	7.0
	1.35-1.80	0.021	0.168	0.020	NIL	7.0
	0.00-0.50	NIL	0.168	0.046	0.010	7.5
15	1.00-1.35	NIL	0.201	0.040	NIL	7.0
	1.35-1.80	NIL	0.168	0.033	NIL	7.0
	0.00-0.50	0.021	0.134	0.040	0.050	7.0
16	1.00-1.35	NIL	0.101	0.033	NIL	7.5
	1.35-1.80	NIL	0.168	0.040	NIL	7.0
	0.00-0.50	0.021	0.134	0.026	NIL	7.0
17	1.00-1.35	0.021	0.168	0.020	NIL	7.0
	1.35-1.80	NIL	0.168	0.026	0.050	7.5
	0.00-0.50	NIL	0.201	0.040	NIL	7.0
18	1.00-1.35	0.021	0.168	0.033	NIL	7.0
	1.35-1.80	NIL	0.134	0.020	NIL	7.0
	0.00-0.50	NIL	0.134	0.026	0.010	6.5
19	1.00-1.35	NIL	0.101	0.020	NIL	7.0
	1.35-1.80	NIL	0.134	0.026	NIL	6.5
	0.00-0.50	0.021	0.168	0.033	NIL	7.0
20	1.00-1.35	NIL	0.101	0.026	NIL	7.0
	1.35-1.80	NIL	0.134	0.020	NIL	7.0

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BOREHOLE NO	DEPTH IN METRES	CARBONATES %	BICARBONATES %	CHLORIDES %	SULPHATES %	P ^H VALUE
	0.00-0.50	NIL	0.201	0.020	NIL	7.0
21	1.00-1.35	0.021	0.168	0.020	0.010	7.0
	1.35-1.80	NIL	0.134	0.026	NIL	7.5
	0.00-0.50	0.021	0.101	0.033	NIL	7.0
22	1.00-1.35	0.021	0.134	0.026	NIL	7.0
	1.35-1.80	NIL	0.101	0.020	NIL	7.0

RECOMMENDATIONS:

Results indicate that the Harmful Salts are present above Safe Permissible Limit value of 0.250 %. Therefore, necessary remedial measures need be taken to check the rise of salts through the foundation up to the Super-Structure as per laid down Specifications and requirements at the Site.

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**RECOMMENDATIONS FOR PROPOSED EXPANSION OF AIRPORT TERMINAL – 1,
DELHI****SAFE ALLOWABLE PRESSURE****FOR ISOLATED RCC RECTANGULAR COLUMN FOOTING [ON BOREHOLE 1A]**

A Safe Allowable Pressure of 184.00 kN/sqm that is 18.76 tonne per square metre is recommended to be adopted for Isolated RCC Rectangular Column Footing with the size of the base of the footing as 3.00 metre x 2.00 metre at a foundation depth of 1.80 metre below ground level. Therefore, a total load of 112.56 tonnes shall be borne by each such Column.

NOTE: -

The above recommendations are based on the field investigation data results and the laboratory tests results of the samples collected from the test locations and our experience in this regards. If the actual sub-soil conditions during excavation for the foundations differ from that has been reported, a reference should be made to us for suggestions.

Further, the recommendations are based on the assumptions as mentioned in the Report and the designer of the Structure should take into consideration all the factors required as per codes. The recommendations should be taken as guidelines for the designer.

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Professor

A structural Assessment report has been submitted by M/s AECOM for Terminal 1 building at IGI airport, New Delhi. The assessment report is based on the investigations conducted by M/s Cortex to analyse the present concrete strength based on concrete core tests and various non-destructive tests.

The findings and conclusions from the reports are enumerated below:

- The grade of concrete in different type of structural members like beam, column and slabs vary, with f_{ck} in the range of 11MPa to 15. The same variation has been reported within individual type of member also. For structural assessment of the strength of structure it is recommended to consider an average f_{ck} for concrete be taken as 13MPa.
- Due to non-availability of structural reinforcement drawings, the structural strength of members cannot be ascertained.
- The site survey and findings are for the areas which were approachable and visible.
- Based on the outcome of the report, M/s AECOM undertook a structural analysis of the existing T1C building to assess its structural integrity in the event of earthquake forces of Zone IV intensity and the analysis concluded that the present building structure does not confirm to ductility provision for earthquake as per IS 13920. Thus major retrofitting in the form of carbon fibre wrap or jacketing is envisaged.

Recommendations

- The existing T1C building structure at IGI Airport, New Delhi is structurally deficient and the structure does not meet the current provisions of relevant Indian Design Standards for buildings with regard to concrete strength and earthquake resistance.
- In order to make it compliant to current design standards, the building should be strengthened. The strengthening measures provided by M/s AECOM are found to be in order.
- According to The Guideline of the National Disaster Management Authority on Seismic Retrofitting of Deficient Building and Structures, June 2014, if the cost of strengthening of the structure exceeds 70% of the reconstruction cost (demolition and rebuild) the building should be demolished and rebuilt and on the basis of the report issued by M/s AECOM the cost of retrofitting is more than 100% of the cost for demolishing and rebuilding, thus it is recommended to demolish the existing structure and rebuild.


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Structural Assessment Report on Existing T1C Terminal Building



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1. INTRODUCTION

1.1 BACKGROUND

Terminal 1 of IGI Airport handles the Low Cost Carrier (LCC) domestic traffic of the airport. Terminal 1 comprises of T1C as arrival hall and T1D as departure hall, and other ancillary components, e.g Main Service Block (MSB), Sub Service Block (SSB). T1C was constructed at beginning of the 1970s and followed with a series of extension works from 1974 to 2008.

AECOM has been appointed to as consultant to carry out concept and preliminary design for the new extension of the Terminal 1. The extensions consist of expansion to the existing T1C building or provision of new arrival hall and new pier to easy the access of the arriving passengers.

DIAL requested AECOM to carry out an structural assessment of the T1C building if it is suitable to extend its design life another 50 years and to resist the earthquake load in according with requirements of India Seismic Code 1893 (2002) Zone IV.

1.2 OBJECTIVE OF THIS REPORT

This report outlines the findings on the review of the existing conditions of T1C arrival hall including site visit and structural check with computer model. The available existing information on the T1C arrival hall is recorded in this Working Paper. It covers primarily:

- Extension in 1974
- Extension in 1980
- Extension in 2008
- Soil Investigation report

The original structural drawings of T1C are not available.

2. EXISTING DRAWINGS & DOCUMENTATIONS

2.1 DRAWINGS AND INFORMATION FROM DIAL

- Extension in 1974
- Extension in 1980
- Extension in 2008
- Soil Investigation report

The original structural drawings of T1C are not available.

3. EXISTING STRUCTURAL CONDITIONS

3.1 GENERAL

Site visits within and around the terminal building T1C and T1D of the IGI Airport were conducted in the mornings of 5 and 6 October 2016 respectively.

The objective of the visit was to enable the Project Team to have a better appreciation and understanding of the airport layouts, existing facilities and conditions, airport operations and the passengers' experience when using the terminal.

As-built drawings were received on 13 October 2016 but they are only structural as-built drawings for the extension works and the original structural as-built drawings are not available.

A review of the existing airport as-built documentation was carried out in the afternoon of 14 October 2016.

Following sections summarize the key observations and findings on the structural aspects of the works, made during the two visits and review of the existing structural information.

3.2 SITE VISITS

The two visits, led by members from DIAL, comprised a general walk through of the arrival and departure halls, the holding gates, public areas and common facilities within the airport only. These are fairly similar to what the passengers will experience when arriving and departing the terminal.

Some of the team members had also visited the major plant and equipment rooms to look at the existing services and MEP provisions.

The Project Team was given to understand that the main terminal T1C building was completed approximately 45 years ago. There were some extension works of the building structure undertaken subsequently, as part of the airport overall upgrading programme.

It was observed during the visits that the majority of the building structure is concealed by floor finishes and some areas are covered with ceilings. Columns are concealed with claddings. It was therefore not possible to identify the structural size of the T1C building was originally constructed with.

The flat slab with slab stiffeners and columns form the moment frame to resist the lateral load. As informed by DIAL that this building was renovated only one and half years ago, there is no sign of deterioration can be observed from at ground level. However, there are two obvious pop-up of the roof slab at the column locations. It is suspect that there is excessive deformation of the slab or due to other causes.

Main Service Block and Sub Service Block have been also visited. These two structures are observed a beam-slab floor system is typically adopted at these areas supported on columns in conventional reinforced concrete construction. No visible sign of structural deterioration was observed at these areas.

During the visits, it was also observed that there are potentially separation joints before the original T1C building and its expansion. The extent and exact routing of the joints could not be established through visual inspection some areas are not reachable on the day of site visit.

Some relevant photographs taken during the site walk were incorporated under **Appendix A**. Due to security reason, no photo is allowed to be taken on the roof.

3.3 REVIEW OF EXISTING DOCUMENTATION

The review on the existing geotechnical documentation is summarized as below:

- A set of soil investigation report including sinking 100 boreholes with in-situ testing results was provided, some of them are with lab test.
- It was noted that the report was submit in August 2006 and field work was carried out during a period of May to July 2006.
- The soil investigation works were carried out as part of the airport overall masterplan study. It was noted that the boreholes were distributed across the masterplan study area.
- There were 4 boreholes located relatively nearer to the T1 terminal building. However, for a better appreciation of the subsurface condition directly below the proposed site, the existing borehole information is considered insufficient.
- There are some existing footing layout plans and details which suggest that the terminal buildings appear to be supported on pad footings.
- In view of the above and to provide the Contractors with more accurate geotechnical information below the site during the tender process, we recommend the carrying out of additional soil investigation around the terminal building. We envisage a total of 10 boreholes shall be sufficient for this purpose. The locations of the boreholes should tie in with the proposed concept of the transformation works and existing site conditions.

The review on the existing as-built structural documentation is summarized as below:

- The review of existing as-built structural information was carried out in AECOM office.
- Based on the documentation provided by DIAL, there is no information of as-built structural information of the existing airport terminal T1C except the extensions works.
- There are basically no original general arrangement plans and reinforcement details, which are critical and essential if one is undertaking any structural modification to the base building.
- What is available are some very scattered information of T1C extension works

Expansion of Terminal 1 and Construction of Fourth Runway and Other Associated Works at IGIA, New Delhi

containing details of beam reinforcement, column schedules, steel roof structure, footings, staircases, walls and expansion joints. Some are stamped with 'For Construction' while others are just labeled as 'Detailed Design'. It cannot be ascertained whether these are true as-built or otherwise.

4. GENERIC STRUCTURAL CHECK ACCORDING TO SEISMIC ZONE IV

4.1 ASSUMPTIONS FOR STRUCTURAL CHECK

As the original as-built drawing of T1C building are not available, only a few references can be made to the drawings for afterwards extension works. Below assumptions are made to enable the structural check:

- It is assumed that column sizes in the extension drawings are correct.
- There is no information of foundations and ground slab and roof slab. Considering the loading on structural span, a 300mm thick RC slab is assumed for both ground and roof slabs.
- Concrete grade is assumed to be M25 for all structural elements.

4.2 COMPUTER MODEL ANALYSIS AND RESULTS

The existing T1C structure was modelled by using software Etabs 2015 in accordance with the India Standard Codes for seismic design for Zone IV and loading combinations.

Approximate and quick checks were carried out according to IS 15988 (2013), clause 6.5. The strength and stiffness of the existing structure were compute and compare.

- Shear Stress in Reinforced Concrete Frame Columns

This equation assumes that all of the columns in the frame have similar stiffness. The term $\left(\frac{n_c}{n_c - n_f}\right)$ is based on the assumption that shear force caused by columns at the end of RC frame are typically half of those carried by interior columns. If a concrete column has a capacity in shear that is less than the shear associated with the flexural capacity of the column, brittle column shear failure may occur and result in collapse. The columns in these buildings often have ties at standard spacing equal to the depth of the column, whereas the current code requires the maximum spacing for shear reinforcing as $d/2$.

The average shear stress in concrete columns, τ_{col} , computed in accordance with the following equation shall be lesser of 0.4 MPa and $0.1\sqrt{f_{ck}}$

$$\tau_{col} = \left(\frac{n_c}{n_c - n_f}\right) \left(\frac{V_j}{A_c}\right)$$

Case 1 Lower Part	Case 2 Upper Part
$\tau_{col} = [5380 \times 10^3 / (42-9)] / (0.25\pi \times 610^2)$ $\tau_{col} = 0.558 \text{ N/mm}^2$ > 0.4 $> 0.1\sqrt{f_{ck}} = 0.5$ (Inadequate, exceeded by 40%)	$\tau_{col} = [3800 \times 10^3 / (36-9)] / (0.25\pi \times 610^2)$ $\tau_{col} = 0.482 \text{ N/mm}^2$ > 0.4 $> 0.1\sqrt{f_{ck}} = 0.5$ (Inadequate, exceeded by 20%)

→ Axial Stress In Moment Frames

Response to earthquake ground motion results in a tendency for structures and individual vertical elements of structures to overturn about their bases. Although actual overturning failure is very rare, overturning effects can result in significant axial stresses. Columns that carry a substantial amount of gravity load may have limited additional capacity to resist seismic forces. When axial forces due to seismic overturning moments are added, the columns may buckle in a non-ductile manner due to excessive axial compression. The factor 2/3 in the equation is based on the assumption that floor forces due to earthquake are distributed in the inverted triangular pattern over the building height.

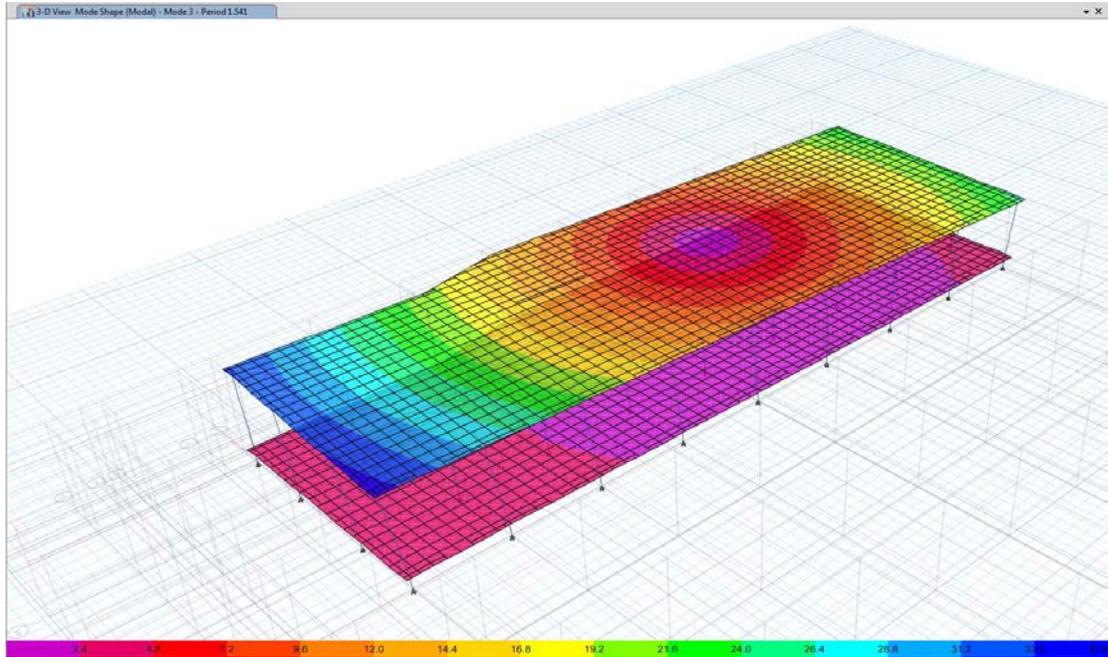
The overturning forces alone (F_o) as calculated using the following equation shall be less than $0.25f_{ck}$.

$$F_o = \frac{2}{3} \left(\frac{V_B}{n_f} \right) \left(\frac{H}{L} \right)$$

Case 1 Lower Part	Case 2 Upper Part
$F_o = 2/3 (5380 \times 10^3 / 9) (7300 / 76500)$ $= 38 \text{ kN}$	$F_o = 2/3 (3800 \times 10^3 / 9) (7300 / 76500)$ $= 27 \text{ kN}$
Compression stress $= 38 \times 10^3 / A_{col}$ $= 0.13 \text{ MPa.}$ $< 0.25f_{ck} = 6.25$ (Adequate)	Compression stress $= 27 \times 10^3 / A_{col}$ $= 0.10 \text{ MPa.}$ $< 0.25f_{ck} = 6.25$ (Adequate)

Expansion of Terminal 1 and Construction of Fourth Runway and Other Associated Works at IGIA, New Delhi

Case 2: Mode 3 (Rotation, $T = 1.541s$)



Letter from Bureau of Civil Aviation Security

File No: CAS-5(4)/2008/DIV.I/T-III Vetting (E-88185)

भारतसरकार / GOVERNMENT OF INDIA

नागरविमाननमंत्रालय / MINISTRY OF CIVIL AVIATION

नागरविमाननसुरक्षाब्यूरो / BUREAU OF CIVIL AVIATION SECURITY

'अ' खंड, I-III तल, जनपथभवन, जनपथ / 'A' WING I-III FLOOR, JANPATH BHAWAN, JANPATH

नईदिल्ली-110001 / NEW DELHI - 110001

Dated: 10/02/2017

To

The Regional Director,
BCAS Delhi Region,
New Delhi.

Subject:- Security vetting of development of Eastern Cross Taxiway (ECT) at IGI
Airport, New Delhi - reg.

Sir,

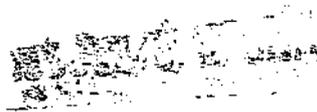
Kindly refer to DIAL letter no. DIAL/CEO-Office/2013-14/2617 dated 19/07/2013 regarding above cited subject.

2. On the basis of the recommendation of the standing Committee for inspection held on 30/05/2014, and the decision taken on 20/07/2016, and in terms of Rule 5 (3), read with Rule 9 of the Aircraft (Security) Rule 2011, I am directed to convey the 'In Principle Approval' by the Appropriate Authority to the design, subject to conditions recommended by standing committee and implementation of extant rules and regulations issued by BCAS from time to time, and the observations of Central Security Agency as follows :-

"All the entities operating from the buildings in the vicinity of the area, should submit their security programmes/ plans as per BCAS security requirements, as the same may pose a threat as the taxiway would be clearly visible from certain floors and rooftops of the buildings located nearby. Apart from strict access control to these buildings, complete sealing of the rooftops and floors overlooking the taxiway should be ensured and only authorized person should have access to the roof tops. Moreover, there is no control over any unauthorized movement in the forest area near the Sky Chef Flight Kitchen and MRSS. Hence, proper sanitization/access control also needs to be considered. Besides the above, a security Naka and rumble stripes/speed-breakers before approaching the underpass are also suggested."




13/2/17



3. You are, therefore, requested to conduct final survey on completions of facility with checklist as per OM dated 29.01.2014 for final Security clearance.

This has the approval of DG, BCAS.

Yours faithfully



(Mathai P.U.)

Dy. Director (Policy)

Tele. No. 011-23731721

Cc:-i) Director (Security), AAI, Rajiv Gandhi Bhawan, New Delhi.

ii) Executive Director, DIAL, IGI Airport, New Delhi.



Study on the Determinants of Cost of Capital of Delhi International Airport Limited (DIAL)



Dec 2019



भारतीय प्रबंध संस्थान बेंगलूर
INDIAN INSTITUTE OF MANAGEMENT
BANGALORE

Study on the Determinants of Cost of Capital of Delhi International Airport Limited (DIAL)

Dec 2019



भारतीय प्रबंध संस्थान बेंगलूर
INDIAN INSTITUTE OF MANAGEMENT
BANGALORE

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Executive Summary

This report provides an estimate of the Cost of Equity (CoE) for Delhi International Airport Ltd (DIAL). A benchmark set of “comparable” international airports are used to estimate the systematic risk exposure of DIAL aero assets under a target gearing ratio, as described in the Capital Asset Pricing Model (CAPM). The Cost of Equity computation also accounts for DIAL specific attributes such as revenue till structure, ownership structure and scale of operations by using a proximity score weighted approach, which factors the closeness of DIAL to the set of “comparable” airports. Based on a reasonable set of assumptions, the report provides the following estimates of Cost of Equity:

Variable (Col 1)	DIAL (Col 2)
Asset Beta based on Proximity Score	0.591199
Weights of comparable set	
Target gearing ratio (Debt/Debt + Equity)	48%
Target gearing ratio (Debt/Equity)	0.9231
Equity Betas	0.9732
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.41%

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Chapter 1 – Introduction

The airport infrastructure sector has been undergoing a phased change during the past 15 years. The first Public Private Partnership (PPP) model of airport operations was implemented in Delhi, Mumbai, Bangalore and Hyderabad airports starting in 2004. While Delhi and Mumbai were brownfield projects, the other two were greenfield in nature. As with any infrastructure project, these projects involved high Capital Expenditure (CAPEX) and Operational Expenditure (OPEX) mobilization. To ensure viability of airport investment, it is standard practice to provide a reasonable return to investors by charging airport users an appropriate tariff.

The Airports Economic Regulatory Authority (AERA) was established in 2008 for fixing aero tariffs and User Development Fee (UDF) at different airports.¹ AERA uses the Capital Asset Pricing Model (CAPM) to determine the Cost of Equity (CoE) and hence the FRoR. As mandated by the Act, the tariffs are determined at a periodicity of 5 years.² This report computes the CoE (and illustrates the process to compute FRoR) for the Delhi International Airport Ltd. (DIAL).

1.1. Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) has evolved and has been used effectively for some time now across industries the world over. Equation 1.1 depicts the CAPM³

$$R_E = R_f + \beta_E (R_M - R_f),$$

Equation 1.1 – CAPM

where

R_E = Expected return (and the company's cost of equity capital)

R_f = Risk-free rate.

¹ <http://aera.gov.in/upload/uploadfiles/files/AERAAct.pdf> as viewed on 12 Feb 2019

² <http://aera.gov.in/content/innerpage/faqs.php> as viewed on 12 Feb 2019

³ While in our study here, we have used the CAPM model, there are also other models available for exploration. Some of these being, the Arbitrage Pricing Theory and other variants of the CAPM (e.g., Breeden's Consumption CAPM and Merton's ICAPM) are theoretically sophisticated models that are more general than the CAPM. However, for all practical purposes, the plain CAPM is by far the most widely accepted model used to estimate the cost of capital.

$R_M - R_f = \text{Equity Risk Premium (ERP)}$.

$\beta_E = \text{Equity beta}$.

Various methods are employed for determining R_f , R_M and β_E . **We use this CAPM equation (Equation 1.1) throughout this report for the computation of Cost of Equity.**

The NIPFP study⁴ commissioned by AERA around 2011 had argued and proposed a rate between 11.64% and 13.84% as the Cost of Equity. However, the NIPFP study is dated in the sense that Equity Risk Premiums are time varying and the information set as of 2011 (the time-period of the NIPFP study) differs from the current information set (as of 2018). As is evident from Eq. (1), the rate of return or CAPM rate depends on 3 inherent factors.

- a. Risk-free rate, R_f
- b. Equity Risk Premium (ERP), $R_M - R_f$
- c. Equity β_E

While it is relatively easy to determine R_f , the other two factors are difficult to estimate in the case of India. Some estimates of the long-term Equity Risk Premium (ERP), and hence, long-term expected returns (R_M) by Damodaran⁵ and others^{6,7} are available in literature. The equity β_E estimation can also yield a range of values depending on the assumptions employed.

Fair Rate of Return (FRoR)

The Fair Rate of Return (FRoR) is essentially the weighted average cost of capital evaluated at a normative debt to equity ratio. It reflects the cost of equity and the cost of debt and can be thought of as the return demanded by the providers of capital (debt and equity holders). Using an illustrative cost of debt (since cost of debt must be estimated annually using the latest information), we illustrate the computation of FRoR in Chapter 3 (section 3.2.6 and Equation 3.4).

⁴ "Estimating Cost of Capital for Private Airports in India", NIPFP, Dec 2011

⁵ <http://pages.stern.nyu.edu/~adamodar/> as seen on 10 Sep 2018

⁶ Dimson, Marsh and Staunton (DMS); Triumph of the Optimists: 101 Years of Global Investment Returns (Princeton University Press, 2002)

⁷ The Global Finance Data (GFD) from www.globalfinancialdata.com as viewed on 5 Sep 2018

1.2. Overview of Airport Sector

Traditionally, airports have been managed by governments the world-over with private participation limited to fuel farms, cargo handling, etc. However, more recently, with demanding passengers (looking for better quality infrastructure with contemporary amenities), private participation has become imperative. It has been observed from experience in other sectors (e.g., ports, roads, etc.) that this mode of operation maximizes efficiency. Also, the government gains monetarily by selling its stake. The British Airports Authority or BAA was the first airport to be publicly listed and traded in 1987.⁸ However, owing to high losses triggered by expansions and high operating costs, it finally delisted in 2006. However, other airports like Auckland, Sydney, Thailand (AoT), Malaysia (MAHB), etc. have consistently been successful.

While privatization brings in efficiency and a level of comfort and luxury to the end user, it also imposes a cost on them. The cost is mostly levied in the form of tariffs and fees by the private operator to recoup the CAPEX and OPEX incurred. In order to protect the interests of the end user, regulatory authorities all over the world cap the tariffs that can be levied. For this purpose, airports are classified as based on a “Till Model” as follows:⁹

- Single Till – All airport revenues (including aero and non-aero) are taken into consideration when determining the level of airport usage charges.
- Dual Till – Only aero revenues are taken into consideration when setting airport usage charges.
- Hybrid Till – Aero revenues along with a percentage of non-aero revenues are considered for setting airport usage charges.

Typically, aero revenues include landing and parking charges, aerobridge usage charges, UDF, fuel throughput charges, cute counter charges, and unauthorized stay charges. Non-aero revenues would be car park charges at airport premises, hotels and other business establishments, duty free shops, etc. Cargo may be aero or non-aero depending on the regulatory norms.

⁸ <https://www.forbes.com/global/2003/0609/043.html#46dc54645c4b> as viewed on 12 Feb 2019

⁹ *Mark Smith, Brian Pearce; IATA Economics Briefing N°6: Economic Regulation

The breakeven revenue for a sustainable airport operation is estimated using Equation 1.2.

$$ARR = PV(ARR_t) = \sum_{t=1}^n (ARR_t), \text{ where}$$
$$ARR_t = (FRoR \times RAB_t) + D_t + O_t + T_t - (f \times NAR_t),$$

Equation 1.2 – Breakeven Returns

where

ARR = Aggregate **Aero** Revenue Requirement for a given time period

PV = Present Value

t = Estimation Time period

n = Max(t) in the current control period

FRoR = Fair Rate of Return

RAB = Regulatory Asset Base for a given Till

D = Depreciation

O = Operations' Cost

T = Tax Liability

NAR = Non-Aero Revenues

f = fraction of Non-Aero Revenue subsidising aero revenue

= 0 for dual till;

= 1 for single till;

= fraction (0, 1) for hybrid till.

DIAL uses a hybrid till structure with 30% of non-aero revenues (*f*, in Equation 1.2) subsidizing Aggregate Revenue Requirement (ARR).

1.3. Project Scope and Overview

This study proposes to build on the previous experiences of AERA to determine an appropriate CAPM rate for the Cost of Equity (CoE) for Delhi International Airport Ltd. (DIAL) for the control period 2019–2024. It proposes to construct a series of scenarios for varying ERP and β_E . The scope of work involves:¹⁰

- a) Study of relevant environment, trends in airport capitalization

¹⁰ Ref Letter: AERA/20010/RFP Study/COE/2018-19/14400 dated 17.07.2018.

- b) Study airport-specific determinants of Cost of Capital with specific focus on the Cost of Equity
- c) Recommendations on Cost of Equity
- d) Follow-on activities

The detailed “Terms of Reference”¹⁰ is provided in Appendix 1.

The next chapter (chapter 2) of this report starts with a study of airports’ regulatory practices all over the world. The emphasis here is on the regulatory bodies’ stance on the methodology for determining CoE for their jurisdictional airports. This is followed by a section on shortlisting airports that are similar in structure and operation vis-à-vis DIAL. **This “comparables” set would be used to estimate the underlying beta risk and leverage – crucial inputs for determining CoE.** We analyze recent trends in the capitalization structure and funding mechanisms of these comparable firms and examine their performance in the recent past. Next, we carry out a similar exercise for DIAL. This is followed by how CoE is determined in this airport and the takeaways for DIAL therein. In the next section, we provide details of unique features of the Indian market (e.g. demand outstripping supply, external shocks, etc.) that influence the CoE. Finally, we wind up this chapter with a discussion on the trends prevalent generally in other infrastructure space, for e.g., Investment Infrastructure Trusts (InVITs).

Chapter 3 is devoted to estimating CoE. We first start by highlighting the methodology followed by data availability and collection. Next, the analyses of the said data with its assumptions and caveats are provided. Finally, we conclude this chapter with all the results. The key recommendations at the end of each discussion are given under the title of “Recommendations”, wherever applicable. A final summary of all recommendations made throughout this study is presented at the end of Chapter 3.

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Chapter 2 – Current Environment and Trends in Airports Capitalization

Airports were traditionally managed by their respective governments the world over. However, this trend has changed considerably in the past two decades. Demanding passengers and competition have forced privatization. A variety of uncertain factors, such as accurate demand estimation, regulatory environment, macro-economic environment, etc., play a major role in determining the economic viability of running an airport. Hence, private players demand some level of guaranteed returns on the equity they invest.

This chapter begins with an overview of the regulatory practices followed for various international airports, with emphasis on the regulatory bodies' stance on the methodology for determining CoE for their jurisdictional airports. An initial assessment suggests that all airports advocate the use of the CAPM methodology to determine the CoE. The key factor that drives the CAPM-based CoE estimate is the estimate of (beta) risk in an airport. We rely on a standard procedure of identifying comparable airports that will be used to estimate the (beta) risk of Delhi airport. We measure the “comparability” of an international airport to Delhi airport in terms of a proximity score that accounts for differences in three key dimensions that characterize the functioning of airports:

- (i) Revenue till mechanism
- (ii) Ownership structure
- (iii) Operations metric.

This analysis allows us to shortlist the most proximate airports into a set of comparable airports. Further downstream in chapter 3, we use this set of “comparables” to estimate the underlying beta risk and leverage – crucial inputs for determining CoE.

We analyze recent trends in the capitalization structure and funding mechanisms of these comparable airports and examine their performance in the recent past. We document these trends vis-à-vis the corresponding trends in Delhi airport. This analysis helps us understand how other factors that are not explicitly accounted for in the CAPM methodology may provide guidance on the procedure of estimating the cost of equity of Delhi airport. While a few interesting trends emerge from our analysis, we conclude that there are no systematic conclusions that one can make regarding their impact on the cost of equity. More

importantly, it is likely the case that (beta) risk factor in the CAPM methodology implicitly accounts for these trends.

In additional analysis, we also examine the issue of realized returns to equity investors in airports using three approaches:

- (i) Calculate the internal rate of return based on book values.
- (ii) Evaluate the return implicit in a divestment transaction involving BIAL.
- (iii) Discuss trends in other infrastructure projects, for e.g. highway monetization using InVITs.

2.1. Airports' Economic Regulatory Framework Worldwide

In order to understand the regulatory framework across the world, we studied 12 countries' Regulatory Authorities regulating more than 25 airports. We documented the following:

- Till structure
- Methodology used to compute CoE
- Prescribed leverage
- Capitalization guidelines for airports

A detailed consolidation of the study is presented in Table R1. The following are the key takeaways:

- **Cost of Capital Methodology:**
 - None of the regulators mandate the use of CAPM as a method to estimate CoE but most airports use it as a standard.
 - Dublin (Ireland) has a loaded WACC computation methodology that includes additional factors like passenger pass-through time, load, baggage handling time, etc.
- **Extent of Private Participation:** Except for the United Kingdom, all regulators/governments mandate at least 10% holding in their airports.
- **Till Structure:** Most airports apart from Singapore and Brazil follow a single or a dual till mechanism. Singapore and Brazil follow a hybrid till.
- **Leverage (D/E ratio):** The regulators do not mandate or limit the operators to follow a specific leverage. The 5-year actual leverage based on shareholders' fund (SF) and paid-up equity (PE) is discussed in Table R1.

- Changi Airport, wholly owned by the government, has the lowest leverage using both SF and PE, i.e. 6.80% and 13.62%, respectively, across all the international airports discussed here.
- Heathrow Airport has the highest leverage using both SF and PE, i.e. 83.41% and 99.79%. This situation arose because nominal share capital was reduced by a factor of 10 and transferred to distributable reserves, which were paid to equity holders. This action resulted in lowering of equity and thereby abnormally high leverages.
- Malaysia Airport Holdings Berhad (Holding Company) and Airports of Thailand (Holding Company) use a debt and equity mix (SF 43.75% and PE 66.15%) that matches the average leverage across all the international airports discussed here.
- **Dividend Distribution:** There is no mandate by any of the regulators to pay out dividends.
 - Malaysia Airport Holdings (MAHB) has made it a policy as a company to declare 50% of its profits as dividends.
 - Airports of Thailand have a policy of paying at least 25% of its profits as dividends.

Given this understanding of the international regulatory scenario and capitalization structure, we next move on to understand various international airports' operation in terms of their funding mechanism and returns they make for their private investors. For this purpose, we first shortlist a set of international airports based on their proximity to DIAL in these features. Next, we document the methodology used for shortlisting these airports.

Table R1: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds / Book Debt to Paid-Up Equity Capital (5-Year Avg.) Col(5)	Norm for Share Ownership Structure Col(6)
1	Australia ¹¹	Australian Competition and Consumer Commission (ACCC)	Dual Till	Not mandated, but uses CAPM, by way of Building Block Methodology.	<ul style="list-style-type: none"> • Sydney – 72.00%/49.48% • Melbourne – 75.78%/95.96% 	<ul style="list-style-type: none"> • ACCC does not mandate • The top 21 holders (~91.20% holding) in Sydney do not include any of the government authorities.
2	New Zealand ¹²	Commerce Commission (CC)	Dual Till	<ul style="list-style-type: none"> • Not Mandated • The CC takes an expert opinion from NERA Economic Consulting (which uses CAPM) • CC computes WACC as per best available estimates, defining a range • The commission then compares it with post-tax IRR, a combination of target return for Aeronautical Pricing Activities and the forecast revenue of other regulated activities. • CC checks whether the IRR falls within WACC range as computed earlier and makes a decision on WACC with the help of substantial supportive information. 	<ul style="list-style-type: none"> • Auckland – 28.61%/81.33% 	<ul style="list-style-type: none"> • CC does not mandate • But in Auckland, ~45.19% of the total shares are publicly held and traded • Again ~22.15% of the shares are held by Auckland Municipal council
3	United Kingdom ¹³	Civil Aviation Authority (CAA)	Single Till	<ul style="list-style-type: none"> • Not Mandated • However, CAA uses CAPM 	<ul style="list-style-type: none"> • Heathrow – 83.41%/99.79% • Gatwick – 80.14%/82.79% 	<ul style="list-style-type: none"> • CAA does not mandate • 100% Shares of Heathrow Airport are held by a private parent company FGP Topco Ltd.

¹¹ <https://www.accc.gov.au/>

¹² <https://comcom.govt.nz/>

¹³ <https://www.caa.co.uk/home/>

Table R1: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds / Book Debt to Paid-Up Equity Capital (5-Year Avg.) Col(5)	Norm for Share Ownership Structure Col(6)
4	South Africa ¹⁴	No information available publicly	Single Till	<ul style="list-style-type: none"> Airport charges are regulated through the use of a price cap formula¹⁴ CPI-X, which limits the increase in a basket of revenue weighted tariffs to a rate of inflation (efficiency factor – X) The X-factor is determined by applying the building blocks methodology whereby each block of activities is identified, namely operating costs, depreciation, return on capital and taxation. 	Data Not Available	No mandated norm but South African government owns 74.6%
5	South Korea	No information available publicly.				
6	Malaysia ¹⁵	Malaysian Aviation Commission (MAVCOM - Primary Economic Regulator)	Single Till	<ul style="list-style-type: none"> Not Mandated MAVCOM uses CAPM to estimate cost of equity. 	Malaysia Airport Holdings Berhad (MAHB) – 43.75%/74.46%	Malaysia Airports owns a number of airports
7	Ireland ¹⁶	Commission for Aviation Regulation (CAR)	Single Till	<ul style="list-style-type: none"> Not mandated Uses CAPM to compute WACC with additional factors like load, baggage handling time, etc.¹⁶ 	Dublin Airport Authority PLC – 48.26%/84.75%	State ownership
8	Indonesia	No information available publicly.				

¹⁴ <http://www.airports.co.za/business/investor-relations/economic-regulation>

¹⁵ <https://www.mavcom.my/en/home/>

¹⁶ <http://www.aviationreg.ie/fileupload/2014final/2014%20Final%20Determination.pdf>

Table R1: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds / Book Debt to Paid-Up Equity Capital (5-Year Avg.) Col(5)	Norm for Share Ownership Structure Col(6)
9	Singapore ¹⁷	Civil Aviation Authority of Singapore	Hybrid Till (70–80%) ¹⁷	<p>CoE is computed as a sum of:</p> <ul style="list-style-type: none"> • Computed pre-tax weighted average cost of capital (WACC) on the average regulated asset base • Computed pre-tax WACC on the average security asset base not recovered 	Changi Airport Group – 6.80%/13.62%	Fully government owned
10	Netherland ¹⁸	Human Environment and Transport Inspectorate	Dual Till	Mandates use of WACC based on CAPM	Schipol Group – 34.52%/95.98%	PPP
12	Thailand ¹⁹	Civil Aviation Authority of Thailand	Dual Till	Not mandated but uses CAPM	Airports of Thailand – 20.90%/66.15%	70% mandatorily government owned
13	Brazil ²⁰	National Civil Aviation Agency (ANAC)	Hybrid Till	<ul style="list-style-type: none"> • Not Mandated • ANAC uses CAPM to estimate cost of equity. 	Data Not Available	PPP up to 60% observed

¹⁷ https://comcom.govt.nz/data/assets/pdf_file/0016/61090/IATA-IM-review-draft-decisions-cross-submission-18-August-2016.pdf as seen on 10 Mar 2019

¹⁸ <https://english.ilent.nl/>

¹⁹ <https://www.caat.or.th/en/>

²⁰ <http://www.anac.gov.br/en>

2.2. Comparable Airports (Comparable to DIAL)

To get a list of airports comparable to DIAL, we first listed all international airports in the 12 afore mentioned countries with at least 50% private ownership. Then, we assigned weights to each of these airports based on the following parameters.

Intuition of the Proximity Score

The Proximity Score provides a Euclidean distance measure of a benchmark airport (from the comparable set) relative to the airport under consideration (DIAL, in this case). The proximity score considers three dimensions of comparison: (i) till mechanism, (ii) ownership structure, and (iii) operational scale. By construction, the proximity score for DIAL would be 0, but the proximity score of the benchmark international airport in the comparable set would depend on how different it is with respect to DIAL, with a high score indicating a dissimilar airport and a low score indicating a more similar airport.

- Revenue till structure:
 - 1 – Single Till or where information is not available
 - 2 – Dual Till
 - 3 – Hybrid Till
- Ownership structure:
 - 1 – if 100% Government Owned/Funded
 - 2 – if Government / private owned/funded, not being Public Private Partnership
 - 3 – if Public Private Partnership Funded
- Operations Scale (OpS): For each comparable airport, k , we computed the ratios of passenger, cargo, and aircraft movement of these airports to that of DIAL in each of the years from 2015 to 2017. Note that all comparable airports are international airports. These ratios are based on past 3 years' data as available from the respective airports' websites/annual reports. Next, an equal weighted sum for these airports is

computed using average of the ratios under each category (passenger, cargo and air traffic) as per Equation 2.1²¹:

$$OpS_k = \sum_{i=2015}^{i=2017} \left(\frac{1}{3}\right) * R_{Pi} + \left(\frac{1}{3}\right) * R_{Ci} + \left(\frac{1}{3}\right) * R_{Ai}$$

Equation 2.1 – Operations Scale

where

OpS_k = Operations scale for comparable airport k

i = Year 2015, 2016 and 2017

R_{Pi} = Ratio of passengers of the comparable airport to that of Delhi airport,

Equation 2.2,

$$R_{Pi} = \frac{P_i}{P_D}$$

Equation 2.2 – Passenger Ratio

P_i = No. of passengers for the comparable international airport in year i

P_D = No. of passengers for DIAL in year i

R_{Ai} = Ratio of aircraft movements of the comparable airport to that of Delhi airport, Equation 2.3 – Air Traffic Ratio,

$$R_{Ai} = \frac{A_i}{A_D}$$

Equation 2.3 – Air Traffic Ratio

A_i = No. of aircraft movements for a comparable international airport in year i

A_D = No. of aircraft movements for DIAL in year i

²¹ By construction, the OpS score for DIAL with respect to DIAL (itself) would be 3. To see this, note that each of the ratios (R_{Pi} , R_{Ci} , R_{Ai} , for passenger, cargo and air traffic, respectively) for a given year would be equal to 1 by definition, and therefore an equally weighted average of these ratios must be equal to 1. Then, cumulating these numbers over the 3 years (2015 to 2017) would yield an OpS score of 3. If the OpS score for an international airport from the comparable set with respect to DIAL is 6, then we can conclude that the international airport's scale of operation is about twice (score of 6 divided by 3) of that of DIAL.

R_{Ci} = Ratio of cargo of the comparable airport to that of Delhi airport, Equation 2.4,

$$R_{Ci} = \frac{C_i}{C_D}$$

Equation 2.4 – Cargo Ratio

C_i = Total cargo movement in metric tonne for a comparable international airport in year i

C_D = Total cargo movement in metric tonne for DIAL in year i

- Finally, the proximity score for comparable airport, k , with respect to Delhi airport (D) is denoted by $PS_{k,D}$. It is the net Euclidean Distance from each of the parameters w.r.t. DIAL (Equation 2.5)

$$PS_{k,D} = \sqrt{(RT_D - RT_k)^2 + (OS_D - OS_k)^2 + (OpS_D - OpS_k)^2}$$

Equation 2.5 – Proximity Score w.r.t. DIAL

RT_D = Revenue Till Score of DIAL

RT_k = Revenue Till Score of comparable airport, k

OS_D = Ownership structure Score of DIAL

OS_k = Ownership structure Score of comparable airport, k

OpS_D = Equal Weighted Operations Scale of DIAL

OpS_k = Equal Weighted Operations Scale of comparable airport, k

Table 2.1 reports the scores of all airports considered with their weights w.r.t. DIAL. As observed, Incheon Airport is out of bounds w.r.t DIAL. We discard this in the final analyses.

Table 2.1: Proximity scores of different airports w.r.t DIAL

The table represents the difference between the scores for DIAL and the respective airport. The proximity score is defined as $PS_{k,D} = \sqrt{(RT_D - RT_k)^2 + (OS_D - OS_k)^2 + (OpS_D - OpS_k)^2}$, where RT stands for revenue till, OS is Ownership and Funding Mechanism and OpS is Operations. The subscripts D and k represent Delhi and the comparable airport, respectively. MAHB is the holding company of Kuala Lumpur Airport. AoT is the holding company of Bangkok Airport.

S. No.	Airport (Col 1)	Revenue Till ($RT_D - RT_k$) (Col 2)	Ownership Structure ($OS_D - OS_k$) (Col 3)	Operations ($OpS_D - OpS_k$) (Col 4)	Proximity Scores ($PS_{k,D}$) (Col 5)
	Delhi	0.00	0.00	0.00	0.0000
1	Sydney	1.00	1.00	0.84	1.6465
2	Melbourne	1.00	1.00	1.42	2.0016
3	Amsterdam	1.00	1.00	-1.49	2.0549
4	Changi	0.00	2.00	-1.43	2.4580
5	Gatwick	2.00	1.00	1.37	2.6222
6	Auckland	1.00	1.00	2.24	2.6477
7	Heathrow	2.00	1.00	-1.65	2.7791
8	Johannesburg	2.00	1.00	1.76	2.8428
9	MAHB	2.00	1.00	-2.29	3.2001
10	AoT	1.00	1.00	-2.97	3.2852
11	Dublin	2.00	2.00	1.83	3.3669
12	Incheon	2.00	2.00	-2.16	3.5585

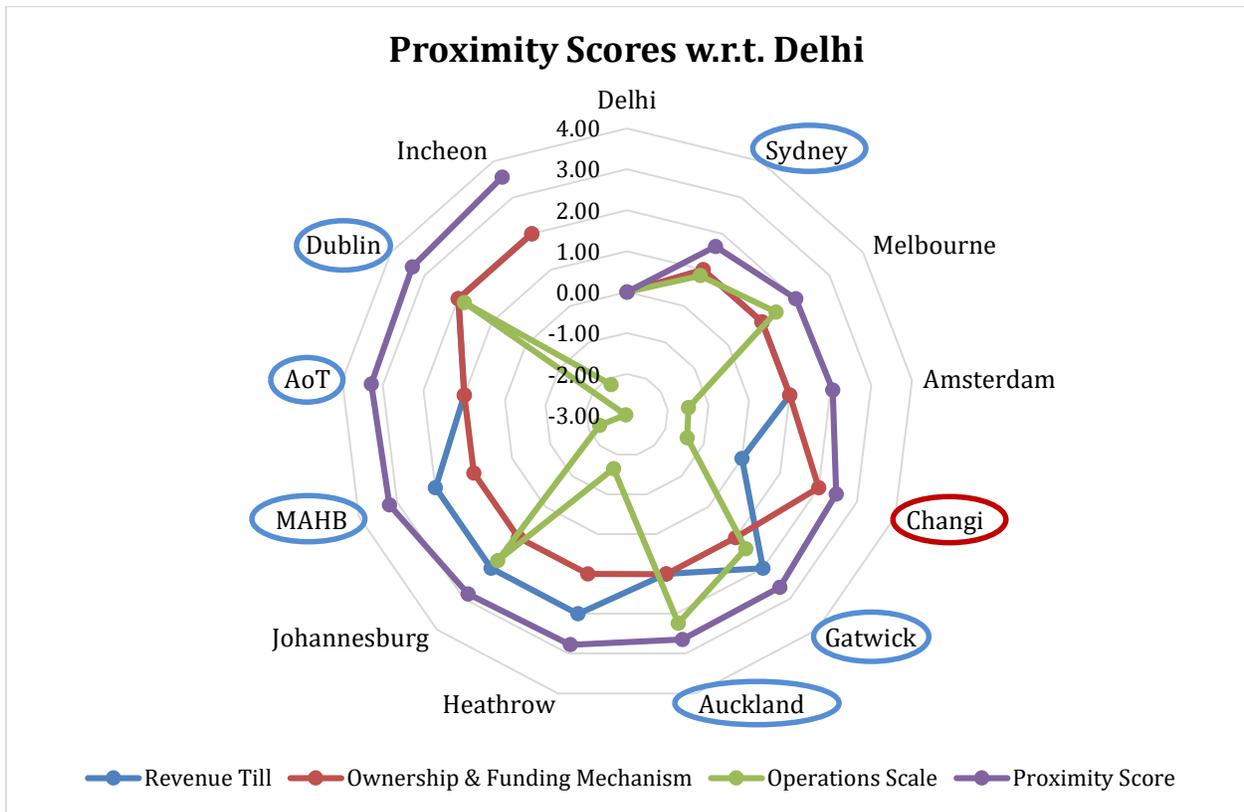
We deliberately avoided the US and Canadian airports as their administrative, operations and governance structure are significantly different from this set. Also, there is negligible government participation in these airports. The Brazilian airports are relatively new to the concept of privatization (~2011). Hence, we did not include airports from Brazil also.

We shortlisted 7 airports for a detailed study based on the overall proximity scores of these airports. The criterion for the shortlist was governed by the proximity score, data availability, and to ensure that we have a healthy mix of similarity and dissimilarity to compare as well as contrast. *Fig 2.1* map these airports w.r.t. DIAL on a radar. The radar sweeps in the clockwise direction, with the proximity score spiraling outwards, establishing the proximity to DIAL. Hence, Sydney would be closest to both DIAL while Incheon would be the farthest in terms of score. The scores range from ~1.6465 for Sydney to ~3.5585 for Incheon. The lower the score, the nearer the airport is w.r.t. DIAL.

Heathrow and Melbourne were excluded from the list to avoid geographical clustering (giving preference to Sydney and Gatwick, respectively, because of their proximity to DIAL). In short, if two airports in the comparable set are from the same region (e.g., Sydney and Melbourne are both in Australia), we picked Sydney because the airport is “closer” to DIAL based on the proximity score. We also dropped the less similar airport (Melbourne) from the same region. Also, lack of comprehensive data made us exclude Amsterdam airport, Incheon airport and Johannesburg Airport.

Fig 2.1: Airport Proximity Scores w.r.t. Delhi

The chart depicts the scores of various parameters (Revenue Till, Ownership Structure, Operations and the Overall Proximity Score) of various international airports w.r.t. DIAL. All scores originate at DIAL (all scores are 0 here). As one sweeps clockwise, the Proximity Score moves away from Delhi, thus making Sydney the nearest airport to Delhi and Incheon the farthest. Negative scores are possible only for Operations score. Melbourne and Heathrow airports were excluded to avoid geographical clustering (giving preference to Sydney and Gatwick, respectively). The 6 airports (Sydney, Gatwick, Auckland, MAHB, AoT and Dublin) encircled in *blue* and 1 airport (Changi) encircled in *red* are used for comparative study vis-à-vis DIAL (sec 2.2). The airports encircled in *blue* (Sydney, Gatwick, Auckland, MAHB, AoT and Dublin) are used for asset beta computation of DIAL as discussed in chapter 3 (sec 3.2.1). MAHB is the holding company of Kuala Lumpur Airport. AoT is the holding company of Bangkok Airport.



Data Sources: Individual airports' website; balance sheets and regulators' website.

Recommendation (Comparable Set of International Airports for DIAL)

- *Note that different sets of international airports may form the comparable set depending on the question being asked and the availability of data regarding this question for the comparable airport.*
- *For the comparative study vis-à-vis DIAL (sec 2.2), the comparable set consists of 7 airports: Sydney, MAHB, AoT, Auckland, Gatwick, Dublin and Changi. For asset beta computations, the comparable set consists of Sydney, Auckland, Gatwick, Dublin, AoT and MAHB.*

We next analyze these airports vis-à-vis DIAL for its capitalization structure, funding mechanism and investors' returns.

2.2.1. Capitalization and Ownership Structure

Heathrow is 100% privately owned by Heathrow Airport Holdings Limited with no government stake. The erstwhile government entity of British Airports Authority (BAA) was privatized in 1987 and raised capital through the open market. It also constituted a part of FTSE 100 with peak operating profits of GBP 11 million in the mid-1990s. It was delisted in 2006 following a takeover by a consortium of operators led by Spanish MNC, Ferrovial, S.A. This consortium currently operates Heathrow. Its current ownership structure is shown in

Table 2.2.²²

The Gatwick airport was also originally part of BAA and then Ferrovial, S.A. However, recently, they sold their entire stake to a group led by the Global Infrastructure Partners. Table 2.3 shows the current pattern.

²² <https://www.heathrow.com/company/company-news-and-information/company-information> as viewed on 17 Feb 2019

Table 2.2: Ownership structure of Heathrow Airport

Shareholders (Col 1)	Share (Col 2)
Ferrovial	25.00%
Qatar Holding	20.00%
Caisse de dépôt et placement du Québec	12.62%
Government of Singapore Investment Corporation	11.20%
Alinda Capital	11.18%
China Investment Corporation	10.00%
Universities Superannuation Scheme	10.00%
Total	100.00%

Source: <https://www.heathrow.com/company/company-news-and-information/company-information>

Table 2.3: Ownership structure of Gatwick Airport

Shareholders (Col 1)	Share (Col 2)
Global Infrastructure Partners	41.95%
Abu Dhabi Investment Authority	15.90%
California Public Employees' Retirement System	12.78%
National Pension Service of Korea	12.14%
Future Fund Board of Guardians	17.23%
Total	100.00%

Source:

https://www.gatwickairport.com/globalassets/documents/business_and_community/investor_relations/yearend-june2018/gatwick-airport-limited-financial-statements-31-march-2018---final-signed-v2.pdf

Sydney and Auckland are publicly listed companies with the ownership structure as depicted in Table 2.4 and Table 2.5, respectively.

Table 2.4: Ownership structure of Sydney Airport

Shareholders (Col 1)	Share (Col 2)
HSBC Custody Nominees (Australia) Limited	22.75%
BNP Paribas Nominees Pty Ltd	18.21%
J P Morgan Nominees Australia Limited	17.95%
Citicorp Nominees Pty Limited	5.42%
Balance Retail Holdings	35.67%
Total	100.00%

Source:

https://assets.ctfassets.net/v228i5y5k0x4/7gQkThyOPKmwAycmQIOmOc/37f1710697644fe2fd8c1ca6790ad7dc/2017_Sydney_Airport_Annual_Report.pdf

Table 2.5: Ownership structure of Auckland Airport

Shareholders (Col 1)	Share (Col 2)
Auckland Council Investments Limited	22.15%
New Zealand Central Securities Depository Limited	45.19%
Balance Retail Holdings	32.66%
Total	100.00%

Source:

<https://corporate.aucklandairport.co.nz/investors/results-and-reports>

The two major international airports at Bangkok (Suvarnabhumi Airport and Don Mueang) are owned and operated by a holding company, Airports of Thailand Public Company Limited (AoT). This holding company is a government-owned publicly listed company.²³ Totally, 70% of the ownership is held by the state's Finance Ministry with foreign ownership capped at 30%, other major shareholders include Thai NVDR Company Limited (4.49%), South East Asia UK (Type C) Nominees Limited (2.76%) and State Street Europe Limited (1.67%).

²³ www.airportthai.co.th as viewed on 18 Feb 2019

The Kuala Lumpur airport manages on very similar lines of Bangkok by Malaysia Airport Holdings Berhad (MAHB), a holding company, in Table 2.6.

Table 2.6: Ownership structure of Malaysia Airport Holdings Berhad (MAHB)

Shareholders (Col 1)	Share (Col 2)
Khazanah Nasional Berhad	33.21%
Citigroup Nominees (Tempatan) Son Berhad (Employees Provident Fund Board)	10.06%
Balance Retail Holdings	32.66%
Total	100.00%

Source:

<http://mahb.listedcompany.com/misc/ar/ar2017.pdf>

The Changi airport and Dublin airport are fully state-owned airports, through subsidiary companies.

As of 2017-18 fiscal year, DIAL was held by a consortium led by the GMR group of companies. The Indian government (state/central or their subsidiary) has a 26% stake in each of these. The shareholding patterns (**as per fiscal year 2017-18 annual reports**) of the four (4) major Indian private airports (Delhi, Mumbai, Bangalore and Hyderabad) are provided in Table 2.7 through Table 2.10.

Table 2.7: Ownership structure of Delhi International Airport Ltd. (DIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	26.00%
GMR Airports Limited	64.00%
Fraport AG Frankfurt Airport Services Worldwide	10.00%
Total	100.00%

Source: Annual Report of DIAL 2017-18

Table 2.8: Ownership structure of Mumbai International Airport Ltd. (MIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	26.00%
GVK Airport Holdings Limited	50.50%
Bid Services Division (Mauritius) Limited	13.50%
ACSA Global Ltd.	10.00%
Total	100.00%

Source: Annual Report of MIAL 2017-18

Table 2.9: Ownership structure of Bangalore International Airport Ltd. (BIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	13.00%
Karnataka State Industrial and Infrastructure Development Corporation Limited (KSIIDC)	13.00%
Siemens Project Ventures GmbH	26.00%
FIH Mauritius Investments Limited	48.00%
Total	100.00%

Source: Annual Report of BIAL 2017-18

Table 2.10: Ownership structure of Hyderabad International Airport Ltd. (HIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	13.00%
Hon'ble Governor of Telangana	13.00%
MAHB (Mauritius) Private Limited	11.00%
GMR Airports Limited	63.00%
Total	100.00%

Source: Annual Report of HIAL 2017-18

2.2.2. Funding Mechanism

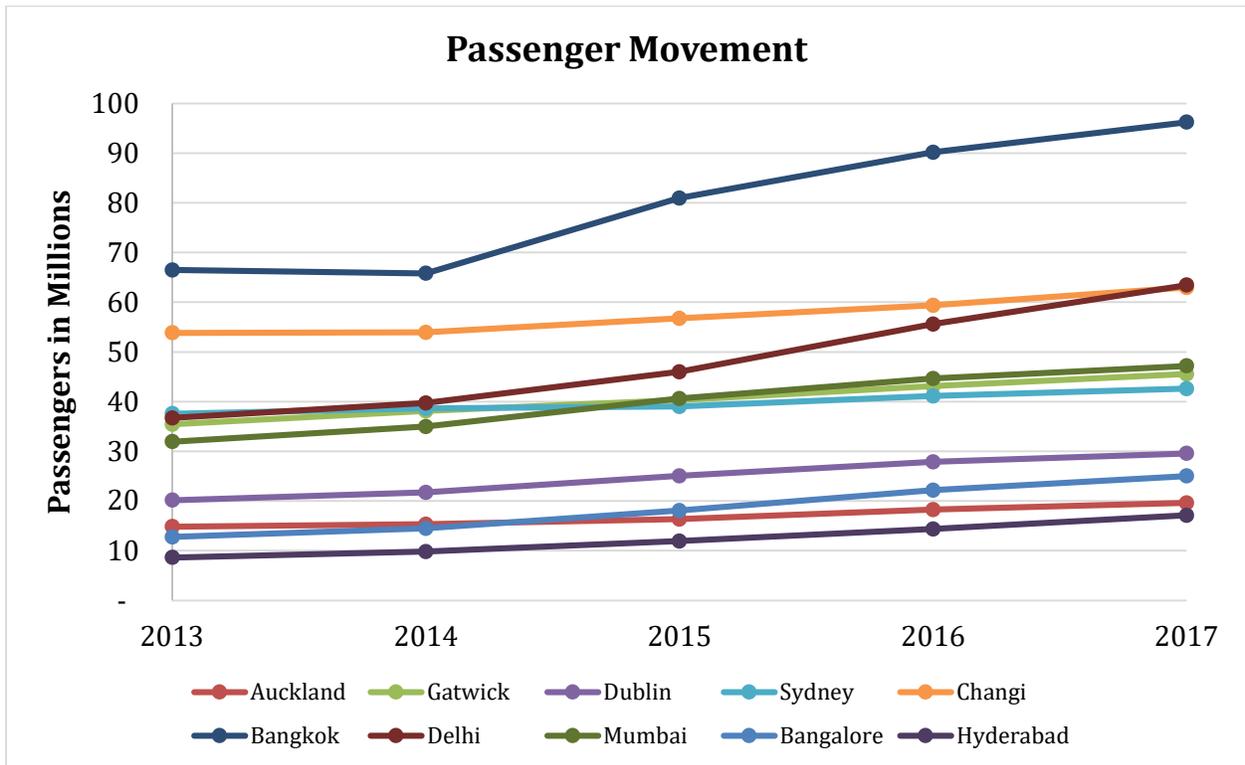
A balance sheet analysis of the comparable set of airports suggests that they are mostly in a mature phase with little CAPEX requirement. Most of their funding requirement of the set of comparable firms is due to OPEX. This requirement is met from their operational revenues. In the case of listed firms, additional options are available to raise capital. As highlighted in Table 2.4 and Table 2.5, the Asset Management Companies (AMCs) and pension funds are a major shareholder in Australia and New Zealand. In the case of Malaysia and Thailand, the holding company is listed. Unlike Indian private players who are in the general infrastructure space, these companies are exclusively in the airports' sector.

2.2.3. Trends in Airports Operations'

Fig 2.3 – Fig. 2.6 show the recent trends of passenger movement, total revenue, revenue/passenger and Earnings After Tax (EAT) for all airports. As seen from these charts, all parameters indicate a healthy state, with the following key takeaways:

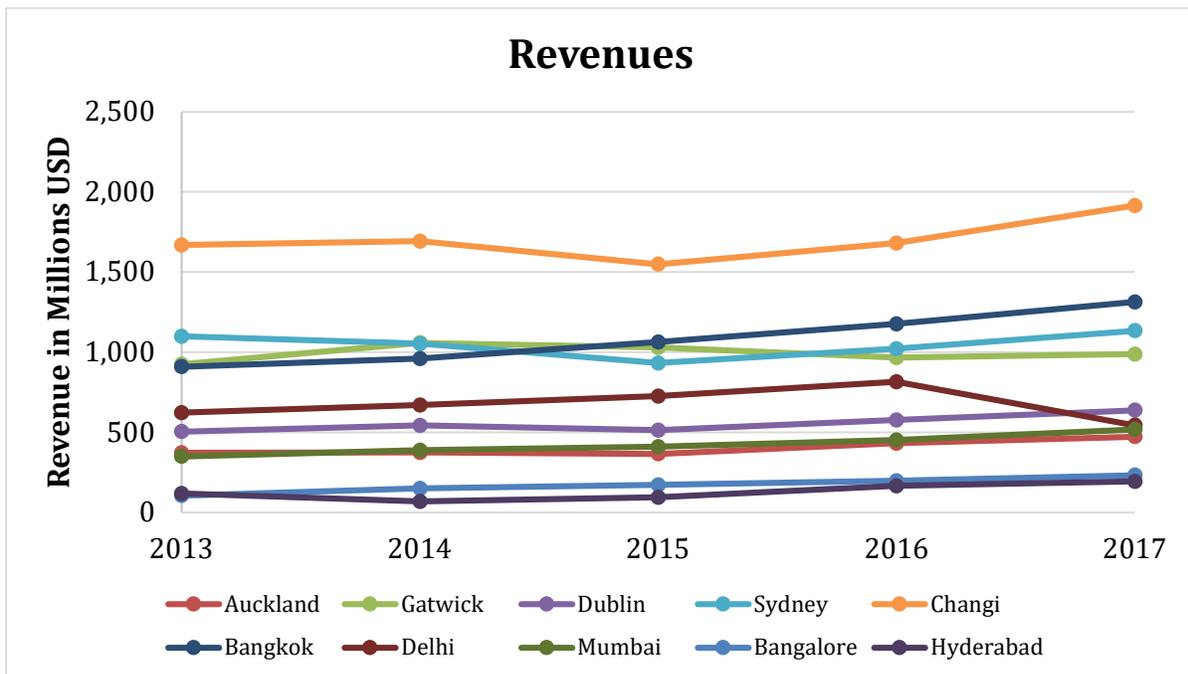
- All airports have experienced a steady growth in passenger volumes (Fig 2.3) over the period of 5 years. Further, some airports such as, Bangkok and Delhi have outdone others in this respect.
- Revenue trends are also in sync with passenger trends (Fig 2.4) except for Delhi (2017) and Hyderabad (2013).
- Earnings After Taxes (EAT) have also been on an upward trajectory except for Changi airport – Fig 2.6.

Fig 2.2: Passenger Movement Trends



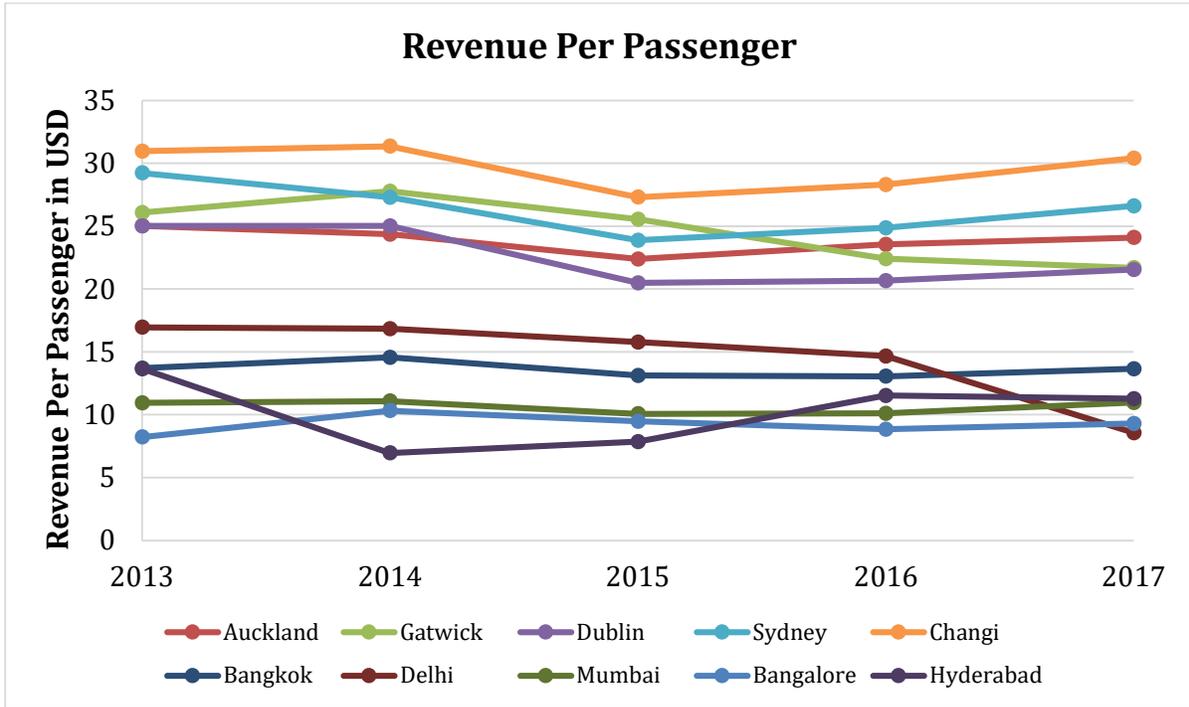
Data Source: Passenger and traffic statistics published by the respective airports' official website for international airports and the Airports' Authority of India's website for Indian airports

Fig 2.3: Revenue Trends



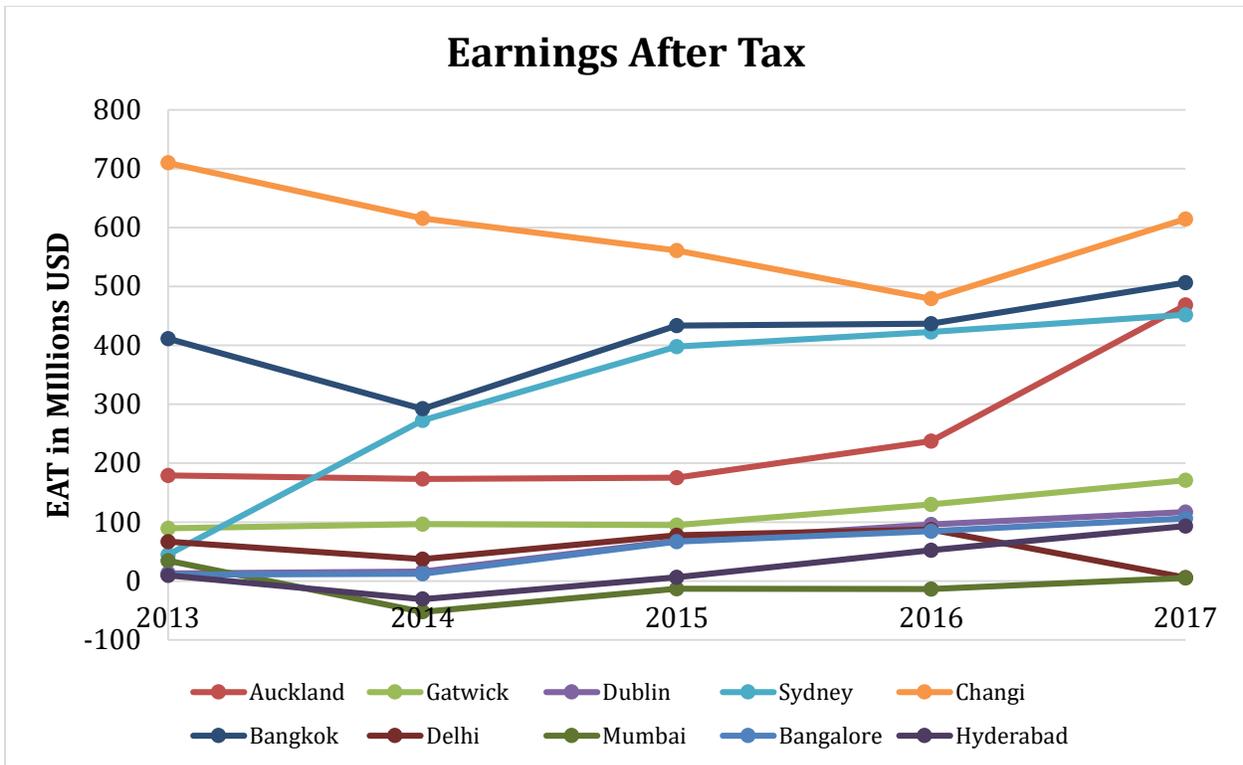
Data Source: Balance sheets of the respective airports

Fig 2.4: Revenue Per Passenger Trends



Data Source: Balance sheets and passenger movement data from official websites

Fig 2.5: Earnings after Tax Trends



Data Source: Balance sheets of the respective airports

Given these insights, we now try to draw some lessons for the Indian airports. We tried to establish a correlation between EAT vs. revenue per passenger. The hypothesis is, with an increase in passenger movement and EAT, revenue per passenger should be fairly stable or decrease. In other words, if traffic as well as EAT is healthy, the total airport charges per passenger should be constant or decrease because there is room for lowering tariffs and airports being public services are under various forms of explicit or implicit public scrutiny. Table 2.11 presents this scenario for our comparable set of airports and Table 2.12 presents this scenario for Indian airports.

Table 2.11 : Relationship between Revenue Per Passenger vs. EAT (Comparable Set)

[In this table, we try to test the following hypothesis: Does increase in passenger movement and EAT stabilize the Revenue per Passenger? This seems to be true for the comparables' set.]

Airport (Col 1)	EAT Trend (Col 2)	Passenger Movement Trend (Col 3)	Revenue Per Passenger Trend (Col 4)	Correlation Coeff. (Col 5)
Auckland	↑	↑	↔	0.9908
Sydney	↑	↑	↔	0.7234
AoT*	↑	↑	↔	0.1352
Singapore	↓	↑	↔	0.3149
Gatwick	↑	↑	↔	0.6333
Dublin	↑	↑	↔	0.0857

Data Source: Balance sheets and official website of individual websites

*Includes only passenger data, revenue data and earnings after tax data, for Bangkok and Don Mueang Airports only, not the holding company, Airports of Thailand as a whole.

Table 2.12: Relationship between Revenue per passenger vs. EAT (Indian Airports)

[In this table, we try to test the following hypothesis: Does increase in passenger movement and EAT stabilize the Revenue per Passenger? This seems to be true for the comparables' set (Table 2.11). It is not so for Indian airports.]

Airport (Col 1)	EAT Trend (Col 2)	Passenger Movement Trend (Col 3)	Revenue Per Passenger Trend (Col 4)	Correlation Coeff. (Col 5)
Delhi	↑	↑	↓	0.7528
Mumbai	↑	↑	↑	0.1122
Hyderabad	↑	↑	↑	0.6237
Bangalore	↑	↑	↑	0.3218

Data Source: Balance sheets and AAI's official website

As can be seen from Table 2.11, the hypothesis holds true for the comparables' set of airports, while not so for all the Indian airports. A plausible explanation is that the Indian airports are still in a maturing phase while the comparables' set has matured. This trend in Indian airports may probably see a reversal in medium to long term.

Next, we studied the returns that investors in these airports have earned over the past 5 years (2013–17). For this, we take the approach of computing the Internal Rate of Return (IRR) for all the airports. Internal Rate of Return (IRR) is the compounded annual rate of return that the investor earns annually for his investment over a given period.²⁴ Fig 2.6 shows the results. The key takeaways are as follows:

1. Auckland and Sydney being listed companies with pension and long-term mutual funds, show the way forward for good airport funding and management. The healthy IRR suggests access to long-term funds can ease pressure on OPEX. Furthermore, any future plans for expansion can be envisaged with lower rates for CAPEX and lower Cost of Debt (CoD).
2. Airports of Thailand: The Regulator does not mandate any dividend distribution. However, AoT as a company has a policy to pay out at least 25% of total profits as

²⁴ <https://corporatefinanceinstitute.com/resources/knowledge/finance/internal-rate-return-irr/> as viewed on 6 Mar 2019

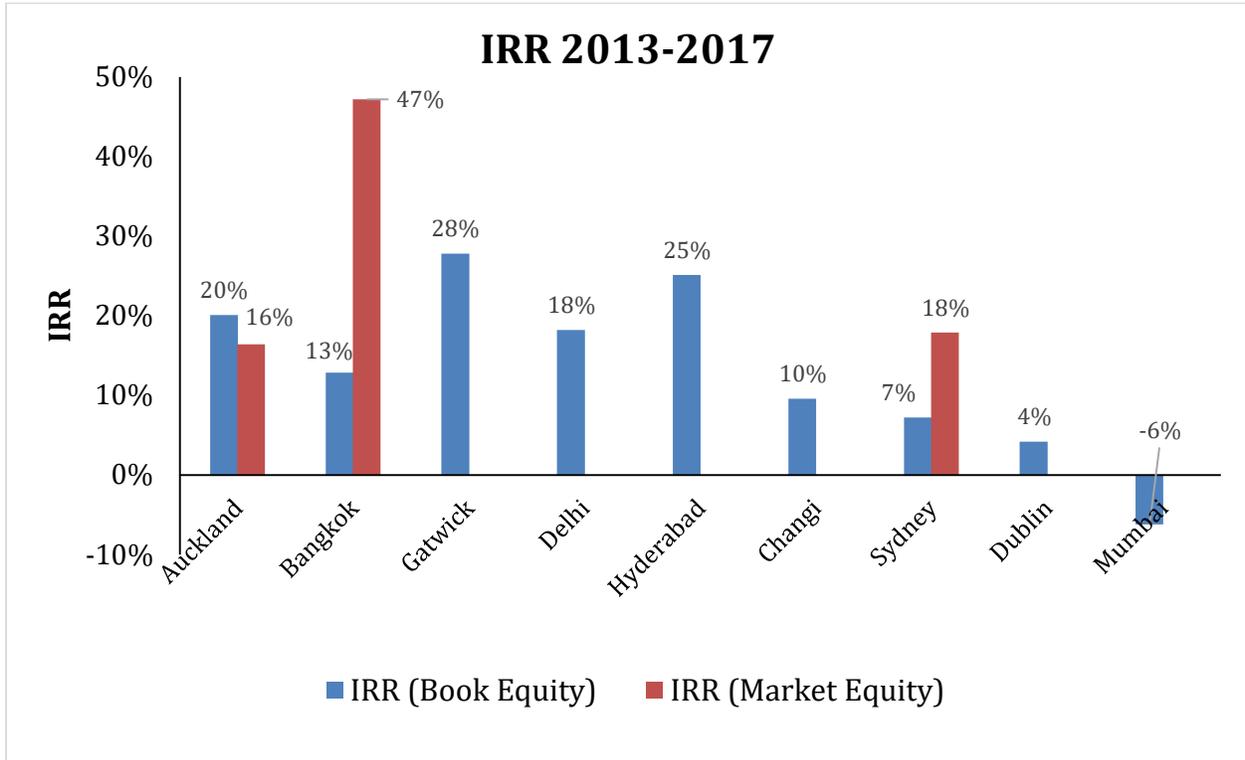
dividend.²⁵ On average, they have paid USD 197.26 million in the past 5 years and have the highest IRR in the group.

3. In case of Dublin, as per National Aviation Policy 2015, it is stated that profitable commercial state companies should pay financial dividend to the state; the guideline figure is 30% of profit after tax. Dublin has been gradually earning profits and dividend has been paid from the year 2015 onwards. However, a low IRR of 4% is due to losses incurred before 2015.
4. Even in the Indian airports, AERA does not mandate dividend payments; however, airports have recently started paying out dividends to their investors. Apart from MIAL, all others (BIAL, HIAL and DIAL) have been consistently profitable over the 5 years. However, the BIAL and HIAL have declared dividends in the past 2 years, while DIAL has declared only in 2017-18. MIAL has consistently seen losses in the first four years and is yet to declare dividends.

²⁵ <http://investor.airportthai.co.th/dividend.html> as seen on 1 Mar 2019

Fig 2.6: Past 5 years' IRR based on Book and Equity Returns

Internal Rate of Return (IRR) is the compounded annual rate of return that the investor earns annually for his investment over a given period of time²⁴. We computed the IRR based on book equity and their market capitalization (wherever applicable). The book equity method considers beginning equity, all dividends accrued (2013–2017) and ending equity (including retained earnings). The IRR based on market equity is the annualized market return based on market prices (including dividends for 2013–2017).



Data Source: Respective balance sheets of individual airports and Bloomberg for market data

2.2.4. Operators' Returns: A Case of BIAL Divestment

In the FY 2009-2010, Bangalore Airport & Infrastructure Developers Private Limited (BIADPL), a fully owned subsidiary of GVK Power & Infrastructure Limited, purchased a stake of 43% from Flughafen Zurich AG, Switzerland and L&T Infrastructure Development Projects Limited at a cost of INR 1,173.107 Crores. Again, during FY 2011-2012 BIADPL infused a further capital of INR 613.820 Crores. However, for strategic reasons, they offloaded 33% of their stake for a consideration of 2,202 Crores to Fairfax India Holdings Corporation (FHC). Then, in FY 2017-18, they completed the exit by selling off their remaining stake of 10% at 1,290 Crore. During their holding period, they also received a dividend of INR 16.54 Crores in the year 2016-2017. The net profit turns out to be ~95% or INR 1,783 Crores over 9 years. We performed an annual Internal Rate of Return (IRR)²⁴

analysis to understand the real returns accrued to BIADPL. Table 2.13 details the working of the same.

Table 2.13: IRR computation for BIAL divestment (All amounts in INR Crore)

	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Investments	(1,173)		(614)	0	0	0	0	0	0
Dividend	0	0	0	0	0	0	0	166	0
Sale proceeds	0	0	0	0	0	0	0	2,2017	1,290
Cash flows for IRR	(1,173)	0	(614)	0	0	0	0	2,2183	1,290
	IRR								10.57%

Data Source: Balance Sheets of BIAL and GVK from 2009 – 2018

As observed from Table 2.13, the net IRR is 10.57% per annum for the given holding period of 9 years from 2009-'18. This appears to be quite close to the AERA recommended return for the control period 2016–21, viz. ~11.33%, but lower than BIAL's submission of 17%.²⁶

2.3. Determinants of CoE used in the Comparables' Set

As we saw in section 2.1, although none of the regulators mandate the CAPM methodology, all the airport operators use the CAPM to determine the Cost of Equity. We know that the risk-free rate and ERPs in the CAPM equation (Equation 1.1) are macro-economic in nature, but the key in CoE determination is the equity beta. Regulators of Auckland airport, Heathrow airport, Gatwick airport and Dublin airport state the betas that they use in their CoE computations. Table 2.14 – Table 2.17 show the asset and equity betas for different control periods used in Heathrow, Gatwick, Dublin and Auckland across control periods.

²⁶ AERA Consultation Paper No. 05/ 2018-19 from file: AERA/20010/MYTP/BIAL/CP-II/2016-17/Vol-III

Table 2.14: Auckland Regulator Betas

Auckland					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
Commerce Commission	July 2008 - June 2012	0.68	1.08	0.50	0.70
Commerce Commission	July 2013 - June 2017	0.89		0.60	
Commerce Commission	July 2017 - June 2022	1.10	0.74	0.70	0.60

Data Source: Final Report - Auckland International Airport's Pricing Decisions (July 2017 – June 2022), dated 01 November 2018, ISBN No. 978-1-869456-65-8

<https://comcom.govt.nz/regulated-industries/airports/projects/review-of-price-setting-event-3#projecttab>

Table 2.15: Heathrow Regulator Betas

Heathrow					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
Civil Aviation Authority	April 2008 - March 2013	0.90	1.15	0.56	
Civil Aviation Authority	April 2014 - December 2019	1.10		0.50	
NERA Estimated	January 2020 - December 2024	1.30	1.40	0.55	0.60

Data Source: Economic Regulation of Heathrow and Gatwick Airports (2014-2019), February 2014

<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=6074>

Table 2.16: Gatwick Regulator Betas

Gatwick					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
Civil Aviation Authority	April 2008 - March 2013	1.00	1.30	0.80	
Civil Aviation Authority	April 2014 - December 2019	1.13		0.56	

Data Source: Economic Regulation of Heathrow and Gatwick Airports (2014-2019), February 2014
<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=6074>

Table 2.17: Dublin Regulator Betas

Dublin					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
NERA Estimated	2006 - 2009	1.40		0.70	
NERA Estimated	2010 - 2014	1.20	1.40	0.60	0.70
Commission of Aviation Regulation	2015 - 2019	-	-	0.50	0.60

Data Source: Maximum Level of Airport Charges at Dublin Airport, dated 07 October 2014
<https://www.aviationreg.ie/fileupload/2014final/2014%20Final%20Determination.pdf>
<https://www.nera.com/content/dam/nera/publications/2009/the-cost-of-capital-for-dublin-airport.pdf>

Dublin airport uses a complicated model based on operational metrics/ad hoc assumptions to make marginal adjustments to betas. This is perhaps fair for the case given that:

- It is a fully government-owned enterprise.
- It experiences volatility in passenger movement through different seasons. Hence, it may be justified.

This approach, however, cannot be used as a use case for India for two reasons. Firstly, DIAL is part of a consortium with large private ownership. Secondly, the demand is quite inelastic and non-volatile, as will be showcased in the next section.

2.4. Sensitivity of Betas – Indian Scenario

Betas used in the CoE computation essentially capture the “riskiness” of the asset at hand. What are the real risks? From a CAPM perspective, the real risk is the demand risk, which governs beta estimates. All markets highlighted from Table 2.14 to Table 2.17 are mature and mostly saturated. So, the betas are essentially measuring the true demand risk in these countries. What is the demand risk in India? In order to understand this, we analyzed the month-on-month passenger growth rate. Further, we regressed this growth rate as a function of monthly stock returns for DIAL. The passenger growth rate can be viewed as a proxy for demand risk. The stock return captures external economic conditions. Essentially, what would happen should the external market conditions significantly change? A high value of the slope would indicate high risk and vice-versa. We found very low regression coefficients (~ 0.3), thus establishing that the demand in India is inelastic and highly constrained by supply. Appendix 3 details the methodology and results of this analysis.

2.5. Prevalent Trends in other Infrastructure Space

Securities and Exchange Board of India (SEBI) framed guidelines to set up the Infrastructure Investment Trust or InVITs similar to REITs. The structure of the same is showcased in Fig 2.8.

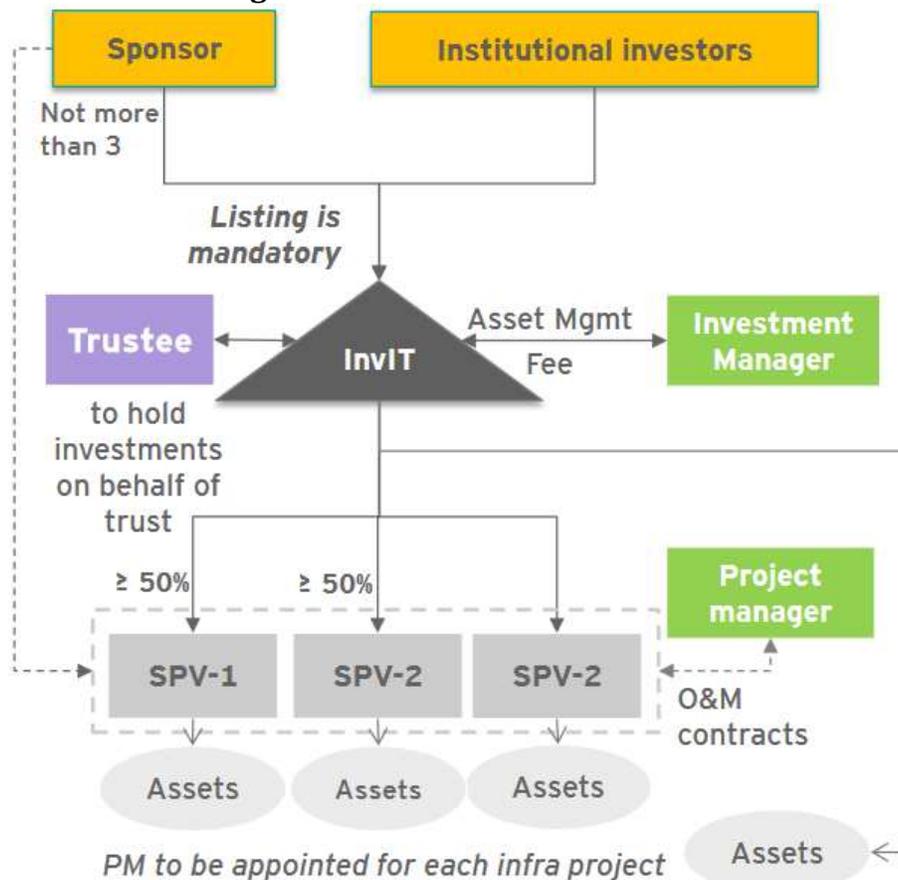
Essentially, these InVITs function as a mutual fund, enabling direct investment of possible individual/institutional investors in infrastructure to a portion of the income as return. As per the regulations, completed and revenue generating projects in PPP mode are eligible to be securitized through this procedure. A number of projects in the roads and power sector are part of InVITs.

As of 2018, a prominent InVITs in the road space was IRB InVIT Fund sponsored and managed by IDBI. This had an income of 5,157 Cr. with 13 road projects. Another prominent

InVIT in the power sector was IndiGrid sponsored and managed by the Sterlite group. This had an income of 406 Cr with 6 project SPVs.

From the AERA perspective, this financing alternative could be one of the serious options to consider for raising capital and thus lowering the CoE. This approach especially takes importance given the number of new airports coming up for privatization.

Fig 2.7: Framework for InVITs²⁷



Source: <https://www.ey.com/Publication/vwLUAssets/EY-infrastructure-investment-trusts-invite/%24FILE/EY-infrastructure-investment-trusts.pdf>

²⁷ <https://www.ey.com/Publication/vwLUAssets/EY-infrastructure-investment-trusts-invite/%24FILE/EY-infrastructure-investment-trusts.pdf> as viewed on 27 Feb 2019

2.6. Conclusion

In this chapter, we saw the regulatory framework of various airport regulators across the world with a focus on CoE. The key takeaways are as follows:

- All of them use CAPM as a method to estimate CoE but none mandate it.
 - Only Dublin uses a complicated model based on operational metrics/ad hoc assumptions
- D/E ratios are not mandated, however, the actual D/E ratios using shareholders' fund and paid-up equity range from 43.75% to 81.33%.

Next, we identified airports that were closest to DIAL w.r.t. operations, ownership structure and till. Then, we studied these comparable airports for any lessons for Indian airports in general, and DIAL. A valuable lesson to be drawn is that CAPEX requirements can be addressed through the open market route. Also, we concluded that while other airports are in a mature or saturated phase, Indian airports are still in a growth phase with high potential. Furthermore, this argument is strengthened by the demand analyses of Indian airports. Also, we looked at other sectors like road and power and how InVITs is helping cash flows.

Given we have now identified our comparables' set, we are all set to go ahead with CoE estimation for DIAL. As we have established the distance of these airports, we evolve methodologies to impute the betas for DIAL. The next chapter is devoted to establishing these estimates and determining CoE and providing an illustrative example for FRoR computation.

Chapter 3 – Determination of Cost of Equity and Fair Rate of Return

Airport regulators world over use the Capital Asset Pricing Model (CAPM) to estimate the Cost of Equity (CoE) for their private operators. Further, these costs are estimated in blocks of time period keeping in mind the current macro-economic realities as well as operational requirements. This is true of AERA as well. It is done for 5 years “Control Periods”. The current control period ends in 2019 and the next 5 years’ control period is from April 2019 – Mar 2024 for DIAL. In this chapter, we estimate the CoE and provide an illustrative example of FRoR computation for DIAL. As highlighted in chapter 2, we identified 7 international airports that were very similar to DIAL in terms of their operations, funding mechanism and till structures and studied them in detail. Further, we also highlighted the pertinent lessons for Indian airport operators and regulators therein.

First, we revisit the CAPM methodology and state the assumptions and the relevance therein. Next, we elaborate on the process of elucidating the individual components of CoE, viz., Betas (assets as well as equity), risk-free rate and the Equity Risk Premium (ERP). Finally, we provide an illustrative example of the CoD and FRoR computation.

3.1. Capital Asset Pricing Model

The Capital Asset Pricing Model was developed in the 1960s by Sharpe²⁸ (1964) and Lintner (1965).²⁹ It can be used to estimate a project’s cost of capital, which is the expected rate demanded by potential investors. The cost of capital is used to assess the value of risky cash flows from investment projects made by businesses. According to the CAPM, the project’s cost of capital is linearly related to a measure of project risk (known as Beta), which essentially captures the sensitivity of the project’s cash flows to the state of the economy. The greater is the sensitivity, the greater is the risk faced by potential investors and the greater is the expected return of these investors, or the cost of capital. Thus, estimating the

²⁸ Sharpe, William F. 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance* 19 (September): 425–42.

²⁹ Lintner, John. 1965. The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics* 47 (February): 13–37.

beta of the project is required to estimate the cost of capital. Equation 1.1 (**highlighted below**) is used to compute the Cost of Equity (CoE).

$$CoE = R_f + \beta_E (R_M - R_f),$$

where

CoE = Cost of Equity

R_f = Risk-free rate.

$R_M - R_f$ = Equity Risk Premium (ERP).

β_E = Equity beta.

Assumptions

- Homogeneous expectations (distinguishes from portfolio theory)
- Quadratic utility or multivariate normality of returns
- Rational, risk-averse investors
- Perfect capital markets
- Unrestricted short selling
- Borrowing and lending at the riskless rate

Relevance of CAPM

The empirical validity of the CAPM has been debated by academics and researchers.^{30,31} However, it is by far the most widely accepted by business practitioners to determine the cost of capital.

³⁰ Fama, Eugene F., and French, Kenneth R.; 1992. The cross-section of expected stock returns. *Journal of Finance* 47 (June): 427–65.

³¹ Jagannathan, Ravi, and Wang, Zhenyu. 1993. The CAPM is alive and well. Research Department Staff Report 165. Federal Reserve Bank of Minneapolis

Discussion Summary on Estimation Approach

- *While the CAPM is a theoretical model based on assumptions that do not necessarily hold in the real world, its simplicity and intuitive appeal have made it the on-going favorite model for determining cost of equity in any market-based economy. Our procedures for determining Cost of Equity using the Capital Asset Pricing Model are consistent with the best practices adopted by international airport regulatory authorities and by regulatory authorities across the world in a wide range of utilities (Table R1, Ch. 2).*
- *In particular, the CAPM says that the cost of equity should be related to fundamental risk, as measured by correlation with the market portfolio, and more importantly, points out that idiosyncratic difference in firms should NOT affect the cost of equity because investors in a market-based economy hold portfolios rather than individual assets and thus are able to diversify away the idiosyncratic risk exposure. In short, idiosyncratic factors can be ignored.*
- *Given the conceptual underpinnings of CAPM (as pointed out above), the standard approach is to find a comparable set of firms and impute a cost of capital based on the cost of capital for a comparable set of firms. We account for idiosyncratic differences between the comparable set of firms and DIAL in the computation of cost of capital for DIAL. More specifically, our approach accounts for differences in financial leverage, operational scale, revenue till arrangement, and ownership structure. In summary, we use a procedure that is consistent with the application of the CAPM but still accounts for idiosyncratic differences. Our approach is also unique in that it is driven by actual data considerations rather than plausible motivations for drivers of cost of equity.*

3.2. Methodology for CoE Estimation

As seen in section 3.1, we need three components to estimate the CoE using CAPM. These components are the risk-free rate (R_f), equity beta and the equity risk premium (ERP). R_f and ERP are mostly macro-economic in nature and thus one can rely on time-series data to estimate these variables. However, determining the equity beta is the more challenging, especially for unlisted companies such as DIAL. As will be discussed in section 3.2.1, we overcome this issue by using a set of comparable airports. We use the R_f that is available from public sources and have our own estimates for ERP (study by Anshuman, Biswas, Jain and Sharma, 2019).³² This estimated value of ERP is comparable to Damodaran's⁵ estimates. For the Cost of Debt (CoD), we use the ratings agencies' ratings for DIAL and estimate the Cost of Debt (CoD) for DIAL.

3.2.1. Methodology Summary

Now that we have the Comparables' Airports Set and computed their respective Proximity Distance Scores w.r.t. DIAL (sec 2.2), we can now move on to estimating the Cost of Equity (CoE) and providing an illustrative example of Fair Rate of Return (FRoR) computation.

Here are the steps involved in the process:

1. Unlever the betas of listed Comparable Airports (secs 3.2.2, 3.2.3 and 3.3.2)
2. Next, we Estimate Asset Betas for DIAL (secs 3.2.4 and 3.3.3) with Proximity Distance Scores (sec 2.2) as inputs
3. Next, we Re-lever Asset Betas to get Equity Betas for DIAL (secs 3.2.5, 3.3.4 and 3.3.5) with Target Gearing Ratios (sec 3.3.4) as inputs
4. Next, is the important step of evaluating **CoE (sec 3.3.8)** with Equity Risk Premium or ERP (sec 3.3.6) and Risk Free Rate (sec 3.3.8) as inputs
5. Finally, we illustrate the computation of the **FRoR (sec 3.3.8)** with Cost of Debt or CoD (sec 3.3.7) as input. Please note that this computation is for illustrative purpose only as CoD is time sensitive. These have to be estimated based on information available at that point in time in future.

³² Anshuman, Biswas, Jain, and Sharma (2019); Predictability of Equity Risk Premium in India.

The entire process is summarized as a flowsheet in [Appendix 4](#).

3.2.2. Un-levering the Betas of the Listed firms in the Comparable Airports' Set

We restrict the comparable set from 7 airports to 6 airports because estimating betas requires market prices or regulator estimated asset betas, and thus, we are limited to using airports that are listed companies or have an estimate of asset beta, as suggested by the regulator of the respective country for the forthcoming control period. From our original set of 7 airports, Sydney, Airports of Thailand and Malaysia Airport Holdings Berhad airports are listed airports for which we can compute equity betas based on market data. We use the following methodology to estimate the equity betas:

- Estimate the equity betas for listed airports from our comparables' set, viz. Airports of Thailand (AoT), Malaysia Airport Holdings Berhad (MAHB) and Sydney Airport from Bloomberg.
- Un-lever these to find the corresponding asset betas using Equation 3.1.

$$\beta_A = \frac{\beta_E}{[1 + (1 - T_C) * \frac{D}{E}]}$$

Equation 3.1 – Unlevering Betas

where

β_A = Asset Beta,

β_E = Equity Beta,

T_C = Marginal Tax Rate,

D/E = **Actual** Market Debt to Equity Ratio

- Estimate market debt to equity using historical data of the comparable airports

3.2.3. Regulatory Betas for Unlisted firms in the Comparable Airports' Set

Dublin and Gatwick airports are unlisted but have estimates for asset betas from their respective regulators. Auckland airport is a listed airport and its beta can be estimated from market data, but the New Zealand regulatory authority has assigned a specific value for the

Auckland Airport asset beta after extensively analyzing market data and other airport-specific information. In this case, we give preference to the regulator assigned asset beta because it is based on a comprehensive study. We drop Changi airport because of lack of market data as well as regulatory information on asset beta.

3.2.4. Estimating Asset Betas for DIAL

Next, we estimate the asset betas for DIAL by two (2) different methods, viz.:

1. Equal weighted average of these 6 airports' asset betas
2. Weighted average of these 6 airports' asset betas. The weights are the inverse proximity score from DIAL using Equation 3.2.

$$\beta_A = \frac{\sum_{k=1}^4 \left(\frac{\beta_k}{PS_{k,D}} \right)}{\sum_{k=1}^4 \left(\frac{1}{PS_{k,D}} \right)}$$

Equation 3.2 – Weighted Avg. Betas

where

i = Years 2015, 2016 and 2017

β_A = Unlevered Asset betas for DIAL

β_k = Unlevered asset betas for comparable airports, k , viz. MAHB, Sydney, AoT and Regulator estimated Asset Betas, for Auckland, Gatwick, and Dublin airports.

$PS_{k,D}$ is the proximity score of the comparable airport, k , with respect to DIAL.

The proximity score weighted (PSW) betas represents a more refined estimate of the true asset betas in contrast to the equally weighted counterpart as it accounts for the similarity between the Indian airport and the airport in the comparable set.

3.2.5. Re-levering the DIAL's Asset Betas to get Equity Betas

We estimate equity betas for DIAL by re-levering the asset betas assuming a **Target** market Debt to Equity (D/E) ratios using Equation 3.3.

$$\beta_E = \beta_A * [1 + (1 - T_C) * \frac{D}{E}]$$

Equation 3.3 – Re-levering Betas

where

β_A = Asset Beta,

β_E = Equity Beta,

T_C = Marginal Tax Rate,

D/E = **Target** Market Debt to Equity Ratio

If we observe Equation 3.3 carefully, we find that we need a term of (target) market D/E ratio. However, for unlisted companies like DIAL, only the book D/E ratios are available through their balance sheets and annual account statements.

3.2.6. Cost of Equity and FRoR

With all components of CoE now available, we can compute the CoE using the CAPM equation. Once we have CoE, we can also compute FRoR using the Equation 3.4.

$$FRoR = (R_D * g) + R_E * (1 - g)$$

Equation 3.4 – Fair Rate of Return

where

g = Target Debt to (Debt + Equity) Ratio

R_D = Cost of Debt

R_E = Post-Tax Cost of Equity

Apart from CoE, the Cost of Debt (CoD) and the marginal tax rate are the key components of Equation 3.4. The Cost of Debt (CoD) is estimated as the coupon rate for bonds issued with

similar ratings as DIAL. Currently, DIAL is rated as AA-/stable by CRISIL.³³ Also, CRISIL has estimated a coupon rate of 9.60% as the Cost of Debt (CoD) for these two companies based on its assessment of hedging costs associated with ECB debt.

The entire process flow with relevant sections numbers is showcased in [Appendix 4](#).

3.3. Results and Discussion

In this section, we present all the relevant results leading up to the computation of CoE and FRoR. We start with shortlisting of airports for beta computations followed by asset and equity betas for them. This is followed by a section on Cost of Debt and finally the CoE and FRoR.

3.3.1. Shortlisting Relevant Airports for Asset Betas for DIAL

The comparable set consists of six international airports. Of these, three airports, Sydney, MAHB and AoT are traded companies. Traded airports are chosen to ensure that their equity betas are readily available for computation from a commercial source like Bloomberg. The asset betas for these airports are computed from the estimated equity betas. For the other three airports, Auckland, Gatwick and Dublin, the country regulatory authorities have provided direct estimates of asset betas for the forthcoming control periods.

3.3.2. Results Related to Estimating Asset Betas of Airports in the Comparable Set

The asset betas of the comparable international airports are unlevered to obtain the equity betas. Table 3.1 shows the equity and asset betas of AoT, MAHB and Sydney. Please note, the equity betas are obtained from Bloomberg and corresponding asset betas are estimated by un-levering using Equation 3.1. As highlighted, the asset betas range from 0.40 for Sydney to 0.86 in AoT.

33

[https://www.crisil.com/mnt/winshare/Ratings/RatingList/RatingDocs/Delhi International Airport Limited October 05 2018 RR.html](https://www.crisil.com/mnt/winshare/Ratings/RatingList/RatingDocs/Delhi_International_Airport_Limited_October_05_2018_RR.html) as viewed on 16 February 2019

Table 3.1: Asset and Equity Betas for 3 Comparable International Airports

Note: The equity betas are directly sourced from Bloomberg. The asset betas are computed as $\beta_A = \beta_E / [1 + (1 - T_c) * D/E]$ (Equation 3.1). *** Indicates the significance level of 99% CI

Airport (Col 1)	Equity Beta ³⁴ (Col 2)	Marginal Tax Rates ³⁵ (Col 3)	3-Year Avg. Market Debt Equity (Col 4)	Asset Beta ³⁶ (Col 5)
Sydney	0.5641***	30.00%	0.5859	0.4000
MAHB	1.0573***	24.00%	0.4927	0.7693
AoT	0.8895***	20.00%	0.0456	0.8582

Data Sources: Bloomberg for Equity Betas; Deloitte Inc. for marginal tax rates

Table 3.2: Regulator Estimated Asset Betas for 3 Comparable International Airports

Airport (Col 1)	Regulator	
	Asset Beta (Col 2)	Reference (Col 3)
Auckland	0.60	Table 2.14
Dublin	0.55*	Table 2.17
Gatwick	0.56	Table 2.16

*The regulatory authority has provided two estimates: a low asset beta and a high asset beta. We use the simple average of the low asset beta (0.50) and the high asset betas (0.60), i.e., 0.55.

3.3.3. Results Related to Estimation of Asset Betas for DIAL

Using the methodology described in section 3.2.1, we first computed the asset betas for DIAL by two different techniques, viz. equally weighted and proximity score weighted (Equation 3.2). As discussed earlier as well, the proximity score weighted (PSW) betas better represents the true asset betas over the equally weighted counterpart as it accounts for the similarity between the Indian airport and the comparables' set.

³⁴ Source: Bloomberg data from 2016 – 2018 weekly returns

³⁵ <https://www2.deloitte.com/global/en/pages/tax/articles/global-tax-rates.html>, as viewed on 06/02/2019

³⁶ $\beta_A = \beta_E / [1 + (1 - T_c) * D/E]$ – Equation 3.1

Table 3.3: Asset Betas for DIAL.

Equally weighted is simple average of comparables' asset betas. PSW is the weighted average of the asset betas with the weights being the (inverse) Proximity Score of the airport (Equation 3.2).³⁷ The proximity score weighted (PSW) beta is a more refined estimate that accounts for airport-specific information.

	Equally Weighted Average Asset Beta	Proximity Score Weighted Average Asset Beta
DIAL	0.6229	0.591199

Recommendation (Proxy for Asset Beta of DIAL)

- *We discussed the two different ways to compute proxies for assets betas of DIAL. Our recommendation based on the proximity score weighted beta estimate is more reliable. The equally weighted approach is useful only when the comparable set of airports is picked from the same environment.*
- *Statistically speaking, if the sample consists of observations from different distributions with different population means, taking a simple statistic like the sample average will be biased. In such cases, a weighted average rather than a simple average in which the weights recognize the degree of difference between the sample observation and the relevant population distribution is considered. Our proximity score weighted beta approach accounts for the “closeness” of the comparable airports to DIAL.*
- *The recommended asset betas are DIAL - **0.591199***

³⁷ $\beta_A = \frac{\sum_{k=1}^4 \left(\frac{\beta_k}{PS_{k,D}} \right)}{\sum_{k=1}^4 \left(\frac{1}{PS_{k,D}} \right)}$ (Equation 3.2 – Weighted Avg. Betas)

3.3.4. Re-levering Asset Betas of DIAL

Re-levering the asset betas to estimate the equity betas for DIAL is done by assuming a target gearing ratio using Equation 3.3.

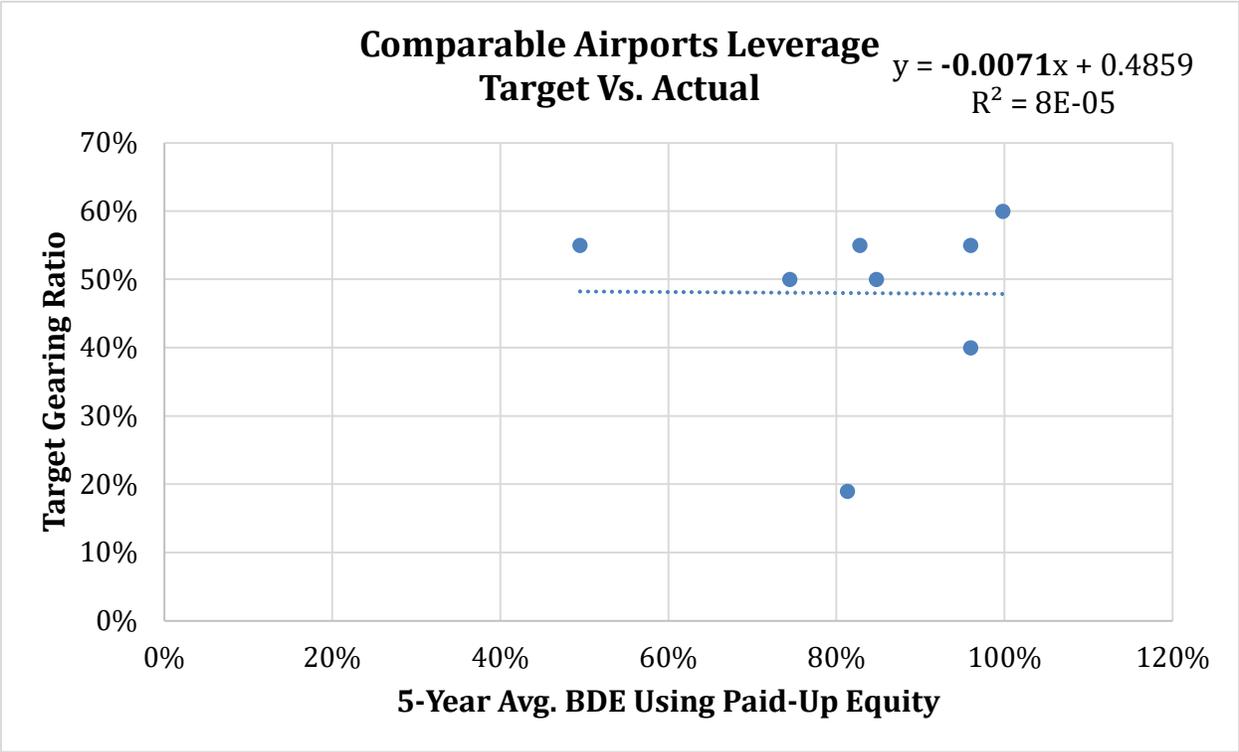
Table 3.4: Target Gearing Ratios

Airport	Target Gearing Ratio	5-Year Avg. BDE based on Paid-Up Equity (based on Share Holder Fund)	Citation	Source
(Col 1)	(Col 2)	(Col 3)	(Col 4)	(Col 5)
Auckland	19.00%	81.33% (28.61%)	Review of Auckland International Airport's pricing decisions and expected performance (July 2017 – June 2022), November 2018, Pg. 97, Table A1.	https://comcom.govt.nz/regulated-industries/airports/projects/review-of-price-setting-event-3#projecttab
Heathrow	60.00%	99.79% (83.41%)	UKRN, Cost of Capital – Annual Update Report, June 2018, Pg. 11, Table	https://www.ukrn.org.uk/wp-content/uploads/2018/11/2018-UKRN-Annual-WACC-Summary-Update-v2.pdf
Gatwick	55.00%	82.79% (80.14%)	UKRN, Cost of Capital – Annual Update Report, June 2018, Pg. 11, Table	https://www.ukrn.org.uk/wp-content/uploads/2018/11/2018-UKRN-Annual-WACC-Summary-Update-v2.pdf
Sydney	55.00%	49.48% (72.00%)	Pricing Proposal 2016-2021, Pg. 16, Table 9	http://www.airservicesaustralia.com/wp-content/uploads/2016%E2%80%932021-Pricing-Proposal.pdf
Melbourne	55.00%	95.96% (75.78%)	Pricing Proposal 2016-2021, Pg. 16, Table 9	http://www.airservicesaustralia.com/wp-content/uploads/2016%E2%80%932021-Pricing-Proposal.pdf
Dublin	50.00%	84.75% (48.26%)	Commission for Aviation Regulation, Maximum Level of Airport Charges at Dublin Airport 2014 Determination, Pg. 90, Para 7.118.	https://www.aviationreg.ie/regulation-of-airport-charges-dublin-airport/2019-determination.841.html
MAHB	50.00%	74.46% (43.75%)	MAVCOM Aeronautical Charges Framework, October 2018, Pg. 26, Table 9. (Is 40-60%, but a mid-point average of the two taken)	https://www.mavcom.my/wp-content/uploads/2018/10/181019_Aeronautical-Charges-Framework-Consultation-Paper-Final-1.pdf
Amsterdam	40.00%	95.98% (34.52%)	Amsterdam Airport Schiphol Operation Decree, 2017, WACC - Part C of Appendix to Article 32, Pg. 19.	https://www.schiphol.nl/en/download/b2b/.../1T8kLVjBBmOiaKqOO4WC0K.pdf
Average	48.00%	83.07% (58.31%)		

In Table 3.4, one can see the gearing ratios employed by different international airports for computing the weighted average cost of capital (WACC) in column (2). The column (3) shows the average 5-year book debt to equity ratio (based on paid-up equity capital, as has been done in the case of DIAL). It is evident that the gearing ratio is significantly lower than the book debt to equity ratio for all international airports.³⁸ The average gearing ratio is 48% but the 5-year average of the book debt to equity ratio is 83%. Further, we plotted the best-fit linear trend between these two variables, as shown in the chart below. We can see that R-square is virtually 0 suggesting that the two variables are unrelated. Furthermore, both the economic and statistical relation between the two variables is negligible. The coefficient is virtually 0 and the t-stats are also insignificant.

Fig 3.1: Regression Results for Market D/E (MDE) vs. Book D/E (BDE)

From the data in Table 3.4, we regress the Target Gearing Ratio for the comparable set as a function of their Actual 5-Year Average Book D/E (2013 – 17) period.



³⁸ We were able to use a larger comparable set of international airports – this gives us more confidence in the estimates.

There may be a good reason to use a lower target gearing ratio than the gearing ratio suggested by actual debt to equity values. First, the WACC should reflect a long-term steady state gearing ratio which may not be reflected in the current gearing ratio. Second, the WACC is supposed to be determined using market value weights for debt and equity. Since equity values tend to rise over time, it is natural that market value based debt to equity ratios will be much lower than book debt to equity measures. While the airports do not explicitly mention this factor as a reason for using lower target gearing ratios than that suggested by book ratios, we believe that this factor could be a significant reason.

To get additional confirmation, we consider the four airports for which we have listed equity securities and estimate the 5-year average of the market debt to equity ratio. The 5-year average leverage using market capitalization (MDE) for the comparable set of airports (4) is equal to 0.3503 (D/E) or 25.94% (D/D+E). These figures are also much lower than book debt to equity ratios. Given these findings, we can be reasonably assured that the low gearing ratio of the international airports is consistent with the idea that market-based debt to equity ratios should be used in computing the cost of capital.

As an additional benchmarking exercise, we also estimated the relation between the market debt to equity and the book debt to equity ratio of a typical infrastructure firm in India. To estimate the relation between market debt to equity ratio and book debt to equity ratio, we first regressed MDE on BDE for various infrastructure companies, using price data for 37 listed infrastructure companies over the recent 5 years. In other words, we estimated the following empirical relation between the two variables, under the restriction that the intercept is 0.

$$MDE = f * BDE$$

Equation 3.5 – BDE/ MDE Relation

where f is the regression coefficient.

The total valid data points in the clean sample were 121. The filters used to remove outliers in the data were an upper cap of 5 for BDE (equivalent of BDE 83:17) and a lower bound of 0 (no debt). Table 3.5 shows a total of 37 infrastructure companies, which have 121 market

debt equity data points for 5 financial year end (2014-2018) that are regressed against the book debt equity. However, all 37 companies were not traded over these 5 years; some were traded for 4 years out of 5 and so on. A detailed table of such companies can be found in Appendix 2.

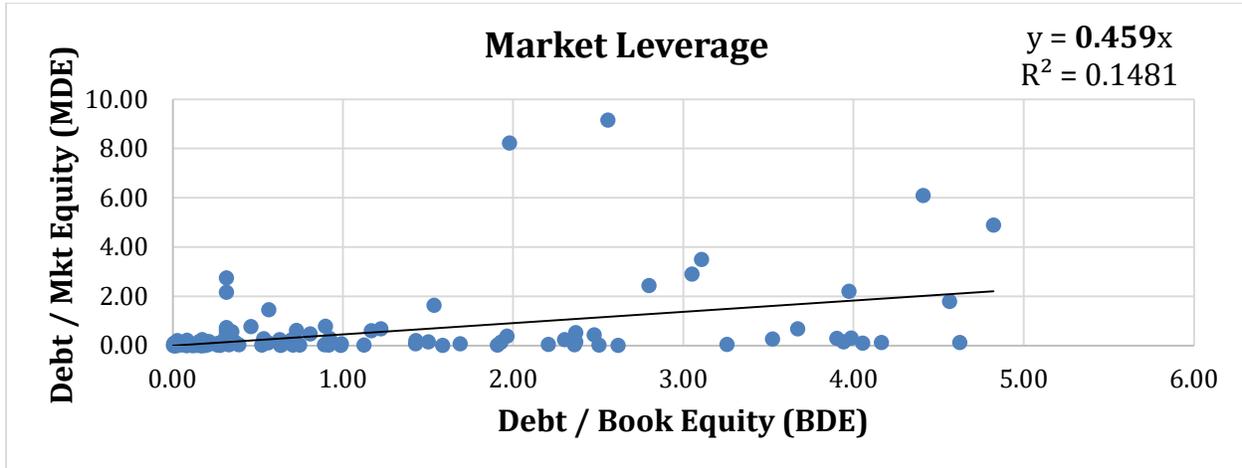
Table 3.5: Number of Infra Companies for MDE to BDE Relation

Availability of Leverage Data (No. of Years) (Col 1)	No. of Companies (Col 2)	Data Points (Col 3)
5	13	65
4	4	16
3	7	21
2	6	12
1	7	7
Total	37	121

We use this regression coefficient to impute the MDE for DIAL by using the BDE of DIAL. Once we obtain the imputed MDE, we compute equity betas of DIAL for various market leverages (MDE) using Equation 3.3. Fig 3.2 and Table 3.6 highlight the results.

Fig 3.2: Regression Results for Market D/E (MDE) vs. Book D/E (BDE)

We regress Market D/E (MDE) for 37 listed Indian infrastructure stocks as a function of their Book D/E over the 5-year (2013–17) period, forcing intercept to 0. The slope gives the typical multiple for converting a given BDE to the corresponding MDE. Hence, $MDE = m \cdot BDE$; where m is the slope. It turns out to be 0.459 in this case.



Data Source: CMIE Prowess Equity Database

Table 3.6: BDE vs. MDE regression results.

We regress Market D/E (MDE) for 37 listed Indian infrastructure stocks as a function of their Book D/E over the 5-year (2014–18) period, forcing intercept to 0. The slope gives the typical multiple for converting a given BDE to the corresponding MDE. As seen from the table, the slope is significant at 99% CI.

	Coeff.	Std Error	t Stat	p-value	Lower 99.0%	Upper 99.0%
	(Col 1)	(Col 2)	(Col 3)	(Col 4)	(Col 5)	(Col 6)
Intercept	0	N/A	N/A	N/A	N/A	N/A
MDE/ BDE (slope)	0.459	0.072	6.382	4.17E-09	0.271	0.648

The MDE/BDE ratio is the slope and conversion multiplier. As observed from Fig 3.2 and Table 3.6, the relationship turns out to be

$$MDE = 0.459 * BDE$$

Equation 3.6 – MDE/BDE (Actual)

Also, the coefficients are significant at 99% confidence levels (refer to p-values of Table 3.6).

Now, assuming a BDE of 2:1, we can infer that the market debt to equity ratio can be estimated as $0.459 \times 2 = 0.918$ for a typical infrastructure company in India. This number translates into a gearing ratio of 47.86%, again a number that is reasonably close to the average gearing ratio of the set of comparable international airports.

The two independent approaches to assessing the gearing ratio based on market price data provide confidence to us that setting the gearing ratio for DIAL on the basis of the average gearing ratio of a set of comparable international airports will be a procedure consistent with global best practices.

Discussion/Recommendation for Gearing Ratio

- *The target gearing reflects a long-term steady state gearing ratio that is lower (and unrelated) to the current debt to equity ratio.*
- *As per valuation concepts, the gearing ratio used in calculating cost of equity should be based on market value estimates of debt and equity. The fact that the target gearing ratio is typically lower than the actual debt equity ratio is consistent with an approach that uses market value based debt to equity ratio. As a benchmark, we examined the Indian infrastructure space and found that infrastructure firms employ, on average, a market debt to (debt + equity) ratio of 47.86%. The estimate from this analysis is reasonably close to the 48% gearing ratio used on average by international airports.*
- *Firms often employ high gearing ratio in the hope of reducing the cost of capital. This perception is based on a fallacious argument. While it may seem that a higher percentage of cheaper debt capital would reduce the cost of capital, what is ignored is that the risk of residual equity in highly levered firms increases, thereby offsetting the benefits of sourcing more debt capital (even the cost of incremental debt capital increases as the amount of debt increases). A target gearing ratio lower than the typical debt to equity ratio in a regulated public service discourages firms from employing excessive gearing in the hope of reducing their cost of capital. Thus, regulators often rely on a target gearing ratio to help maintain financial resilience of regulated firms in the long term.*
- *We recommend that the average gearing ratio (D/D+E) of 48% can be used to a proxy for the gearing ratio of DIAL to estimate their Cost of Equity and Fair Rate of Return.*

3.3.5. Results Related to Estimation of Equity Betas for DIAL

We set the target gearing ratio for DIAL using the average gearing ratio of international airports (48%), We then re-lever the asset betas proxies of DIAL using Equation 3.3 to get the equivalent equity betas.

$$\begin{aligned}\beta_E(DIAL) &= \beta_A * \left[1 + (1 - T_C) * \frac{D}{E} \right] \\ &= 0.591199 * [1 + (1 - 0.3) * 0.9231] \\ \beta_E(DIAL) &= 0.9732\end{aligned}$$

Equation 3.7 – Equity Beta for DIAL

Discussion Summary (Equity Beta)

*With the target gearing ratio of 48%, we re-levered the proximity score weighted (PSW) asset betas using Equation 3.3 and arrived at the optimal equity beta as: **DIAL: 0.9732.***

3.3.6. Equity Risk Premium

The ERP is an essential input in the implementation of the Capital Asset Pricing Model. It captures the additional return demanded by investors for holding equity shares in contrast to holding risk-free deposits (say in a bank in which the deposit is insured against default). It reflects the investing population's desire for taking up equity risk. It can be time varying. For instance, during the financial crisis, investors' tolerance for risk was extremely low and the equity risk premium was very high. Hence, it must be re-estimated periodically.

There are various estimates of equity risk premium, depending on the methodology used and the time period considered³⁹. The most popular method is to use the historical risk premium as a proxy for the equity risk premium (ERP) going forward. This estimate has been found to be the best predictor of future ERP.⁴⁰ In general, the other predictors (e.g., dividend yield, earnings to price ratio, default spread, etc.) fare worse than the historical average as a predictor of ERP. More recent literature has reported that a composite measure, based on average of several predictors, fares slightly better than the historical average. The second method is to rely on the implicit forward-looking ERP (also referred to as the Implied ERP) based on the current value of the stock market index. Using a simple Gordon Growth model based on dividend growth estimates, one can back out the ERP that is consistent with current valuations of the stock market. Finally, one can also rely on a survey methodology to infer the consensus view of ERP.

We rely on three approaches. First, we use estimates of Indian ERP based on historical averages over the 2001-2018 period. Asset pricing studies are typically dependent on a much longer time series to infer meaningful estimates. However, an emerging market like India, which underwent significant structural changes over time (the pre-liberalization period prior to 1990s and the advent of market liberalization during the 1990s) renders prior data questionable and also of lower reliability due to various exogenous reasons. Consistent with these arguments, Anshuman et al (2019) rely on data from the post-2001 period. They report a geometric mean of 7.78% as the estimate of ERP.⁴¹

³⁹ For instance, a recent study by Manish Saxena (*Valuation Insights: Equity Risk Premium (ERP) for Indian Market*, Grant Thornton, October 2015) has quoted ERP's ranging from 4.0% - 12.50% from various studies such as Jayant Varma & Samir Barua (2006), JM Morgan Stanley (2006), Rajneesh Mehra (2006), Banco de Portugal (2008), Morgan Stanley (2010), VC Circle (2010), ISES Survey (2011) and Goldman Sachs (2011-12). However, the studies are outdated, and their ERP estimates cannot be used for estimating Cost of Equity for Delhi Airport for the 3rd Control Period. The paper can be found at, as viewed on 15 Feb 2019: https://www.grantthornton.in/globalassets/1.-member-firms/india/assets/pdfs/grant_thornton-valuation_insights-october_2015.pdf

⁴⁰ Ivo Welch Brown and Amit Goyal; A Comprehensive Look at The Empirical Performance of Equity Premium Prediction; *The Review of Financial Studies* / v 21 n 4 2008.

⁴¹ Anshuman, Biswas, Jain and Sharma, "*Predictability of Equity Risk Premium in Indian Equity Markets*", IIM Bangalore working paper (2019), <https://www.iimb.ac.in/node/6984>

As argued in Damodaran,⁴² we also rely on the geometric mean as a proxy for the ERP for long-term projects. The CAPM is a one-period model and arithmetic means works well only if the annual returns in the stock and bond markets are serially uncorrelated. However, stock and bond returns are serially correlated in actual data. This serial correlation is particularly important when we estimate ERP for longer horizons (say, 10 years). In summary:

- Arithmetic mean is more appropriate to use if the returns are uncorrelated.
- Geometric mean is more appropriate for longer horizons in which returns are found to be serially correlated.

Second, we rely on a study by Grant Thornton that estimates a forward-looking ERP for India. This ERP estimated is an imputed measure based on the Gordon Growth model. The inputs are market index data and estimates of dividend growth rates of stocks in the market index. The study uses Nifty market index as a proxy for the market index. The NIFTY market index consists of 50 leading Indian companies that fairly represent all the leading industry sectors in India. To estimate the forward-looking ERP, the study uses a 3-stage Gordon's Growth Model. In their study, for Financial Year (FY) 2018-20, the study uses a growth rate of 13% during FY 2021-25 based on the nominal GDP for India as calculated by IMF, a growth rate of 10% for the period from FY 2026 onwards, and a perpetual growth rate of 7.50% henceforth. Under these assumptions, the study estimates a forward ERP estimate of 8.00%³⁹.

Third, we also try out Damodaran's approach of computing the Indian equity risk premium based on the U.S implied equity risk premium. The advantage of this approach is that the mature market risk premium has been derived from a much longer historical time series (1960-2018). Damodaran derives the Indian ERP by *adding* an adjustment factor that reflects the sovereign risk estimate of the Indian equity markets. To derive this adjustment factor, Damodaran employs two proxies, one based on rating of sovereign bonds and the other based on CDS spreads, and, in both cases, modifies this adjustment factor by the average ratio of equity volatility and bond volatility across emerging markets (= 1.23). For

⁴² http://people.stern.nyu.edu/adamodar/New_Home_Page/AppldCF/derivn/ch4deriv.html, as viewed on 23rd February 2019.

instance, Damodaran's estimate of ERP for India based on bond ratings is given by the following: 5.96% (mature market implied risk premium) + $1.23 \times 2.15\% = 8.60\%$. Damodaran's CDS based Indian ERP is given by $5.96\% + 1.23 \times (1.85\% - 0.30\%) = 7.87\%$.⁴³

Discussion Summary (Equity Risk Premium)

We focused on three recent studies that document the equity risk premium for India. Our primary criterion is that the estimates should be based on market data.

(i) Anshuman et al. (2019) give an estimate of 7.78% based on the historical mean, which is known to be best predictor of ERP across the world (Welch and Goyal (2008), Anshuman et al (2019)). However, the accuracy of ERP estimates also depends on the length of the sample period. The greater the duration, lower are the standard errors. Anshuman (2019) is based on a relatively shorter period (2001-2018).

(ii) Damodaran recommends two estimates: 7.87% based on CDS spreads and 8.60% based on bond ratings, which are known to be sluggish. Damodaran's estimates are based on adjusting the mature country's ERP and therefore is an indirect measure of Indian ERP that only partially reflects the Indian market price data.

(iii) The Grant Thornton report (2017) gives a forward-looking estimate of 8%. It is based on market data but is also based on subjective estimates of dividend growth rates given by analysts.

Given that these three studies give estimates based on critical assumptions, we define the proxy for ERP in our study as the simple average of the four estimates, i.e., our proxy for ERP is $(7.78\% + 7.87\% + 8.60\% + 8\%) / 4 = 8.06\%$. This averaging procedure helps eliminate the effect of biases implicit in each of the three studies.

3.3.7. Cost of Debt – Illustrative Purpose only

The following section provides an estimate of the cost of debt of DIAL at the end of 2018 as an illustrative exercise. In general, cost of debt (CoD) must be estimated annually based on the latest information as of that date. The estimates developed for cost of debt in this section

⁴³ The CDS for US of 30 bp has been subtracted from the Indian CDS of 185 bp to get an estimate of the adjusted CDS for India.

have no other purpose than to illustrate the computation of the Fair Rate of Return (FRoR), as discussed further down. Both CoD and FRoR estimates in this report have no bearing on future annual CoD and FRoR estimates, which would have to be estimated based on information available at that point in time in future.

To estimate the Cost of Debt (CoD) of comparable debt instruments in India, we considered a total of 16,836 debt instruments (Debt Instruments, Commercial Papers and Certificate of Deposit) that are active as per NSDL.⁴⁴ Of these, 807 are 'AA-' or equivalent rated as per CARE, CRISIL, ICRA and Brick Work Ratings. DIAL is rated "AA-" by CRISIL, as of 05/10/2018. The number of debt instruments issued, from 01/01/2018 till 15/02/2019 of the said rating is 181. Of these, 24 were by infrastructure companies. Of these 24, only 13 instruments had valid data. Table 3.7 gives the average coupon rate of these 13 instruments.

Table 3.7: Estimation of Cost of Debt (CoD) – For Illustrative Purpose only

Debt Instrument Issuer	No. of Instruments Issued	Coupon Rate
Adani Infra (India) Limited	1	10.50%
Andhra Pradesh Capital Region Development Authority	5	10.32%
Ashoka Buildcon Limited	1	9.80%
G R Infraprojects Limited	6	9.24%
Overall Cost of Debt (Simple Average of the 4 rates)	9.97%	

Source: <https://nsdl.co.in/downloadables/list-debt.php>

The average rate of 9.97% is consistent with CRISIL's assessment of DIAL in October '18.³³ The coupon rate they prescribed was 9.60%, which factored in all hedging costs borne by DIAL on its forex risks, swaps, etc. More recent estimates based on the latest data suggest a return around 10%.

⁴⁴ <https://nsdl.co.in/downloadables/list-debt.php> as viewed on 16/02/2019.

Discussion Summary (Cost of Debt – Illustrative Purpose Only)

- *We estimated the average yields of bonds of comparable infrastructure companies (AA- bonds). The estimate was 9.97%.*
- *CRISIL’s rating report for DIAL provides an estimate of 9.60%, but more recent data provided by DIAL suggests revised estimate of around 10%.*
- *For FRoR calculations, we use the same CoD of 9.97% for DIAL since the exercise is for illustrative purpose only. .*
- *Going forward, AERA should seek inputs from the airport operator and accordingly estimate the Cost of Debt as market conditions evolve.*

3.3.8. Cost of Equity (CoE) and Fair Rate of Return (FRoR)

Using the equity betas shown in Equation 3.7, we compute the CoE using the CAPM. Here, we discuss the recommended CoE and FRoR estimates for DIAL. For the forthcoming control period (2019–24), Table 3.8 show these results. The entire process flow with relevant sections numbers is showcased in [Appendix 4](#).

Table 3.8: Variables Used to Estimate CoE and FRoR

The re-levering is based on the following equation $\beta_E = \beta_A * [1 + (1 - T_C) * D/E]$ – (Equation 3.3 – Re-levering Betas). Also, the asset betas (β_A) used are the Equally Weighted betas (**0.6229**) for DIAL. Also, the asset betas (β_A) used are the Proximity Score Weighted (PSW) betas, **0.591199** for DIAL. The Cost of Debt (R_D) is for illustrative purpose only

1. Asset Beta (Proximity Score Weighted) (β_A)	
DIAL	0.591199
2. Risk Free Rate (R_f)	
10-Year GOI Bonds, 18-Year Daily Avg.	7.56%
3. Equity Risk Premium (ERP)	
Simple Average of estimates from four studies	8.06%
4. Cost of Debt* (R_D)	
Estimated using ‘AA-’ rated Debt Instruments from NSDL	9.97%

*Illustrative Purpose only. Refer section 3.3.7 for details

Table 3.9: Estimation of Cost of Equity (CoE) for DIAL

This table summarizes the results for DIAL and highlights the 2 important variants of D/E ratios. Of these, we recommend target gearing ratio of 0.9231 or 48:52. The asset betas are the Proximity Score Weighted (PSW) weighted betas, given by $\beta_A = \frac{\sum_{k=1}^4 \left(\frac{\beta_k}{PS_{k,D}} \right)}{\sum_{k=1}^4 \left(\frac{1}{PS_{k,D}} \right)}$ (Equation 3.2). Further, these are converted to equity betas by re-leveraging using the equation $\beta_E = \beta_A * [1 + (1 - T_c) * (D/E)]$ – (Equation 3.3 – Re-levering Betas). The CoE is computed using the CAPM equation, $R_E = R_f + \beta_E (R_M - R_f)$, Equation 1.1. FRoR is computed as $FRoR = (R_D * \frac{D}{D+E}) + [R_E * (1 - \frac{D}{D+E})]$, Equation 3.4.#

Airport: DIAL (Col 1)	Gearing Based on Target Gearing Ratio (Col 2)	Gearing based on MDE-equiv of BDE 2:1 (Col 3)
Asset Beta	0.591199	0.591199
Gearing Ratio (D/E)	0.9231**	0.9180***
Gearing Ratio (D/D+E)	48.00%	47.86%
Equity Beta	0.9732	0.9711
Risk Free Rate	7.56%	7.56%
Equity Risk Premium	8.06%	8.06%
Cost of Equity	15.41%	15.39%
Cost of Debt [§]	9.97%	9.97%
Fair Rate of Return##	12.80%	12.80%

The tariff computation reflects a pass through of the annual taxes payable, thus the Cost of Equity (R_E) used in the FRoR formula is a post-tax cost of equity. Since taxes are covered by tariffs, tax deductibility of interest is irrelevant for the airport operator and the cost of debt should not reflect any interest tax shield benefits.

**Target Gearing Ratio – calculated using average suggested gearing by the regulators of 8 comparable international airports.

***Market Debt Equity equivalent of BDE using the factor 0.459.

§Illustrative only considering 2018 debts. This varies significantly depending on market conditions as discussed in section 3.3.7

FRoR is an illustrative computation only and varies significantly depending on CoD as discussed in section 3.3.7

Recommendations for Cost of Equity

Our final recommendation for CoE is based on the following parameters:

- *Gearing Ratio: Target gearing ratio of 48%.
 - *As a benchmark, we also presented CoE and FRoR estimates based on other assumptions about the gearing ratio.**
- *Risk-Free Rate of 7.56%*
- *ERP of 8.06%*
- *Proximity Score Weighted (PSW) Asset Betas
 - *DIAL: 0.591199**

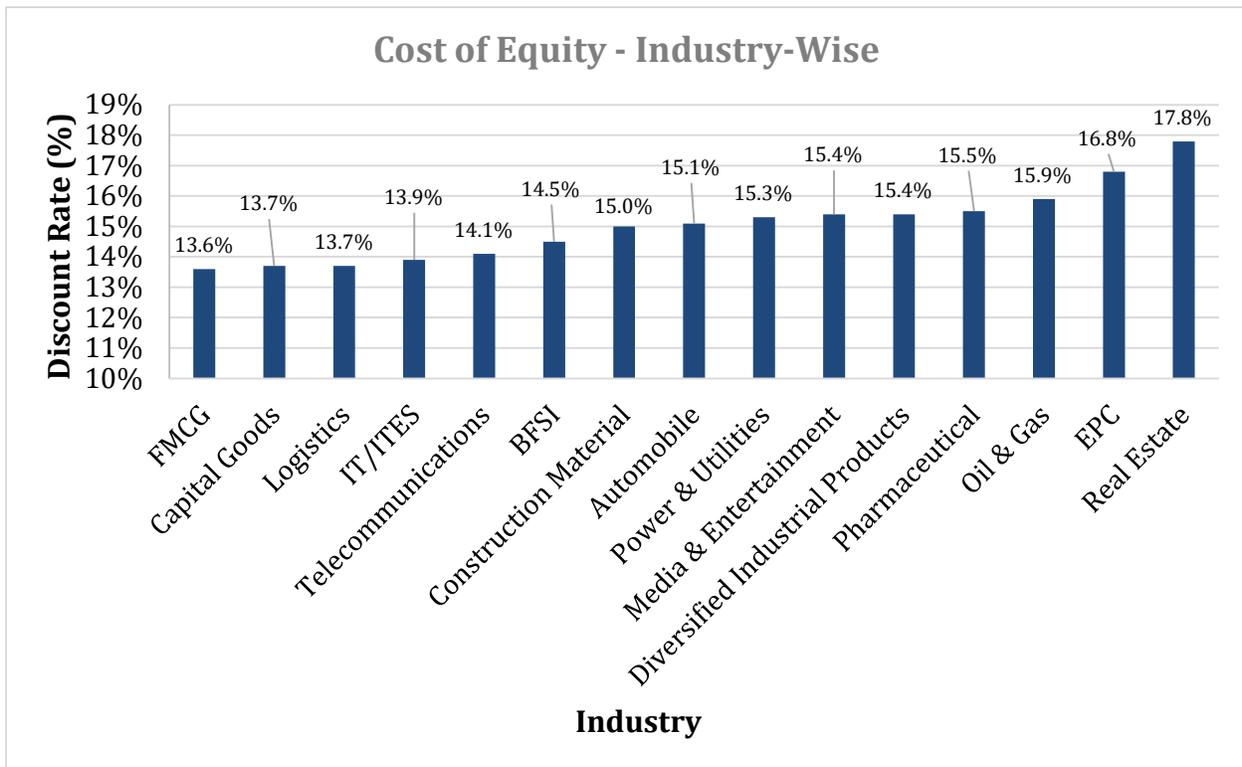
- ***CoE estimate of DIAL is 15.41%***
 - *We present here the survey-based estimates of CoE across sectors in the Indian economy. Fig 3.3 gives the sectoral CoEs for India.*

*Illustrative **FRoR** estimates are based on an illustrative cost of debt of 9.97% (note that these are not recommendations):*

- *FRoR of DIAL: **12.80%***

Fig 3.3: CoE by Sector³⁹

The chart shows the sector-wise breakup of CoE in India.



Source: Navin Vohra, Cost of Capital – India Survey, 2017, Ernst & Young

3.4. Conclusion and Final Recommendation

In this section, we estimated the Cost of Equity (CoE) and provided an illustrative example of Cost of Debt (CoD) and Fair Rate of Return (FRoR) computations. First, we computed a proximity score weighted average beta of a comparable set of international airports as a proxy for the asset beta of DIAL. Next, we re-levered this asset beta into an equity beta using the recommended target gearing ratio, as determined by the average suggested gearing ratio of a comparable set of international airports. The equity beta was then used to compute the Cost of Equity as per the CAPM. We discussed the Cost of Debt (CoD) was provided as an illustrative example of determining FRoR. The final recommendations are shown in Table 3.10.

Table 3.10: Final Recommendations

Variable (Col 1)	DIAL (Col 2)
Asset Beta based on Proximity Score	0.591199
Weights of comparable set	
Target gearing ratio (D/D+E)	48%
Target gearing ratio (D/E)	0.9231
Equity Betas	0.9732
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.41%
Cost of Debt (CRISIL Rating) ^{\$}	9.97%
Fair Rate of Return[#]	12.80%

^{\$}Illustrative purpose only considering 2018 debts. This varies significantly depending on market conditions as discussed in section 3.3.7

[#]FRoR is an illustrative computation only and varies significantly depending on CoD as discussed in section 3.3.7

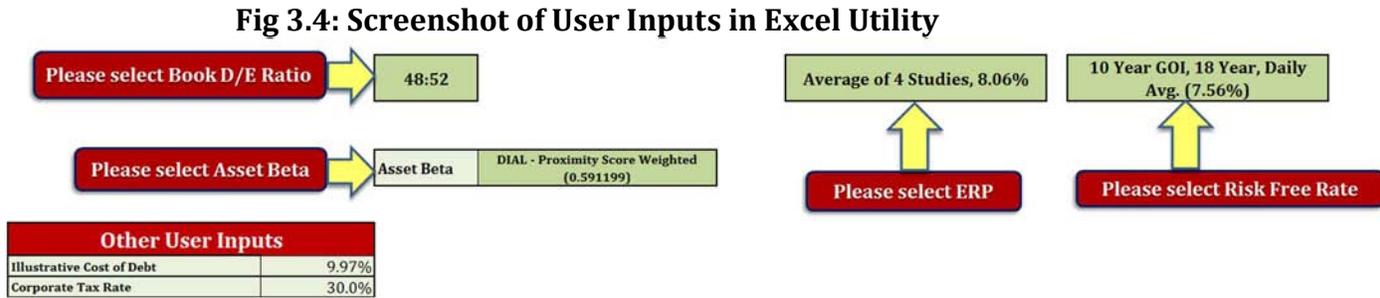
3.4.1. Utility for Estimating CoE (and FRoR Computations)

Based on varying set of assumptions, multiple other variants of CoE and FRoR are possible with varying estimates of betas, ERP, Risk-Free Rate, etc. The MS-Excel utility (AERAExcelUtility.xlsm) supplied along with this report gives all possible variants discussed in this study. It gives the CoE and FRoR based on user inputs for different variables. This section discussed the said Excel Utility. The Utility opens to the screenshot provided in Fig 3.4. As can be observed, the user has a choice of 5 variables' input, viz.

1. Target capital structure based on book D/E Ratio (BDE): This ranges from 35:65 to 85:15 with step increment of 5%.
2. Equity Risk Premium (ERP): four different choices of ERP are available:
 - a. Damodaran, 2019, (Scaled CDS) – 8.60%
 - b. Damodaran, 2019, (Scaled DS) – 7.87%

- c. Anshuman et al. – 7.78%
- d. Grant Thornton, Forward Estimate – 8.00%

We employ a simple average of these 4 estimates (a-d) – 8.06%



Note: **Cost of Debt** (CoD) in this fig. is illustrative only considering 2018 debts. This varies significantly depending on market conditions as discussed in section 3.3.7

Ref: AERAExcelUtility.xlsm

3. Risk-Free Rate: 4 different values of Risk-Free Rates are available:
 - a. 10-Year GOI bonds daily averaged over 18 years – 7.56%
 - b. 1-Year T-Bill – 6.81%
 - c. 3-Year GOI Bonds – 7.15%
 - d. 10-Year GOI Bonds, current (Jan 2019) – 7.6%
4. Asset Beta: As discussed, the proximity score weighted as well as the equal weighted betas is available as user input options.

Once these choices are made, the Utility automatically takes the corresponding values and displays the same.

Fig 3.5 shows the same. The results are displayed as highlighted in Fig 3.6.

Fig 3.5: Values corresponding to the variables based on user input

Values Derived from User Choices	
Target Gearing Ratio	48.00%
Equity Risk Premium	8.06%
Risk Free Rate	7.56%
Asset Beta	0.591199

Fig 3.6: Final Output in the Excel Utility

Output	
Equity Beta	0.9732
Cost of Equity	15.41%
Illustrative Fair Rate of Return	12.80%

Note: **Fair Rate of Return** (FRoR) is an illustrative computation only and varies significantly depending on CoD as discussed in section 3.3.7

Appendix 1: Summary of ToR Relevant for DIAL Cost of Capital

1. Background⁴⁵

The Authority had determined 'Cost of Equity' for private sector in the year 2011. Now 7 years have been lapsed, hence the Authority intends to conduct the study afresh in the current scenario to perform its statutory regulatory functions.

The Cost of Capital of FRoR (Fair rate of Return) is a significant influencer when Rate of Return Regulation is the opted method of Economic Oversight. The intent of such rate of return is to embody the reasonable return expectation of ALL investors in the project. Regulatory precedents at the time of choosing such Economic Oversight in India favored the use of WACC in which the COE would be determined with the help of the CAPM model.

While other determinants such as debt and capital structure, cost of debt, leverage levels etc., are explicit or evident, it is Cost of Equity in the FRoR formula (that determines WACC), which remains the challenge.

2. Scope of Work

- a) Study of relevant environment, trends in airport capitalization
- b) Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity
- c) Recommendations on Cost of Equity
- d) Follow-on activities

3. Study of the current environment and trends in airport capitalization

Assist the Authority in:

- a) Study of capitalization structure, funding mechanisms, divestment deals reported in recent projects in Asia/Europe, investor returns and co-relation to their return models in these cases.

⁴⁵ Ref: Annexure 1 of agreement signed between IIMB and AERA on 20 Dec 2018

- b) Study recent airport asset divestment cases witnessed in PPP/Other projects in India and/or region. Understand implication of such deals on stakeholder behavior, impact on return models, passenger tariff & capital gains realized & their co-relation to FRoR & Cost of Equity & reason for absence of co-relation.
- c) Prepare an observation summary stating how and why cases from a) and b) have impacted and influenced the determinants of FRoR, in particular Cost of Equity, CAPM model and its underlying premises.
- d) Trace developments in both Business and Regulatory environment from 2009(beginning of Airport regulation) to evaluate the impact of change in underlying assumptions for CAPM model.
- e) Study to also cover prevalent trends and developments in other regulated infrastructure intensive industries like Power, Roads, etc.

4. Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity

In the background of study detailed above, an airport-specific study should be undertaken according importance to all determinants of Cost of Capital, but specifically focusing on Cost of Equity including:

- a) **Capital Employed Structure:** Study the components of the capital employed, suitability to the airport project, its feasibility and sustainability.
- b) **Share-holding pattern:** Study the composition of shareholders, their holding period, their prevalent divestment scenario and opportunities and possible impact on Cost of Equity.
- c) **Cost of Equity:** Study the impact of the cost of equity determined for the previous control periods, suggestions for improvement, impact on the passenger fee/ aeronautical charges. Study of the scenario must also cover expectations on return or cost of equity, risk-free return, equity market risk premium, equity beta, asset beta, taxation, etc.

- d) **Dividend distribution policy:** Study the specific airport's dividend distribution policy, and application of Dividend relevance theory in determination of Cost of capital.

Other Determinants

- a) **Cost of debt:** Impact of actual cost of debt for previous control periods, variance to projections, suggestions for improvement, impact on passenger fee/aero charges
- b) **Debt Structure, Leverage level:** Assessment of the efforts of the Airport in raising Debt via different avenues, Debt service cost reduction & negotiation efforts
- c) **Debt standing & Market perception of the Airport/Major shareholder:** Risk profile of the Airport operator and/or its largest shareholder and consequent impact on cost of debt.

5. Recommendations on Cost of Equity

Recommendations to include:

- a) Cost of Equity – Risk-free return, risk premium and beta levels
- b) Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing
- c) Alternative models for determination of cost of equity
- d) Reasonable/fair return to be provided on RSD as applicable for Delhi Airport, is also to be determined.

6. Follow-on Activities

- a) Assist in drafting of consultation paper for determination of cost of equity and undertaking stakeholder consultations and consolidating comments received from various stakeholders, preparing clarifications on comments thereof.
- b) Assist in drafting the Order on determination of cost of equity.

Appendix 2: Set of Indian Infrastructure Companies

A data set of 37 Indian Infrastructure companies for 5 Years (2014-18) was used to establish the relationship between Market and Book Debt Equity of a company in Equation 3.6. However, not all 37 companies traded in those 5 years. The following table clearly shows which company was traded in the financial year out of such 5 years:

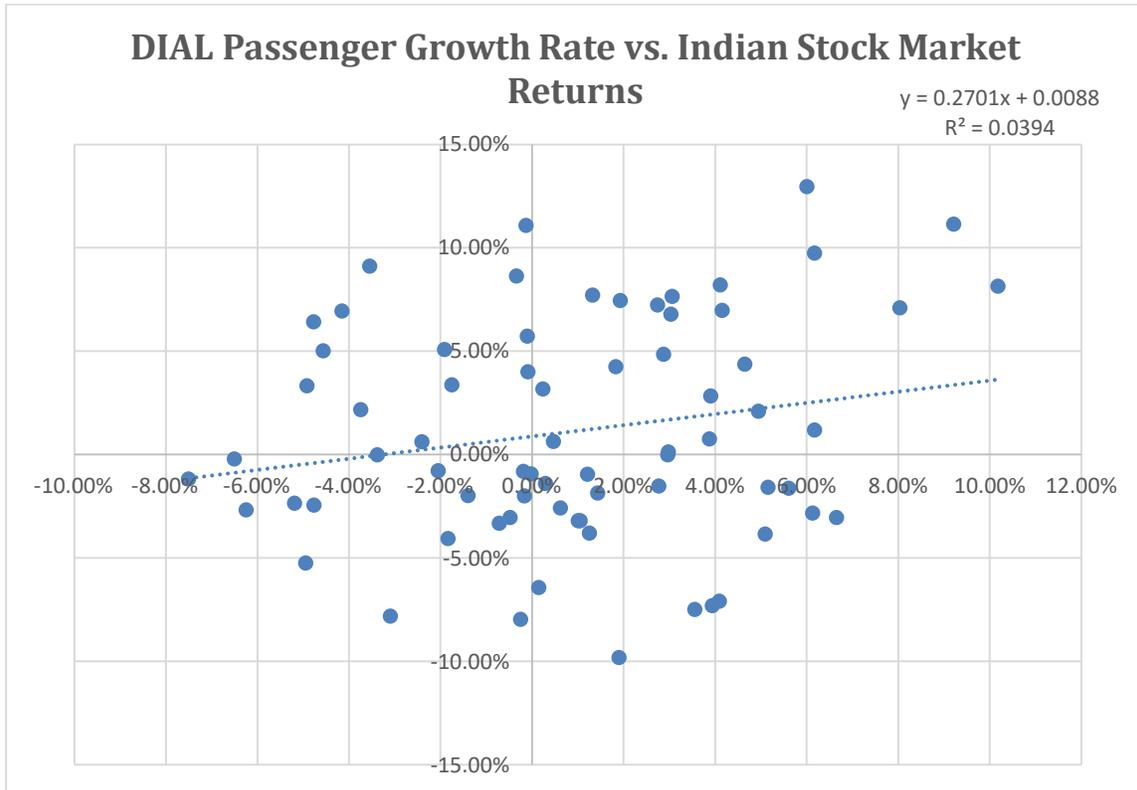
S. No.	Company Name (Col 1)	Traded in Financial Year (Col 2)	Number of years (Col 3)
1	B S Ltd.	2014 - 2018	5
2	C C L International Ltd.	2014 - 2018	5
3	G P T Infraprojects Ltd.	2014 - 2018	5
4	G T L Ltd.	2014 - 2018	5
5	I T D Cementation India Ltd.	2014 - 2018	5
6	Jyothi Infraventures Ltd.	2014 - 2018	5
7	N C C Ltd.	2014 - 2018	5
8	Nu Tek India Ltd.	2014 - 2018	5
9	P N C Infratech Ltd.	2014 - 2018	5
10	Precision Electronics Ltd.	2014 - 2018	5
11	R P P Infra Projects Ltd.	2014 - 2018	5
12	Shriram E P C Ltd.	2014 - 2018	5
13	Vishvas Projects Ltd.	2014 - 2018	5
14	Indo-Asian Foods & Commodities Ltd.	2014 - 2017	4
15	Navkar Builders Ltd.	2014 - 2017	4
16	Sadbhav Infrastructure Project Ltd.	2015 - 2018	4
17	Simplex Projects Ltd.	2015 - 2018	4
18	Excel Realty N Infra Ltd.	2014 - 2016	3
19	Gammon Infrastructure Projects Ltd.	2015 - 2017	3
20	K E C International Ltd.	2014 - 2016	3
21	M B L Infrastructures Ltd.	2014, 2016 - 2017	3
22	Marg Ltd.	2015 - 2017	3
23	Maruti Infrastructure Ltd.	2016 - 2018	3
24	Ruchi Infrastructure Ltd.	2014 - 2016	3

25	Capacit'e Infraprojects Ltd.	2017 - 2018	2
26	Essar Ports Ltd.	2014 - 2015	2
27	G M R Infrastructure Ltd.	2014 - 2015	2
28	P V V Infra Ltd.	2016 - 2017	2
29	Pratibha Industries Ltd.	2017 - 2018	2
30	Suvidha Infraestate Corpn. Ltd.	2014 - 2015	2
31	Atlanta Devcon Ltd.	2016	1
32	Dilip Buildcon Ltd.	2017	1
33	I L & F S Engg. & Construction Co. Ltd.	2014	1
34	Kalpataru Power Transmission Ltd.	2014	1
35	Prime Focus Ltd.	2018	1
36	Valecha Engineering Ltd.	2017	1
37	Yuranus Infrastructure Ltd.	2015	1

Appendix 3: Demand Function in the Indian Context

Charts 1 shows the results for DIAL. The regression comprises month-on-month stock returns from 2013–2018 to the month-on-month passenger growth rate in the same period for DIAL.

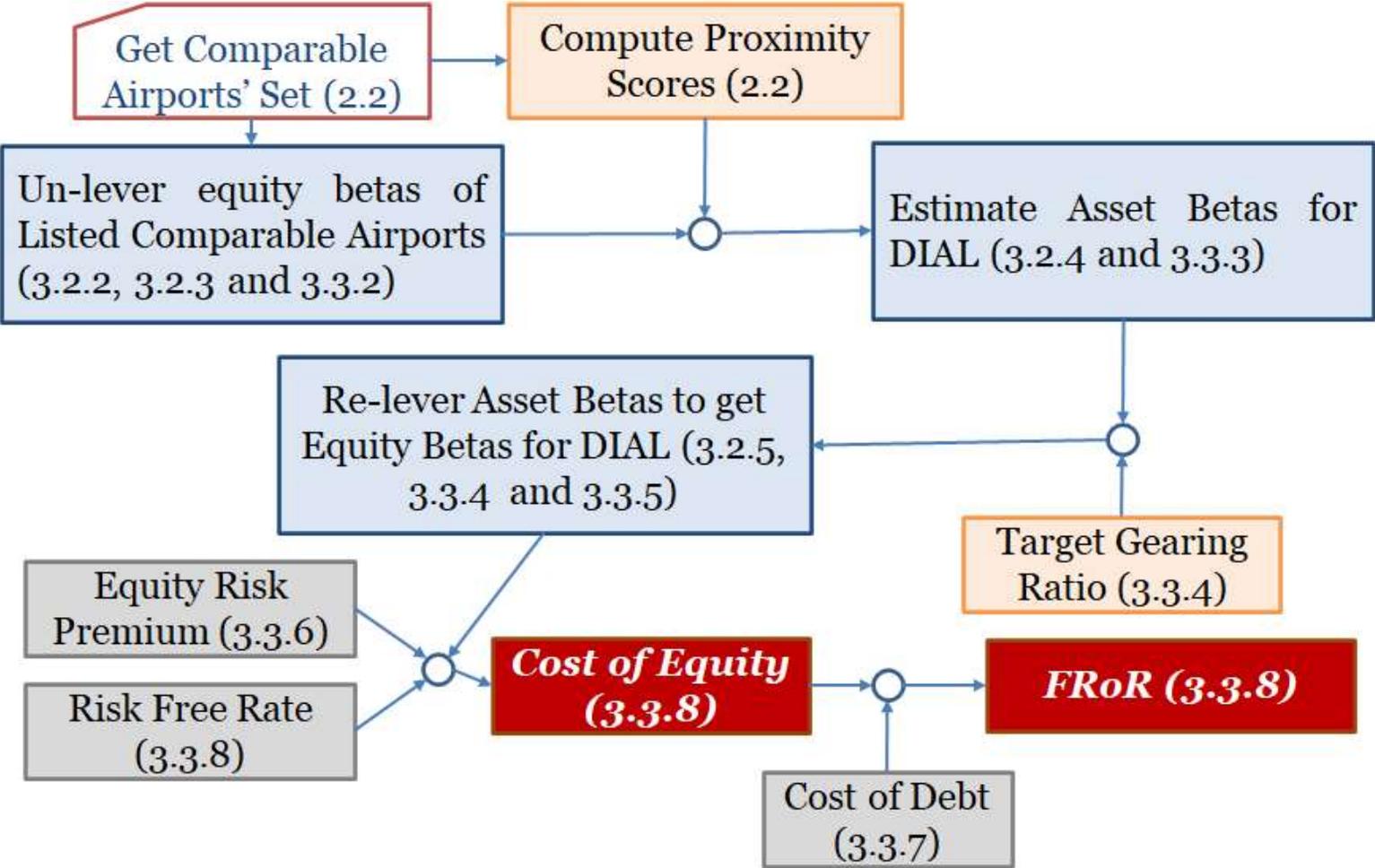
Chart 1: DIAL Passenger Growth Rate vs. Indian Stock Market Returns from 2013–2018



	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 99.0%	Upper 99.0%
Intercept	0.0088	0.0064	1.3743	0.1738	-0.0040	0.0216	-0.0040	0.0216
slope	0.2701	0.1606	1.6824	0.0970	-0.0502	0.5905	-0.0502	0.5905

As highlighted in the charts, the slopes (proxies for asset betas) is 0.27 for DIAL. However, while demand risk is low, there could be other uncertainties playing out.

Appendix 4: Flowchart to compute Cost of Equity (CoE) and FRoR*



* The numbers in bracket indicate the respective section number in the report.

Appendix 5: Section-wise Indexing of Terms of Reference (ToR)

Clause 3a. Study of capitalization structure, funding mechanisms, divestment deals reported in recent projects in Asia/Europe, investor returns and co-relation to their return models in these cases.		
Subject	Section(s) of the Report	Comments/Caveats
Document cases on airport divestments in Asia/Europe with focus on:		
Capitalization	2.2.1	
Funding mechanism	2.2.2	
Investor returns	2.2.3	
Correlation to their return models	2.2.3	The last part of section discusses this and also does a comparative study w.r.t. Indian airports (Ref. Table 2.11, Table 2.12 and Fig. 2.7)
Clause 3b. Study recent airport asset divestment cases witnessed in PPP/Other projects in India and/or region. Understand implication of such deals on stakeholder behavior, impact on return models, passenger tariff & capital gains realized and their co-relation to FRoR & Cost of Equity and reason for absence of co-relation.		
Subject	Section(s) of the Report	Comments/Caveats
Same as 3a for Indian airport disinvestment in all respects along with	2.2.1 - 2.2.3	
Implications on stakeholder behavior	2.2.4	The case of Bangalore divestment is discussed. MIAL could not be discussed for lack of recent data
Impact on return models, passenger tariff and capital gains and their correlation to FRoR	2.2.3	Indian Airports (DIAL, BIAL, MIAL and HIAL) are compared to international comparables in terms of their IRR
Reason for absence of correlation	Last part of the section 2.2.3	Explicitly gives parameters to find the correlation and the absence currently observed (Ref Table 2.11 and Table 2.12)

3c. Prepare an observation summary stating how and why cases from a) and b) above have impacted and influenced the determinants of FRoR in particular Cost of Equity, CAPM model and its underlying premises.		
Subject	Section(s) of the Report	Comments/Caveats
<ul style="list-style-type: none"> 1. Document Determinants of FRoR (CoE in focus) 2. Impact of 3(a) and 3(b) on the same 	2.3	
3d. Trace developments in both Business and Regulatory environment from 2009 (beginning of Airport regulation) to evaluate the impact of change in underlying assumptions for CAPM model	2.4	
3e. Study to also cover prevalent trends and developments in other regulated infrastructure intensive industries like Power, Roads, etc.	2.5	Discusses InVITs

Subject	Section(s) of the Report	Comments/Caveats
4a. Capital Employed Structure: Study the components of capital employed, suitability to the airport project, its feasibility and sustainability	2.2.1	
4b. Share-holding pattern: Study the composition of shareholders, their holding period, their prevalent divestment scenario and opportunities and possible impact on Cost of Equity	2.2.1	Refer to Table 2.7 - Table 2.10
4c. Cost of Equity: Impact of the cost of equity determined for the previous control periods, suggestions for improvement, impact on the passenger fee aeronautical charges. Study of the scenario must also cover expectations on return or cost of equity, risk-free return, equity market risk premium, equity beta, asset beta, taxation, etc.	3.2.6 and 3.3.8	
4d. Dividend distribution policy: Study on the specific airport's dividend distribution policy, application of Dividend relevance theory in determination of Cost of capital	2.2.3	Fig. 2.7 and Table 2.11 and Table 2.12
4 (Others) a. Cost of debt: Impact of actual cost of debt for previous control periods, variance to projections, suggestions for improvement, impact on passenger fee/aero charges	3.3.7	
4 (Others) b. Debt Structure, Leverage level: Assessment of the efforts of the airport in raising Debt via different avenues, Debt service cost reduction and negotiation efforts	3.3.4	Table 3.4
4 (Others) c. Debt standing and Market perception of the Airport/Major shareholder: Risk profile of the airport operator and/or its largest shareholder and consequent impact on cost of debt	3.3.7	Table 3.7
Hon'ble The Telecom Disputes Settlement & Appellate Tribunal (TDSAT) in its Order dated 23.04.2018 on various appeals in the matter of determination of aeronautical charges in respect of Delhi Airport, has directed the AERA that Refundable security Deposit (RSD) of Rs. 1471 crores cannot be a zero-cost debt. Its cost needs to be ascertained and made available to DIAL through appropriate fiscal exercise at the time of next tariff redetermination. Accordingly, a reasonable/fair return to be provided on RSD for Delhi and Mumbai Airport, is also to be determined. Copy of the TDSAT Order is enclosed.	Discussed in a separate Concept Note	

Subject	Section(s) of the Report	Comments/Caveats
5a. Recommendation 1: Cost of Equity - risk-free return, risk premium and beta levels	3.4 and Excel Utility provided along with this document.	Excel utility manual is provided in section 3.4.1.
5b. Recommendation 2: Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing		
5c. Recommendation 3: Alternative models for determination of cost of equity		
6a. Assist in drafting of consultation paper for determination of cost of equity and undertaking stakeholder consultations and consolidating comments received from various stakeholders, preparing clarifications on comments thereof.	Consultations based on one-on-one interactions with AERA	
6b. Assist in drafting the order on determination of cost of equity		

Opportunity Cost of Capital of Refundable Security Deposit

1. Background

1.1 This report has been prepared as a deliverable required under the Terms of Reference in the Letter of Award issued by AERA dated 05-12-2018 (Letter of Award No. **AERA/20010/RFP Study/COE/2018-19**).

1.2 Item 4(d) in the Terms of Reference of the Letter of Award states: “Hon’ble **The Telecom Disputes Settlement & Appellate Tribunal (TDSAT)** in its Order dated 23.04.2018 on various appeals in the matter of determination of aeronautical charges in respect of Delhi Airport, has directed the AERA that Refundable security Deposit (RSD) of Rs 1471 crores cannot be a zero cost debt. Its cost needs to be ascertained and made available to DIAL through appropriate fiscal exercise at the time of next tariff redetermination. Accordingly, a reasonable/fair return to be provided on RSD for Delhi and Mumbai Airport, is also to be determined. Copy of the TDSAT Order is enclosed.”

1.3 This report specifically refers to DIAL, however the logic used is applicable to any airport similarly placed.

2. Brief Description of the Dispute

2.1 DIAL collected RSD from concessionaires for operating non-transfer assets within the premises of the airport.

2.2 Such RSD proceeds were invested in aero assets, and therefore, DIAL expects an appropriate return on the RSD investment.

2.3 In the specific case of DIAL, AERA agreed that the RSD investment amount belonged to the airport operator but treated it as debt at zero cost (reflecting the implicit annual cost of receiving RSD from the concessionaires).

2.4 DIAL disputed the AERA order on the appropriate return on RSD and the matter was taken up by The Telecom Disputes Settlement & Appellate Tribunal (TDSAT), which concluded that, “*RSD of Rs. 1471 crores cannot be zero cost debt. Its cost needs to be ascertained and made available to DIAL through appropriate fiscal exercise at the time of next tariff redetermination*”, **TDSAT Order dated 23.04.2018, Para 119, Item vii**).

3. Assessment of the Opportunity Cost of RSD

3.1 The RSD amounts were raised from concessionaires for operating non-transfer assets. As per OMDA/SSA, DIAL is free to use these proceeds in whatever manner they deem appropriate. This point has been amply emphasized in the TDSAT order:

- *There is no dispute that this investment amounting to Rs. 1471 crores belongs to DIAL’, TDSAT Order dated 23.04.2018 on AERA Tariff Order for DIAL, paragraph 101).*
- *It ignores the liabilities which DIAL undertook by bidding for the project in view of clear stipulations as to rights in respect of such land as part of Non-transfer Assets.” (TDSAT Order dated 23.04.2018, Para 103).*

3.2 Since the (explicit) cost of the Refundable Security Deposit (RSD) collected from concessionaires is 0%, DIAL was able to procure lower cost financing of aero assets.

3.3 However, as rightful owners of the RSD amount, DIAL could have used the same in alternative investment opportunities. Therefore, DIAL is entitled to receiving full benefits arising from investing the entire RSD amount in aero assets. In short, DIAL faces an opportunity cost of directing the RSD toward investment in aero assets.

3.4 The beneficiaries of the opportunity cost incurred by DIAL are airport users. To the extent that airport users are being subsidized by the (zero-cost) RSD investment in aero assets, it would be fair to provide equivalent compensation to DIAL.

4. Compensation to DIAL for Bearing the Opportunity Cost of Deploying RSD

4.1 Option 1: If DIAL had raised the same amount equivalent to the RSD amount to invest in aero assets, the cost of financing would have been equal to the cost of debt (at the time the RSD was invested in aero assets). Thus, **the opportunity cost of RSD (r_{RSD}) would be equal to the cost of debt at the time when RSD was invested in aero assets.**

4.2 Option 2: The RSD amount could have been placed in an escrow account (in funds having required ratings from CRISIL, as specified in OMDA/SSA). The potential earnings on the escrow account would then be the opportunity loss to DIAL for which they must be compensated. **Thus, the opportunity cost of RSD (r_{RSD}) should reflect the return on an Escrow Account.** This suggestion has been considered in **TDSAT Order, Para 106:** *‘On a careful consideration of all the relevant factors and keeping in mind the provisions in the OMDA agreement including ESCROW Agreement which authorizes investments of such money of JVC (ESCROW Account) to be invested in some specified funds having required rating by CRISIL...At the least, the cost would be the rate of return made available by the approved funds having required ratings of CRISIL.’*)

4.3 Conclusion: Option 1 recognizes that airport users benefitted to the extent of the cost of debt and hence DIAL should be compensated as per the cost of debt on RSD. On the other hand, Option 2 recognizes that the RSD amount could have been invested in an escrow account and the missed opportunity for DIAL is the earnings that would have accrued to them on a suitable escrow account; thus, the compensation to DIAL should reflect the return on an appropriate escrow account. AERA can consider both options because they are based on economic logic that tries to capture the opportunity costs. Option 2 is more difficult to implement because the rate of return on specified CRISIL-rated funds varies over time and is subject to estimation issues whereas the cost of debt required in Option 1 is relatively stable and frequently estimated by AERA when determining the annual cost of capital.



Multi Year Tariff Proposal for third control period for IGI Airport, New Delhi

1st April'2019 to 31st March'2024

27th Nov'2018

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1 Background

The Civil Aviation industry in India has emerged as one of the fastest growing industries in the country during the last three years. India is currently considered the third largest domestic civil aviation market in the world. India is expected to become the world's largest domestic civil aviation market in the next 10 to 15 years.

According to International Air Transport Association IATA, India will displace the UK for the third place in 2025.

The Civil Aviation industry has ushered in a new era of expansion, driven by factors such as low-cost carriers (LCCs), modern airports, Foreign Direct Investment (FDI) in domestic airlines, advanced information technology (IT) interventions and growing emphasis on regional connectivity.

Airport privatization played a key role in growth of aviation industry in India. With a success of existing PPP projects government had further privatized Goa and Navi Mumbai Airport and looking forward private participation in future industry growth.

Prime examples of PPP in Indian aviation are new and redeveloped metro airports in the past decade. The largest of these, the Indira Gandhi International Airport (IGIA) in New Delhi, handling 65.69 million passengers in 2017-18, has also emerged as the largest airport in South Asia, and one of the world's fastest growing ones.

Indira Gandhi International Airport Delhi

Airport Authority of India (AAI) pursuant to Airport Infrastructure policy 1997 had initiated the process of selecting a lead partner for executing the modernization projects through a competitive bidding process for the IGI Airport, New Delhi. A consortium led by the GMR Group was awarded the bid for operating, maintaining, developing, designing, constructing, upgrading, modernizing, financing and managing the Airport. Post selection of the consortium, on 1st March'2006, a special purpose vehicle, namely Delhi International Airport Pvt Ltd (DIAL), was incorporated with AAI retaining 26% equity stake and balance 74% of equity capital acquired by members of consortia.

DIAL executed the Operation, Management and Development Agreement (OMDA) with AAI on 4th April'2006 and commenced operations from 3rd May'2006. Under OMDA, AAI granted DIAL the exclusive right and authority to undertake some of the functions of AAI being the functions of operations, maintenance, development, design, construction, up gradation, modernizing, finance and management of the IGI Airport and to perform services and activities constituting aeronautical services and non-aeronautical services (but excluding Reserved activities) at the airport in accordance with terms and conditions of OMDA.

Simultaneously several agreement were entered into such as Lease Deed dated 25th April'2006, Shareholders' Agreement dated 4th April'2006, State Support Agreement dated 26th April'2006, State Government Support Agreement dated 26th April'2006, Airport Operator Agreement dated 1st May'2006 between DIAL and Fraport AG, CNS/ ATM Facilities and Services Agreement dated 25th April'2006 and Escrow

Agreement dated 28th April'2006 for smooth and efficient functioning of the grant under the principal agreement. OMDA and these agreements are collectively known/ treated as Concession Agreements and meet the criteria for the concession offered by central government in terms of clause 13 (1) (a) (vi) of the AERA Act 2008.

The State Support Agreement dtd. 26th April'2006 ("SSA") signed with Government of India outlined the support from Government of India and also laid down the principles of for tariff fixation. Clause 3.1 read with Schedule 1, 6 and 8 to SSA inter-alia lay down the methodology and the principles by the Regulatory Authority for while fixing the tariff for the provision of aeronautical services and the recovery of the costs relating to Aeronautical Assets at IGI Airport.

This process is now also governed by the principles set by the TDSAT and the observations made by it in its order dated 23rd April, 2018 with respect to certain building blocks in the tariff determination.

TDSAT in its said order has noted that the Central Government laid down the policy to attract private and public participation and investments to have world class airports facilities at the major airports. Unless there be anything contrary in the Act, the Policy needs to be viewed as a promise so that the ultimate bidders and investors may feel secure and confident of a fair treatment after they have agreed to make or made heavy investments. The concession offered through any Agreement or Memorandum of Understanding or even otherwise needs to be viewed accordingly. Since a contractual right/claim has the backing of law, it deserves clear respect.

Since inception DIAL had pressed that the Concession Agreement awarded to DIAL are of utmost importance and same have to be considered for tariff determination purpose. The concession provided under this agreement has to be respected by the Authority during the tariff determination exercise.

Accordingly we request AERA to regard the provisions of OMDA in the current tariff determination exercise.

1.1 List of dates pertaining to determining of Tariff at IGI Airport:

Date	Activity
01.03.2006	DIAL was incorporated with Airports Authority of India ("AAI") and the GMR consortium holding equity in the ratio 26:74 in it.
04.04.2006	OMDA executed between the AAI and DIAL.
20.06.2011	DIAL submitted proposal for tariff determination for first control period i.e. 01.04.09 to 31.03.2014
24.04.2012	AERA issued the First Tariff Order determining the Aeronautical Tariffs for the IGI Airport for the First Control Period, i.e., from 01.04.2009 to 31.03.2014.
23.05.2012	DIAL filed Appeal No.10/2012 before the Hon'ble Tribunal challenging the First Tariff Order on various grounds.
11.11.2013	DIAL filed its tariff proposal for the Second Control Period (without prejudice to its rights and contentions in the appeal pending before this Hon'ble Tribunal).

Date	Activity
22.01.2015	The Division Bench of Hon'ble High Court allowed the LPA No.670/2014 and directed that the tariff determined by the AERA for the First Control Period shall continue till the disposal of the appeals pending against the First Tariff Order by this Hon'ble Tribunal.
28.01.2015	AERA issued Consultation Paper No.16/2014-2015 on Determination of Aeronautical Tariff in respect of IGI Airport for the Second Control Period from 01.04.2014 to 31.03.2019
10.12.2015	AERA issued order no 40/2015-16 for second control period from 01.04.2014 to 31.03.2019 with an X factor of (-) 96.08% and (-) 89.40% post considering cash support. However, same was not implementable due to High Court order.
11.01.2016	DIAL filed appeal against the order no 40/2015-16 dtd. 10.12.2015 before the AERAAT/TDSAT
03.07.2017	The Hon'ble Supreme Court of India, on SLP filed by Air India, has vacated the order of Hon'ble High Court of Delhi and directed TDSAT to dispose of the appeals of DIAL no 10/2012 for first control period.
08.07.2017	DIAL implemented the Tariff order No. 40/2015-16 dated December 10, 2015
23.04.2018	TDSAT pronounced order on DIAL appeal no 10/2012.
21.07.2018	DIAL has filed a limited appeal in the Hon'ble Supreme Court of India for certain issues qua TDSAT judgment dated April 23, 2018.
15.11.2018	TDSAT order on MIAL Appeal no 4 of 2013
19.11.2018	AERA accorded DIAL to charge Base Airport Charges (BAC) + 10% of BAC from 1 st December 2018. The order acknowledged the eligibility of DIAL to charge minimum tariff of BAC +10% of BAC any year during the term of the concession.

1.2 TDSAT order and its impact on current tariff filing:

The First tariff order appeal of DIAL and other stakeholders pending before TDSAT was decided and TDSAT had pronounced order for DIAL appeal 10/2012 on 23rd April'2018. And the same is annexed herewith as **Annexure – 1** for ready reference. Following is the relevant extract of the TDSAT order referred:

“Some of the salient observations and directions on material issues are summarized hereinbelow for the purpose of easy reference so that these directions and observations are carried out and/or kept in mind by AERA at the time of tariff formulation for Aeronautical Services for the next control period that may be falling for consideration:

(i) In exercise of powers under Section 13 of the Act, AERA is required to respect rights/concessions etc. (See Para 31).

(ii) Contractual rights can be voided only on the basis of explicit statutory provisions or implications from statutory provisions permitting no other option (See Paras 34 and 36)

(iii) Even when the Airport Operator engages in providing an Aeronautical Service through its servants or agents, the service must be deemed to be one provided by the Airport operator. The colour of revenue from Aeronautical Service cannot get changed to that of revenue from Non-Aeronautical Service, by an act of delegation or leasing out by the Concessionaire. (See Paras 57 and 59)

(iv) Revenue from Cargo and Ground Handling charges are required to be treated as non-Aero revenue (See Para 84)

(v) For future, the exercise for Assets allocation has to be redone, if not redone already (See Para 86).

(vi) Levy and determination of User Development Fee (UDF) is lawful but its use and appropriation must also be transparent lawful and accounted for in the future exercise for tariff determination (See Para 96).

(vii) RSD of Rs.1471 crores cannot be a zero cost debt. Its cost needs to be ascertained and made available to DIAL through appropriate fiscal exercise at the time of next tariff redetermination (See Para 106)

(viii) Although rate of 16% as return on Equity not interfered with, AERA may redo the exercise through a scientific and objective approach, independently of any observations in the Third Control Period. (See Para 113)."

DIAL also relies on the Judgment dated 15th November 2018, in the matter of Appeal no 4 of 2013 filed by Mumbai International Airport Ltd (MIAL). The referred order is attached herewith as **Annexure-2**. Since the provisions of the concession at DIAL are similar to that of MIAL, the direction of the order shall be also applicable to DIAL. The relevant portion of the order are reproduced below for ready reference:

"To conclude, we find no good reason to interfere with the impugned tariff order, except to the extent indicated below –

(i) In respect of decision XV.a, the question of 'S' as an element of revenue pertaining to aero services for the purpose of calculating 'T' is remanded back. Only to this limited extent, we direct AERA to consider the issue afresh through a consultative process in the next control period that may be falling for consideration.

(ii) We direct AERA not to exclude the amount of Upfront Fee from the equity share capital of MIAL while determining WACC.

(iii) We observe that, if in future the ratio (between domestic and international airlines) in respect of tariff structure/rate card is proposed to be changed to the disadvantage of the appellants, AERA may do so only through a process of detailed consultation and in accordance with the AERA Act 2008.

(iv) In view of facts and stand of the appellants noted in paragraphs 3 and 4 of this order, it is clarified that in respect of relevant issues not pressed in these appeals but decided in DIAL's appeal No. 10/2012, that judgment dated 23-4-2018 shall govern the parties herein."

DIAL in the present submission has considered the impact of above referred judgment at appropriate places. In view of the above judgments DIAL has considered the following issues in the present tariff application:

- **Return on Refundable Security Deposit (RSD)** : In view of the judgment dated 23rd April 2018 considered return on RSD in its WACC calculation from the first control period
- **Adjustment of WACC on account of Upfront Fee**: DIAL has considered the Upfront Fee in the WACC calculations as part of the equity in view of the judgment dated 15th November 2018
- **Aeronautical tax calculation including S- Factor**: TDSAT has remanded the matter to AERA for reconsideration. DIAL has considered the S-Factor as part of the revenue for calculation of the aeronautical tax computation. It is pertinent to note that the aeronautical target revenue is achieved through a combination of cross subsidy (S-Factor) and revenue from aeronautical tariff. Hence the revenue for calculation of tax should consider the S-Factor and revenue from aeronautical tariff as part of income.

Further, the Target Revenue calculated for the first control period and the second control period would have to be revised and effect of change on account of various factors enumerated hereinafter needs to be tried up in the determination of Aeronautical tariff for Third control period.

DIAL would also like to state that the certain issues arising out the orders of the AERA and subsequently TDSAT with respect to the aeronautical tariff of DIAL for the first period, and consequently which has equivalent effect on the tariff of second control period, have been subjected by DIAL to the further adjudication by the Hon'ble Supreme Court in the Civil Appeal no. 8378 of 2018. DIAL reserves the right to submit any further or revised submissions pertaining to the matters in appeal, if and when such appeal is finally adjudicated and thus request AERA to accordingly give effect to such matters in its tariff determination exercise for DIAL.

2 Truing up for the first control period (1st April'2009 to 31st March'2014)

The Authority has considered the true up for the first control period vide its order no 40 /2015-16 dated 10th December'2015. DIAL had filed an appeal against the stated order on 11th January'2016 before the then AERAAT which was subsequently transferred to the TDSAT. The state appeal is pending for adjudication at the Hon'ble TDSAT.

Hon'ble TDSAT vide its order dtd. 23rd April'2018 on DIAL appeal no 10/2012 for first control period had adjudicated on various issues raised by DIAL. In order to give effect to the TDSAT order DIAL has proposed to true up the relevant building block from first and second control period.

In addition to the implication of the TDSAT order referred above, DIAL has also considered other issues which had not been earlier dealt by the Authority in the truing up for the first and second control period. These issues have been elaborated in the subsequent sections

2.1 Return on Equity

2.1.1 Rate of return on Equity

Aeronautical Charges to be levied and collected by DIAL at the IGI Airport, New Delhi are calculated in terms of the SSA. In this regard, it would be relevant to refer to Schedule 1 of the SSA which provides for the principles as well as the formula for calculation of Aeronautical Charges. Schedule 1 of the SSA reads as under:

"Principles

In undertaking its role, AERA will (subject to Applicable Law) observe the following principles:

- 1. Incentives Based: The JVC will be provided with appropriate incentives to operate in an efficient manner, optimising operating costs, maximising revenue and undertaking investment in an efficient, effective and timely manner and to this end will utilise a price cap methodology as per this Agreement.*
- 2. Commercial: In setting the price cap, AERA will have regard to the need for the JVC to generate sufficient revenue to cover efficient operating costs, obtain the return of capital over its economic life and achieve a reasonable return on investment commensurate with the risk involved.*
- 3. Transparency: The approach to economic regulation will be fully documented and available to all stakeholders, with the Airports and key stakeholders able to make submissions to AERA and with all decisions dully documented and explained.*
- 4. Consistency: Pricing decisions in each regulatory review period will be undertaken according to a consistent approach in terms of underlying principles.*
- 5. Economic Efficiency: Price regulation should only occur in areas where monopoly power is exercised and not where a competitive or contestable market operates and so should apply only to Aeronautical Services. Further in respect to regulation of Aeronautical Services the approach to pricing regulation should encourage economic efficiency and only allow efficient costs to be recovered through pricing,*

subject to acceptance of imposed constraints such as the arrangements in the first three years for operations support from AAI.

6. *Independence: The AERA will operate in an independent and autonomous manner subject to policy directives of the GOI on areas identified by GOI.*

7. *Service Quality: In undertaking its role AERA will monitor, pre-set performance in respect to service quality performance as defined in the Operations Management Development Agreement (OMDA) and revised from time to time.*

8. *Master Plan and Major Development Plans: AERA will accept the Master Plan and Major Development Plans as reviewed and commented by the GOI and will not seek to question or change the approach to development if it is consistent with these plans. However, the AERA would have the right to assess the efficiency with which capital expenditure is undertaken.*

9. *Consultation: The Joint Venture Company will be required to consult and have reasonable regard to the views of relevant major airport users with respect to planned major airport development.*

10. *Pricing responsibilities: Within the overall price cap the JVC will be able to impose charges subject to those charges being consistent with these pricing principles and IATA pricing principles as revised from time to time including the following:*

(i) Cost reflectivity: Any charges made by the JVC must be allocated across users in a manner that is fully cost reflective and relates to facilities and services that are used by Airport users;

(ii) Non discriminatory: Charges imposed by the JVC are to be non discriminatory as within the same class of users;

(iii) Safety: Charges should not be imposed in a way as to discourage the use of facilities and services necessary for safety;

(iv) Usage: In general, aircraft operators, passengers and other users should not be charged for facilities and services they do not use.

Calculating the aeronautical charges in the shared till inflation – X price cap model

The revenue target is defined as:

$$TR_i = RB_i \times WACC_i + OM_i + D_i + T_i - S_i$$

Where TR = Target Revenue

RB = regulatory base pertaining to Aeronautical Assets and any investments made for the performance of Reserved Activities etc. which are owned by the JVC, after incorporating efficient capital expenditure but does not include capital work in progress to the extent not capitalised in fixed assets. It is further clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed for capitalization in the regulatory base. It is further clarified that the Upfront Fee and any pre-operative expenses incurred by the Successful Bidder towards bid preparation will not be allowed to be capitalised in the regulatory base.

$WACC$ = nominal post-tax weighted average cost of capital, calculated using the marginal rate of corporate tax

OM= efficient operation and maintenance cost pertaining to Aeronautical Services. It is clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed as part of the operation and maintenance cost.

D= depreciation calculated in the manner as prescribed in Schedule XIV of the Indian Companies Act, 1956. In the event, the depreciation rates for certain assets are not available in the aforesaid Act, then the depreciation rates as provided in the Income Tax Act for such asset as converted to straight line method from the written down value method will be considered. In the event, such rates are not available in either of the Acts then depreciation rates as per generally accepted Indian accounting standards may be considered.

T= corporate taxes on earnings pertaining to Aeronautical Services.

S = 30% of the gross revenue generated by the JVC from Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges. (emphasis added)

“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (eg: Public Admission Fee)

i= time period (year) i

As such, the first and foremost step in the calculation of Aeronautical Charges is the calculation of Target Revenue (TR) which is to be calculated as per the formula given below:

$$TR_i = RB_i \times WACC_i + OM_i + D_i + T_i - S_i$$

Therefore, the calculation of Target Revenue is dependent on the regulatory blocks enlisted in the formula above which have to be ascertained and calculated in terms of their definition given in the SSA. One of the regulatory block so used in the calculation of Target Revenue is WACC which has been defined as ‘nominal post-tax weighted average cost of capital, calculated using the marginal rate of corporate tax’.

While in general parlance, WACC is defined as weighted average cost of capital, in the SSA the same has been defined as ‘nominal post-tax weighted average cost of capital’. Further it has also been stated in the SSA that the WACC is to be calculated using the marginal rate of corporate tax. As such, the definition of WACC in the SSA is evidently different from the definition of WACC in general parlance.

The weighted average cost of capital is the calculation of a company’s cost of capital in which each category of capital is proportionately weighted and therefore, to calculate the weighted average cost of capital, the cost of each component of capital is multiplied with its proportional weight and the results are summed up. Therefore, if equity and debt are the two means of finance then cost of capital is as under:

$$\text{Cost of Capital} = \text{cost of debt capital} + \text{cost of equity capital}$$

Where the cost of debt is a pre-tax cost of debt and the cost of equity is a post-tax cost of equity.

However, since the definition of WACC as provided in the SSA states that it has to be calculated post-tax using the marginal rate of corporate tax, the same has to be given meaning over and above the general

parlance meaning of 'weighted average cost of capital' as there seems to be a clear intention of the parties to the SSA to define WACC as something which is different from the 'weighted average cost of capital'.

In view of the above it is submitted, that while calculating weighted average cost of capital, cost of equity is to be computed which is simply the rate of return on equity. This is so because it is the return on equity given to investors which is the cost attached to such equity. However, for calculating WACC in terms of the SSA, the post-tax cost of equity should be considered and the same should be calculated using the marginal rate of corporate tax.

Therefore, to give effect to the said definition of WACC, the rate of return on equity has to first be calculated by using the marginal rate of corporate tax and then the same has to be employed in the calculation of WACC. As such, whatever rate of return is arrived at after employing the CAPM formula is to be grossed up using the marginal rate of corporate tax and the number then arrived at is to be used for the calculation of WACC as defined in the SSA.

For example, if we were to consider the rate of return to the investors at 16% as calculated by AERA for the first control period, as the post-tax cost of equity, then the rate of return would have to be grossed up with the marginal rate of corporate tax, i.e., 30% to arrive at the post-tax cost of equity which is subsequently to be employed for the calculation of WACC in terms of the SSA. The calculation for the same is as under:

$$\begin{aligned} \text{Post-tax cost of equity} &= 16 * [1/(1- 30\%)] \\ &= 16 * [1/(100-30/100)] \\ &= 16 * [1/0.7] \\ &= 16 * 1.43 \\ &= 22.8\% \end{aligned}$$

Therefore, in the given example the post-tax cost of equity would come to 22.8% which would subsequently be used for calculation of WACC as defined in the SSA as opposed to 16% which would be used for calculation of weighted average cost of capital in its general parlance.

The said calculation of 22.8% is also reflected from the RFP issued for the IGI Airport, New Delhi and CSI Airport, Mumbai. In the pre-bid clarifications issued by the Airports Authority of India (AAI), the significance of the same was stated as under:

"The post-tax cost of equity and debt assumed under the indicative post tax nominal WACC of 11.6% are 22.8% and 6.0 respectively. The purpose of the indicative post tax nominal WACC of 11.6% given in the RFP is to ensure consistency between Business Plans submitted by Bidders as part of their Offer."

As such, even in the RFP a 'post-tax' cost of equity was used for calculation of WACC as defined in the SSA. The said number of 22.8% was clearly a number derived through calculation and was not a number assumed at random. Thus, to arrive at the indicative rate of return of 16% to the investors, the post-tax cost of equity has been determined as 22.8% by AAI.

In view of the above, it is humbly submitted that the calculation of WACC for arriving at the Target Revenue which precedes the calculation of Aeronautical Charges to be levied and collected by DIAL, should be done in terms of the SSA. This is consistent with the regulatory mandate vide section 13(1)(a)(vi) of the AERA Act.

It is therefore, requested that WACC be calculated as per its definition in the SSA and not as per the general parlance of 'weighted average of cost of capital' as has been done in the earlier tariff orders.

2.1.2 Upfront Fee

Further, we refer to the TDSAT order dated dtd. 15th Nov'2018 on MIAL appeal no. 4 of 2013, at Para 41(ii) where the tribunal has directed that upfront fee should not be excluded from the equity share capital while determining WACC. Accordingly in case of current tariff filing DIAL has also considered Rs 150 Cr paid with respect to upfront fee as part of equity while computation of WACC.

2.2 Foreign Exchange Rate Variation

DIAL as a part of cost optimization, leveraging on foreign currency inflow and optimizing cash flows have taken foreign currency loan in the FY'10 & FY'14. The benefit of lower cost has been passed on to the passenger in terms of lower tariff however on the other side due to currency fluctuation DIAL had to incur forex losses. DIAL in its prudence had taken the foreign currency loan however such loans were subjected to foreign currency fluctuations. It may also be noted that the loans were taken before any such guidelines prescribed by AERA on the same for DIAL.

DIAL during the tariff filing of first as well as second control period had submitted to consider the forex loss as per AS-11. Authority in its order 40/2015-16 has not accepted DIAL approach for allowing forex loss in to RAB as per AS-11. Following is the authority's view with respect to foreign exchange loss at para 8.25 of the order no 40/2015-16:

*"While the Authority is inclined to consider foreign exchange rate fluctuations, it is not persuaded to consider the approach of making adjustments in RAB. **Normally, actual losses incurred by the operator on account of fluctuations in foreign exchange are expensed out** while determining tariff for the operator. The Authority is of the view that in case it were to consider foreign exchange rate fluctuations by expensing out actual losses on this account, it would also true up the WACC (including actual interest rates on domestic term loan). The Authority had communicated to DIAL to consider foreign exchange losses along with true-up of WACC.....*

*.....The Authority had communicated to DIAL to consider foreign exchange losses along with true-up of WACC. However, DIAL did not exercise any option."**[Emphasis added]***

DIAL basis AERA's opinion has considered the actual cash outgo relating to foreign exchange variation in the repayment and interest payment for loans in foreign currency as an expense.

The actual loss has been certified by the Statutory Auditor and is placed as **Annexure 3** for ready reference. The actual forex loss as expense is further allocated in to aero and non-aero in applicable asset allocation ratio for relevant control period.

Accordingly, for the first control period following will be the additional expense on account of forex which need to be considered as expense for the purpose of true up:

Table 1 Actual forex cash outgo for first control period (Rs/Cr)

Particular	2010	2011	2012	2013	2014	Total
Forex - Aeronautical	(0.08)	1.44	9.05	31.36	79.59	121.36
Forex - Non-Aeronautical	(0.01)	0.17	1.09	3.78	9.59	14.62
Total	(0.09)	1.61	10.14	35.14	89.18	135.98

2.3 Return on Refundable Security Deposit (RSD)

The Authority vide its Order no 3 dated 24th April'2012 had decided to consider RSD as a means of finance at zero cost for WACC calculation. However, DIAL had considered the return on RSD equivalent to cost of equity which was supported by various expert evidences. Aggrieved by the decision of the Authority DIAL had filed an appeal before the AERAAT / TDSAT on various issues including return on RSD. The TDSAT vide its order dated 23rd April'2018 had adjudicated on issues including the return to be allowed on RSD. The relevant extract of the para 106 of the order dated 23rd April'2018 relating to the return on RSD is reproduced below:

“Clearly, in our opinion, this money has wrongly been treated as debt at zero cost. The well accepted commercial practices and norms need to be respected by the Authority and therefore, return on RSD amount should be re-determined by it for the reasons indicated above. Instead of interfering with the impugned tariff determination we direct that the amount due to DIAL under this head should be worked out and made available to DIAL through appropriate fiscal exercises which should be undertaken when the exercise of redetermination of tariff for IGI Airport, Delhi is next undertaken in due course.”

Since, RSD is eligible for return, DIAL is hereby submitting its request for true up of DIAL tariff eligibility on this account.

DIAL in its past submissions had stated that the return on RSD should be provided equivalent to the cost of equity. This has also been supported by various expert reports. Some of the relevant extract of expert report reproduced herein below:

1. **KPMG** provided report on treatment of specific elements of capital and operating expenditure for determining Regulatory Asset Base (RAB) and basis for proposing a fair rate of return on such investment. In the report KPMG had discussed the treatment of Refundable Security Deposit (RSD). KPMG report is attached as **Annexure-4**. KPMG at para 2.7 in its report concluded following:

*“The Authority has proposed to provide zero returns on capitalized airport asset funded through RSD. However, it is evident that there is an opportunity cost associated with RSD in terms of the forgone lease rentals. Also, lenders have treated the RSD funding as part of promoter’s contribution (quasi-equity), therefore, RSD utilised to fund the capex is expected to have risk **inherent to that associated with equity**. Additionally, there are examples from other infrastructure sectors where regulator provides return on the capital employed by the Concessionaire and does not consider the cost of funds while calculating tariff.”(Emphasis added)*

2. **Kalypto Risk Technologies Ltd**, (Kalypto) a subsidiary of Credit Analysis & Research Limited [CARE] has also done detailed study and stated as under:

“the amount mobilized through RSD exhibits equity like features and as such qualifies for being treated as quasi equity and thus being eligible for close to equity returns.”

The report referred above is attached as annexure herewith. **Annexure-5**

3. Lenders of the Delhi Airport projects also considered RSD as Quasi Equity while calculating Debt Equity Ratio (DER).

Considering above expert report and RSD having equity like features, DIAL has considered return on RSD equivalent to cost of equity.

2.4 Weighted Average Cost of Capital (WACC)

As discussed in the previous paragraph, DIAL has proposed to true up the entire WACC for the first control period. Accordingly, DIAL has considered the revision in the WACC basis the actual cost of debt, cost of equity as proposed at para 2.1.1, inclusion of upfront fee at para 2.1.2 and RSD.

Table 2-Actual WACC for first control period

Particular	Cost of Funds	Gearing	Effective rate
Equity	22.86%	27.50%	6.29%
Refundable security deposits (RSD)	16.00%	14.82%	2.37%
Debt	10.00%	57.69%	5.77%
WACC			14.42%

The revised WACC accordingly considered at 14.42% for the first control period

2.5 Adjustment towards Regulatory Asset Base (RAB)

2.5.1 ATC tower capitalization:

The Authority vide its order no 28/2011-12 dtd 14.11.2011 has allowed DIAL to recover the Development Fee (DF) towards part funding of the project cost. The DF determined under the said order includes Rs 350 Cr towards Air Traffic Control (ATC) Tower.

As per AAI Act, OMDA and SSA, ATC is meant for AAI to provide CNS/ATM services at IGI Airport and accordingly gets covered under Reserved Activities which is outside the scope of DIAL. During the project phase, AAI had requested for a New ATC Tower based on the Operational requirements. AAI also submitted that the cost of the same has been included in the overall Project Cost and funding of this can be made from the DF.

The assets corresponding to the ATC have not been capitalized in the DIAL accounts. AERA allowed DIAL to collect DF to the tune of Rs. 3415 cr including ATC cost of Rs 350 Cr. Since, the ATC asset are not capitalized in DIAL books the DF adjustment should be reduced to Rs. 3065 Cr (Rs 3415 Cr – Rs 350 Cr)

AERA at Table 21 of order no 40/2015-16 dtd. 8th Dec'2015 has adjusted the amount of development fee (DF) from regulatory asset base. Till FY'14 DIAL had drawdown the DF of Rs. 3241.37 Cr. and accordingly AERA adjusted total DF of Rs. 3241.37 Cr. This adjustment wrongly considers Rs. 176.37 Cr of DF drawn on account of ATC. Since the asset is not capitalized there is no reason of deduction of RAB on this account.

It is envisaged that the ATC tower would be capitalized in FY 2018-19, hence, DIAL has considered the ATC tower capitalization and adjustment of DF on this account in FY 2018-19. Accordingly DIAL requests the Authority to consider DF adjustment for the first control period to the levels of Rs. 3065 Crores

- 2.5.2 **Baggage screening related asset:** Pursuant to the implementation of second control period order the aeronautical tariff as fallen below the Base Airport Charges (BAC) +10% of BAC. Hence, DIAL had approached AERA for the implementation of tariff equivalent to BAC+10%. Authority has issued the order no 30/2018-19 dated 19th November 2018 to implement the BAC+10% tariff. However, the order had the following decision related to charging of X-Ray Baggage charges:

“DIAL is not entitled to charge X-Ray charges, since the investment on screening equipment was made from PSF and not by DIAL. The X-ray baggage charge (as stipulated in Schedule 8 of SSA +10%) shall be applicable from the date of DIAL’s remittance of required amount to PSF fund. A separate order to this effect will issue on receipt of confirmation of remittance of the required amount into PSF from Ministry of Civil Aviation”

DIAL has proposed to remit the amount of Rs. 119.66 Crores relating to baggage screening assets to PSF account. Accordingly the assets relating to Rs 119.66 Crores have been added to the aeronautical RAB in the relevant years of capitalization.

Accordingly DIAL has revised the opening RAB during the first control period to the extent the correction explained above.

Table 3- RAB calculation for CP 1 (Rs/Cr)

Particular	2010	2011	2012	2013	2014
RAB as per AERA	2,479.85	5,208.26	8,254.13	7,458.08	7,118.46
Add: Reversal of ATC related DF adjustment				139.75	176.37
Less: Reversal of ATC related DF adjustment - Depreciation				(2.33)	(5.27)
Add: Baggage Screening Equipment	10.50	69.71	100.98	97.89	96.71
Total	2,490.35	5,277.97	8,355.10	7,693.36	7,386.21

2.6 Rehabilitation of Runway 10/28

The Authority had approved the project cost related to DIAL in the order no 28/2011-12. The authority while disallowing certain amount in the order had also disallowed Rs 17.50 cr expense in capex and allowed the same as part of operational expenditure. The relevant extract of order no 28/2011-12 is as below:

KPMG have suggested that the project cost of this work may be taken as Rs.72.5 crores and an amount of Rs.17.5 crores may be allowed only as operating expense in the financial year in which it has been incurred. Authority had taken a tentative view that the recommendations of the KPMG in the matter were fair and, therefore, an amount of Rs. 37.50 crores may be excluded from the project cost. DIAL have accepted the disallowance of Rs. 17.50 crores on the runway rehabilitation and have stated they shall be treating the same as opex in their tariff filing.

AERA in the true up of CP1 has inadvertently omitted the same in true up of operating expense, since this is an error of omission, DIAL has considered the same in first control period true up computation. Accordingly, DIAL has considered the expense of Rs 17.50 Crores in the FY 2011 and requests the Authority to allow the same as operating expenses.

2.7 Revenue from revenue share assets

Following issues are to be considered while considering revenue from revenue share assets:

2.7.1 Revenue from Fuel Farm

Delhi International Airport Limited ("DIAL") has been levying a Fuel Throughput Charge at the IGI Airport in consideration for the concession awarded to the fuel supply companies to supply their product to air carriers operating out of the respective airports like any other concession. The said Fuel Throughput Charge which is charged by DIAL to the oil companies is akin to royalty, for permitting oil companies to supply fuel at the IGI Airport. However, the said charge is not directly relatable to supply of fuel to the aircrafts at the IGI Airport.

While Fuel Throughput Charge is the consideration for the concession awarded to the oil companies to supply their product to air carriers operating out of the respective airports, Fuel Infrastructure Fee is the levy charged by the owner of the facility (who may not necessarily be the airport operator) which generally comprises of the necessary infrastructure viz. Common Hydrant System, Pipeline, Storage Tank etc. required for the performance of the fuelling services. As such, Fuel Infrastructure Fee is the charge levied on the oil companies by the owner of the fuel infrastructure, which is Delhi Aviation Fuel Facility Private Limited (DAFFPL) in the case of IGI Airport, for the supply of fuel to aircrafts where as Fuel Throughput Charge is a charge levied by DIAL for grant of the right to oil companies to provide their services at the IGI Airport.

There is a clear distinction between the levy of Throughput Fee and the Fuel Infrastructure Fee. In case of the former, the fee is the consideration for the concession awarded to the fuel supply companies to supply

their product to air carriers operating out of the respective airports. The latter is a levy charged by the owner of the facility (may not necessarily be airport operator) which generally comprises of the necessary Infrastructure viz. Common Hydrant System, Pipeline, Storage Tank etc. required for the performance of the fuelling services. Therefore, throughput fee is not covered under Schedule 5 of OMDA and is consequentially not a charge for an Aeronautical Service.

In compliance with the provisions of the Act and adherence to the provision of OMDA, we submit that the throughput fee is a concession fee charged generally on per unit of ATF off take.

It is also relevant to note that not only DIAL but AAI has also been charging Fuel Throughput Charges at various other airports and the same was charged by AAI after negotiating the charges with the oil companies. As for the IGI Airport, AAI had been charging Fuel Throughput Charges in addition to the existing airport charges specified in Schedule 8 of the SSA, even before handing over the IGI Airport to DIAL which indicates that Fuel Throughput Charges is not in the nature of an aeronautical charge. Further, at the time of the bidding process for the IGI Airport, AAI issued a response to the queries of the bidders wherein it clearly stated that the airport operator would have the freedom to negotiate the quantum of Fuel Throughput Charges with the oil companies, thereby make it clear that the same would not be within the ambit of an aeronautical charge. The answer of AAI to pre-bid queries is as under:

“Pre-bid queries raised by the bidders at the bidding stage for CSIA and response to same by AAI

428	<i>The heads of Aeronautical Services mentioned in Schedule 5 of OMDA are not separately captured in the format provided for business plan in RFP. Under which head do each of the Aero Services get clubbed?</i>	<i>In respect of Aeronautical Services the only charges levied are Landing Fees, Parking Fees, Housing Fees and the facilitation component of the Passenger Service Fee.</i>
690	<p><i>Oil Companies</i></p> <p><i>What is the present arrangement with companies supplying ATF and AAI. What are the charges received by AAI. Please provide copies of formal arrangements.</i></p> <ul style="list-style-type: none"> <i>· Is there any proposal for allowing private oil companies to supply ATF</i> <i>· What is the current arrangement for use of hydrant system and any new proposal for future?</i> <i>· Who is responsible for insurance of the Oil supply system</i> 	<p><i>Presently AAI is charging lease rental from oil companies for allotted land. However, oil companies (IOC, BPCL, & HPCL) have agreed to pay throughput charges with retrospective effect w.e.f. 1-4-2001. Quantum of throughput charge is to be agreed between AAI and oil companies.</i></p> <p><i>2. Yes.</i></p> <p><i>3. Currently hydrant at Tr-2 IGIA is owned by BPCL and all 3 companies IOC, HPCL, and BPCL share' this facility on a common usage basis.</i></p>

		4. Oil Company is responsible for oil supply system.
978	Refer your reply no 95 to Query (IGIA), raised by one of the bidders wherein you have informed that "oil companies (IOC, BPCL, HPCL) have agreed to pay throughput charges with retrospective effect w.e.f. 1-4-2001." Kindly inform us 1) The throughput charge rate and the absolute amount - year wise that is due I expected to be due from each of the oil companies.2) The throughput of each oil company	The Oil Companies have recently agreed in principle to pay the throughput charges but exact quantum is not yet decided.
1092	Would the JVC be permitted to share the revenue from the fuel suppliers at the Airport apart from charging lease rentals?	Yes. JVC will have freedom to negotiate with the fuel companies.

Pertinently, the right to mutually agree and sign agreements with the oil companies has also been granted to DIAL in Clause 5.2 of the OMDA, which states as under:

“5.2 Transition Phase

(a) *The period commencing from Effective Date and terminating three (3) months thereafter shall constitute the **Transition Phase**. Provided however that in the event the activities proposed to be undertaken during the Transition Phase have not been completed within the abovementioned period of three (3) months, then the Transition Phase shall be extended by an additional period of three (3) months, and in such event, the period commencing from Effective Date and terminating six (6) months thereafter shall constitute the **Transition Phase**.*

(b) *During the Transition Phase, the following activities shall take place:*

(i) **Existing Contracts:** *The JVC shall take best efforts, and AAI shall render all reasonable assistance, to transfer / novate AAI under all existing contracts and agreements between AAI and any third party, as relatable to the Airport, with the JVC, on the principle that such transfer / novation would release AAI of all liabilities and obligations under such contracts or agreements as arising from and after the Effective Date (except those pertaining to Legacy Matters). The Parties, along with relevant third parties shall execute necessary documentation or put in place necessary arrangements for the aforesaid transfer / novation. The Parties expressly agree that in respect of existing arrangements of Indian Airlines Ltd. and Air India Ltd. for usage of land and/or building at the Airport and Public Sector oil companies in respect of common hydrant infrastructure for aircraft fuelling at the Airport, for which no express written contract has been executed or presently exists, such existing arrangements shall continue for a period of six (6) months from the Effective Date and the JVC shall during such period mutually agree with Indian Airlines Ltd., Air India Ltd. and Public Sector Oil companies in respect of such arrangements going forward. Provided however that any third party contract*

that cannot be specifically novated to the JVC for any reason whatsoever shall be performed by the JVC (at its own risk and cost) for and on behalf of AAI (as if the JVC was an original party to the said contracts, in place of AAI). Provided further that JVC shall indemnify and keep indemnified the AAI against any liability or costs arising under such contracts (including, for the avoidance of doubt, contracts relating to capital works-in-progress included in the list of Mandatory Capital Projects), including specifically, payments due to the counter-parties of such contracts or to any other Entities pursuant to such contracts. Any benefits arising from such contracts shall also vest with JVC. Nothing contained in this Article 5.2 (b) (i) shall prejudice the payment obligation of the JVC in respect of payments due from August 30, 2005 under contracts for capital works-in-progress as contained in Article 5.2 (b) (ii) hereof.”

As such, Clause 5.2 of the OMDA expressly allows DIAL to enter into contracts with oil companies.

As per Schedule 5, “Common hydrant infrastructure for aircraft fuelling services by authorized providers” is an Aeronautical Service. However, as explained above, Fuel Throughput Charge is not covered by the foregoing. Further, Aeronautical Services have also been defined in Section 2 of the AERA Act. The same states that “aeronautical service” means any service “for supplying fuel to the aircraft at an airport”. However, it is to be borne in mind that the charge against supply of fuel to aircrafts is Fuel Infrastructure Charge, as detailed above, and not Fuel Throughput Charge. As such, Fuel Throughput Charge cannot be considered a charge against service of supply of fuel to aircrafts as Fuel Infrastructure Charge and Fuel Throughput Charge are different charges, levied by different entities for different purposes. Hence, Fuel Throughput Charge is not an Aeronautical Charge even in terms of the AERA Act.

A bare perusal of Schedule 6 of the OMDA shows that Fuel Throughput Charge is not even a charge against a Non-Aeronautical Service under the OMDA. In view of the same, the question which therefore, arises is that what is the nature of Fuel Throughput Charge and under what type of charge can the same be categorized. A further question which arises is as to how the revenue from Fuel Throughput Charge is to be treated for the purpose of determination of Aeronautical Tariff.

The answer to the said query lies in the definition of clause (b) of Revenue Share Assets under the formula provided in schedule 1 of SSA which reads as under:

““Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues arising from Non-Aeronautical Assets (eg. Public Admission Fee)”

Therefore, since Fuel Throughput Charge is not considered as revenue arising from Non-Aeronautical Assets and is as such, related to aeronautical services, the same would be considered as gross revenue from Revenue Share Assets. The only example of revenue from aero-related services which is given in the SSA, is of public admission fee. Public admission fee is charged by DIAL for admission to the passenger terminal building. While the passenger terminal building is an Aeronautical Asset, public admission fee which is charged on account of the existence of the same but is not relatable to any Aeronautical Service being provided at the

passenger terminal building, is categorised as revenue from an aero-related service. Similarly, Fuel Throughput Charges, which is charged on account of existence of the fuel infrastructure, but is not related to provision of any aeronautical service therefrom, can be categorised as revenue from aero-related services.

As far as the treatment of revenue from Fuel Throughput Charge is concerned, the definition of S-factor (which is a regulatory block for the calculation of Target Revenue) states that 30% of the gross revenue from Revenue Share Assets shall be used for cross-subsidization of the Aeronautical Revenue. In terms of the said definition, since revenue from Fuel is to be considered as gross revenue from Revenue Share Assets, 30% of the same would be a part of the S factor and be used for cross-subsidization of the Target Revenue for Aeronautical Services.

In view of the above, in current tariff filing we have considered Fuel Throughput Charges as a part of the revenue from Revenue Share Assets, 30% of which is in turn used for cross-subsidization of the Target Revenue for calculation of the aeronautical tariff.

2.7.2 Revenue from existing assets

As per Order No. 40/2015-16 dated 08.12.2015 passed by AERA for determination of Aeronautical Charges for IGI Airport, New Delhi (DIAL) for the Second Control Period (01.04.2014-31.03.2019), AERA had decided that for the time being, the revenue realized by DIAL from Commercial Property Development (CPD) shall not be considered for determination of Aeronautical Tariff in respect of IGI Airport, New Delhi. It was also decided by AERA that AERA would take the considered opinion of Airports Authority of India (AAI) and Ministry of Civil Aviation (MoCA) in this regard and thereafter, reconsider the treatment of revenue from CPD towards determination of Aeronautical Charges. The relevant part of the Order dated 08.12.2015 is as under:

“14.20.3 AAI/MoCA being the agencies of the sovereign to have leased the land to DIAL are best placed to prescribe the mechanism for land monetization by DIAL in future and the formulation for treatment of revenue generated from monetization of land towards determination of aeronautical tariff in respect of IGI Airport, Delhi. The Authority proposed to request to AAI/MoCA for their considered view in this regard.

14.20.4 Finally, the Authority proposed not to consider the amount of Rs. 390.05 crore for the First Control Period (revenues realized by DIAL from Commercial Property Development) and Rs. 549.24 crore for the Second Control Period (revenues projected to be realized by DIAL from Commercial Property Development) towards determination of aeronautical tariff in respect of IGI Airport, Delhi, pending the receipt of views of AAI/MoCA.”

Accordingly, DIAL has also analyzed the contractual provisions contained in the Operation, Management and Development Agreement (OMDA) dated 04.04.2006 executed between AAI and DIAL and the State Support Agreement (SSA) dated 26.04.2006 executed between The Government of India (GOI) and DIAL which are relevant to the treatment of revenue from CPD for determination of Aeronautical Charges. Further, a

detailed analysis of the calculation of S-factor under SSA has also been carried out by DIAL. The same is being presented hereunder for AERA's consideration:

(I). Under the OMDA, DIAL has been granted the functions of operating, maintaining, developing, designing, constructing, upgrading, modernizing, financing and managing the IGI Airport, New Delhi ("Airport"). In order to perform its functions, DIAL has to perform services and activities constituting Aeronautical Services and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport as envisaged in Clause 2.1.1 and 2.1.2 of the OMDA which reads as under:

"2.1 Grant of Function

2.1.1 AAI hereby grants to the JVC, the exclusive right and authority during the Term to undertake some of the functions of the AAI being the functions of operation, maintenance, development, design, construction, upgradation, modernization, finance and management of the Airport and to perform services and activities constituting Aeronautical Services, and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport and the JVC hereby agrees to undertake the functions of operation, maintenance, development, design, construction, upgradation, modernization, finance and management of the Airport and at all times keep in good repair and operating condition the Airport and to perform services and activities constituting Aeronautical Services and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport, in accordance with the terms and conditions of this Agreement (the "Grant")."

2.1.2 Without prejudice to the aforesaid, AAI recognizes the exclusive right of the JVC during the Term, in accordance with the terms and conditions of this Agreement, to:

(i) develop, finance, design, construct, modernize, operate, maintain, use and regulate the use by third parties of the Airport;

(ii) enjoy complete and uninterrupted possession and control of the Airport Site and the Existing Assets for the purpose of providing Aeronautical Services and Non-Aeronautical Services;

(iii) determine, demand, collect, retain and appropriate charges from the users of the Airport in accordance with Article 12 hereto; and

(iv) Contract and/or sub contract with third parties to undertake functions on behalf of the JVC, and sub-lease and/or license the Demised Premises in accordance with Article 8.5.7.

Further, Clause 2.2.3 and 2.2.4 of the OMDA state as under:

"2.2.3 Aeronautical Services, Non-Aeronautical Services and Essential Services

Subject to the foregoing and to Applicable Law, JVC shall undertake/ provide Aeronautical Services and Essential Services at the Airport Site. JVC may seek to undertake/provide Non-Aeronautical Services at the Airport Site by including them in the proposed (draft) Master Plan, provided however, if the same form a part of the (final) Master Plan then the same shall be undertaken as provided in this Agreement. JVC and AAI shall upon mutual agreement between

the Parties update the list of Non-Aeronautical Services to include such other activities, as requested by AAI or JVC.

Notwithstanding anything contained in this Agreement, the JVC shall not undertake any activities at the Airport Site other than the Aeronautical Services, Non-Aeronautical Services and Essential Services.

2.2.4 *It is expressly understood by the Parties that JVC shall provide Non-Aeronautical Services at the Airport as above, provided however that the land area utilized for provision of Non- Transfer Assets shall not exceed five percent (or such different percentage as set forth in the master plan norms of the competent local authority of Delhi, as the same may change from time to time) of the total land area constituting the Demised Premises. Provided however that the Non-Transfer Assets, if any, that form part of the Carved-Out Assets and/or situated upon the Existing Leases shall be taken into account while calculating the percentage of total land area utilized for provision of Non-Transfer Assets."*

The aforementioned services are defined in the OMDA as under:

*"**Aeronautical Services**" shall have the meaning assigned hereto in Schedule 5 hereto."*

*"**Essential Services**" shall mean those Aeronautical Services and Non-Aeronautical Services that are listed in Schedule 16 hereof and such other services that are mutually agreed to be added to the schedule from time to time.*

*"**Non-Aeronautical Services**" shall mean such services as are listed in Part I and Part II of Schedule 6 hereof."*

In order to provide the aforementioned services, DIAL uses Aeronautical Assets, Non-Aeronautical Assets, Non-Transfer Assets, Existing Assets which are defined in the OMDA as follows:

*"**Aeronautical Assets**" shall mean those assets, which are necessary or required for the performance of Aeronautical Services at the Airport and such other assets as JVC procures in accordance with the provisions of the Project Agreements (or otherwise on the written directions of the GOI/AAI) for or in relation to, provision of any Reserved Activities and shall specifically include all land (including Excluded Premises), property and structures thereon acquired or leased during the Term in relation to such Aeronautical Assets."*

*"**Existing Assets**" means the physical, tangible, intangible and other assets of whatsoever nature existing at the Airport Site as on the date hereof except working capital assets other than inventory, stores and spares."*

*"**Non-Aeronautical Assets**" shall mean:*

1. *All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part I of Schedule 6 and any other services mutually agreed to be added to the Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity)*

2. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part II of Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity), to the extent such assets (a) are located within or form part of any terminal building; (b) are conjoined to any other Aeronautical Assets, assets included in paragraph (i) above and such assets are incapable of independent access and independent existence; or (c) are predominantly servicing/ catering any terminal complex/ cargo complex

And shall specifically include all additional land (other than the Demised Premises), property and structures thereon acquired or leased during the Term, in relation to such Non-Aeronautical Assets.”

“**Non-Transfer Assets**” shall mean all assets required or necessary for the performance of Non-Aeronautical Services as listed in Part II of Schedule 6 hereof as located at the Airport Site (irrespective of whether they are owned by the JVC or any third Entity), provided the same are not Non-Aeronautical Assets.”

It is also important in this context to refer to the definitions of Transfer Date and Revenue contained in OMDA as under:

“**Transfer Date**” shall mean the date on which JVC transfers possession (and in respect of such assets that are not owned by AAI, ownership and possession) of the Transfer Assets and/ or Non-Transfer Assets, as the case may be, to AAI or its nominee in accordance with the terms hereof, which shall be the date of termination as per the relevant notice of termination issued by JVC or AAI, as the case may be, or the date of expiry of this Agreement.

“**Revenue**” means all pre-tax gross revenue of JVC, excluding the following: (a) payments made by JVC, if any, for the activities undertaken by Relevant Authorities or payments received by JVC for provision of electricity, water, sewerage, or analogous utilities to the extent of amounts paid for such utilities to third party service providers; (b) insurance proceeds except insurance indemnification for loss of revenue; (c) any amount that accrues to JVC from sale of any capital assets or items; (d) payments and/ or monies collected by JVC for and on behalf of any governmental authorities under Applicable Law (e) any bad debts written off provided these pertain to past revenues on which annual fee has been paid to AAI. It is clarified that annual fee payable to AAI pursuant to Article 11 and Operational Support Cost payable to AAI shall not be deducted from Revenue.

As you are aware, in so far as assets owned or belonging to AAI OMDA refers to the same specifically in unambiguous terms. This is clear from the following Article 20.1.1 of OMDA extracted below:

20.1.1 The JVC hereby agrees and undertakes that from the Effective Date and during the Term and thereafter, it shall indemnify and keep indemnified and otherwise save harmless, AAI, its agents and employees, from and against all claims, demands made against and/ or loss caused and/ or damages suffered and/ or cost, charges/ expenses incurred or put to and/ or penalty levied and/ or any claim due to injury to or death of any person and/ or loss or damage caused or suffered to property owned or belonging to AAI, its agents and employees or third party as a result of any acts, deeds or thing done or omitted to be done by JVC or as a result of failure on the part of JVC to perform any of its obligations under this Agreement or on the JVC committing breach of any of the terms and conditions of this

Agreement or on the failure of the JVC to perform any of its statutory duty and/ or obligations or failure or negligence on the part of JVC to comply with any statutory provisions or as a consequence of any notice, show cause notice, action, suit or proceedings, given, initiated, filed or commenced by any third party or Government Authority or as a result of any failure or negligence or default of JVC or its contractor(s) and/ or sub-contractors and/ or invitees as the case may be, in connection with or arising out of this Agreement and/ or arising out of or in connection with JVC's use and occupation of Airport Site and/ or Airport and/ or the provision of Airport Services.

To enable DIAL to carry out the functions of operating, maintaining, developing, designing, constructing, upgrading, modernizing, financing and managing the Airport, the AAI agreed to demise in favour of DIAL, Demised Premises in terms of the Lease Deed dated 25.04.2006. It is pertinent to refer to the Article 2.1 (Demised Premises), Article 5.1 (Term), and Article 5.2 (Reversion) of the Lease Deed which are reproduced below:

“2.1 Demised Premises

2.1.1 In consideration of the Lease Rental, OMDA and the covenants and warranties on the part of the Lessee therein and herein, the Lessor, in accordance with the AAI Act and the terms and conditions set forth herein, hereby, demise to the Lessee, commencing from the Effective Date, all the land (along with any buildings, constructions or immovable assets, if any, thereon) which is described, delineated and shown in the Schedule 1 hereto, other than (i) any lands (along with any buildings, constructions or immovable assets, if any, thereon) granted to any third party under any Existing Lease(s) constituting the Airport on the date hereof; and (ii) any and all of the Carved Out Assets and the underlying land together with any buildings, constructions or immovable assets thereon, on an “as is where is basis” together with all Encumbrances thereto, (hereinafter “Demised Premises”) to hold the said Demised Premises, together with all and singular rights, liberties, privileges, easements and appurtenances whatsoever to the said Demised Premises, hereditaments or premises or any part thereof belonging to or in anyway appurtenant thereto or enjoyed therewith, for the duration of the Term for the sole purpose of the Project, and for such other purposes as are permitted under this Lease Deed.”

“5.1 Term

The lease granted in pursuance of this Lease Deed shall be for a period of 30 years from the Effective Date and shall, in the event the lessee renews the term of the OMDA in accordance with Article 18.1(b) therein, be renewed for an additional period of thirty (30) years (“Term”). Notwithstanding anything contained in this Lease Deed, the Term shall be co-terminus with the term of the OMDA, and this Lease Deed shall terminate automatically with the expiry or early termination of the OMDA. The Parties hereby expressly agree that in the event of a Substitution (as defined in the Substitution Agreement) under the provisions of the Substitution Agreement, this Lease Deed shall forthwith terminate.

5.2 Reversion

5.2.1 On expiry of the Term or early termination of this Lease Deed, for any reason whatsoever:

i. the Lessee shall, subject to sub-part (ii) and (iii) of this Article 5.2.1, surrender to the Lessor, the Demised Premises together with all assets, buildings, fixtures, runways, all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the Demised Premises, hereditaments or premises or any part thereof belonging to or in anyway appurtenant thereto or enjoyed therewith, as constituting the Airport (as such time), without any Encumbrances (except encroachments that have not been removed and are existing on the date hereof. For the purposes hereof, Parties expressly agree that “encroachments existing on the date hereof” and words of similar import shall imply those portions of the Demised Premises that are encroached on the date hereof, as identified in Schedule 2 hereof).

ii. The Lessee shall, in accordance with the OMDA, transfer to the Lessor, all the Transfer Assets together with all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the said Transfer Assets, hereditaments or premises or any part thereof belonging to or in any way appurtenant thereto or enjoyed therewith without any Encumbrances and the Lessor hereby acknowledges and agrees to purchase/accept, in accordance with the terms set out in the OMDA, the aforesaid transfer of all Transfer Assets together with all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the said Transfer Assets, hereditaments or premises or any part thereof belonging to or in any way appurtenant thereto or enjoyed therewith without any Encumbrances.

iii. The Lessor shall have the right, but not the obligation, to purchase from the Lessee, in accordance with the terms and conditions set forth in the OMDA, any and all Non-Transfer Assets (in part or in whole) free and clear of all Encumbrances, and the Lessee hereby undertakes and agrees to transfer to the Lessor, in accordance with the terms and conditions set forth in the OMDA, such Non-Transfer Assets (whether in whole or in part) that the Lessor may elect to purchase, free and clear of all Encumbrances.

Provided however, in the event the Lessor elects not to purchase from the Lessee any and / or all Non-Transfer Assets, then the Parties shall enter into a revised lease deed (“Revised Lease Deed”) in relation to such Non-Transfer Assets and the underlying land together with all assets, buildings, fixtures, all or any singular rights, liberties, privileges, easements and appurtenances whatsoever to the such Non-Transfer Assets on such commercial terms and conditions as may be mutually agreeable. Provided however, the terms and conditions of the Revised Lease Deed shall not be inferior to terms and conditions for leases entered into for comparable immovable property. Any stamp duty, registration charges or other fees, taxes or charges of any kind whatsoever pertaining to the Revised Lease Deed and execution thereof shall be borne by the Lessee. Provided further, in the event the Parties do not, for whatsoever reason, agree on the terms and conditions of such Revised Lease Deed within six(6) months of the expiry or early termination of this Lease Deed, the Lessee hereby undertakes to provide Lessor vacant possession of such land.

iv. Parties hereby expressly recognize that the Lessor shall (without prejudice to its rights of access under the OMDA, and subject to the Revised Lease Deed) have the right to re-enter and take vacant possession of the Demised Premises upon the expiry or early termination of this Lease Deed.”

While under the OMDA, DIAL is free to fix the charges for Non-Aeronautical Services, the charges for Aeronautical Services referred to as Aeronautical Charges, levied by DIAL at the Airport have to be determined as per the provisions of the SSA. In this behalf, it is relevant to refer to Article 12.1 and 12.2 of the OMDA which state as under:

“12.1 Tariff

*12.1.1 For the purpose of this Agreement, the charges to be levied at the Airport by the JVC for the provision of Aeronautical Services and consequent recovery of costs relating to Aeronautical Assets shall be referred to as **Aeronautical Charges**.*

12.1.2 The JVC shall at all times ensure that the Aeronautical Charges levied at the Airport shall be as determined as per the provisions of the State Support Agreement. It is hereby expressly clarified that any penalties or damages payable by the JVC under any of the Project Agreements shall not form a part of the Aeronautical Charges and not be passed on to the users of the Airport.

12.2 Charges for Non-Aeronautical Services

Subject to Applicable Law, the JVC shall be free to fix the charges for Non-Aeronautical Services, subject to the provisions of the existing contracts and other agreements.”

We also draw your kind attention to the following provisions of the OMDA and SSA which are relevant:

OMDA:

Schedule 11. Insurance. 1.1 Subject to Applicable Law, JVC must at its own cost and expense ensure that the insurances specified in this paragraph are effected from the Effective Date and are maintained in full force for the remainder of the Term.

*(a) Insurances in respect of “**all risks**” as customarily covered by such insurance policies for physical loss or damage to the Airport (including all assets thereon, including but not limited to Aeronautical Assets, Non-Aeronautical Assets and Existing Assets) and all or any structures (including temporary structures), plant (including hired in plant) and equipment including computer equipment and vehicles on the Airport, to their full rebuilding or replacement cost (including allowance for professional fees and removal of debris costs), increased from time to time as necessary to maintain such full rebuilding or replacement cost.*

Schedule 21 Duties of Independent Engineer, (c) to review development reports submitted by the JVC to assess compliance of works undertaken in relation to the Development Standards and Requirements as detailed in Schedule 1 and with the approved Major Development Plan. In this regard, the Independent Engineer shall ensure that

(i) owners requirements, Master Plan requirements, specifications and design parameters in any agreement or agreed through OMDA mechanism have been fully addressed/ complied with.

Substitution Agreement, Article 1, definitions 1.1 Substitution, (v) transfer by the JVC of all assets owned by the JVC to the Selectee;

8.5.7, (i) Sub-contracting, sub-licensing and licensing, (d) Without prejudice to the foregoing, every contract entered into by the JVC shall be on an arms-length basis (and comply with contracting procedures set forth in Schedule 12), and shall contain an express provision allowing the transfer of the rights and obligations of the JVC under such contract to the AAI in the event of termination or expiry hereof. Every contract (including any sublease or license arrangement) entered into by the JVC shall contain an express provision recognising the right of the AAI to acquire the Transfer Assets and the Non-Transfer Assets (including reversion of underlying land) in the manner provided herein, and contain an undertaking by the counter-party (ies), licensee/ sub-lessees, or owners of the relevant asset, as the case may be to transfer the relevant Transfer Asset and/ or the Non-Transfer Asset (including the reversion of the underlying land), as the case may be, upon the exercise of such right by AAI. JVC shall further procure that any contracts entered into by any counter-party (ies), licensees/ sublessees, as the case may be and relating to any Transfer Asset and/ or the Non-Transfer Asset shall also recognise the right of the AAI to acquire the Transfer Assets and the Non-Transfer Assets in the manner provided herein, and contain an undertaking by the counter-party (ies), sub-licensee, sub-sub-lessees, as the case may be to transfer the relevant Transfer Asset and/ or the Non-Transfer Asset, as the case may be, upon the exercise of such right by AAI.

19.3.2 In order to procure the foregoing, in addition to complying with the provisions of Article 8.5.7 hereof, JVC shall procure that in the event any third Entity has any proprietary interest in any Transfer Asset and/ or Non-Transfer Asset (the "Owner Entity"), the arrangements/ agreements entered into by the JVC or another third Entity with such Owner Entity explicitly recognise the right of AAI to acquire the said Transfer Asset and/or Non-Transfer Asset as the case may be, in accordance with the terms hereof, and contain an undertaking from such Owner Entity to transfer the relevant Transfer Asset and/or Non-Transfer Asset as the case may be, to AAI in accordance with the terms hereof.

SSA

“3.1 Airport Economic Regulatory Authority

3.1.1 GOI's intention is to establish an independent airport economic regulatory authority (the "Economic Regulatory Authority") which will be responsible for certain aspects of regulation (including regulation of Aeronautical Charges) of certain airports in India. GOI agrees to use reasonable efforts to have the Economic Regulatory Authority established and operating within two (2) years from the Effective Date. GOI further confirms that, subject to Applicable Law, it shall make reasonable endeavours to procure that the Economic Regulatory Authority shall regulate and set/ re-set Aeronautical Charges, in accordance with the broad principles set out in Schedule I appended hereto. Provided however, the Upfront Fee and the Annual Fee paid/ payable by the JVC to AAI under the OMDA shall not be included as a part of costs for provision of Aeronautical Services and no pass through would be available in relation to the same.

...

3.1.3 GOI confirms that till such time as the Economic Regulatory Authority commences regulating Aeronautical Charges, the same shall be approved by GOI in accordance with the broad principles set out in Schedule 1 appended hereto.”

We also draw your attention to Clause 12 (c) of National Civil Aviation Policy (NCAP), which is also relevant and the same states as under:

12. Airports developed by State Governments, Private sector or in PPP mode

MoCA will continue to encourage development of airports by the State Governments or the private sector or in PPP mode. MoCA will also encourage the State Governments to develop new airports in their State by forming SPV with Airport Authority of India or with other interested Public Sector Undertakings/ Industry in order to create stake and ownership. Wherever so required, MoCA will endeavour to provide regulatory certainty with the following framework:

a) MoCA will coordinate with AERA, AAI, airlines, airport operators and stakeholders like cargo, MRO, ground handling, etc to identify ways to bring down airport charges, while abiding by the provisions of existing concession agreements and contracts.

b) MoCA will endeavour that the future airport projects in India, both greenfield and brownfield, have cost efficient functionality with no compromise on safety, security and efficiency.

c) To ensure uniformity and level playing field across various operators, future tariffs at all airports will be calculated on a ‘hybrid till’ basis, unless otherwise specified for any project being bid out in future. 30% of non-aeronautical revenue will be used to cross-subsidise aeronautical charges. In case the tariff in one particular year or contractual period turns out to be excessive, the airport operator and regulator will explore ways to keep the tariff reasonable, and spread the excess amount over the future.

...

In terms of Clause 12 of the OMDA read with Clause 3.1 of the SSA, the Aeronautical Charges are to be determined in line with the principles enumerated in Schedule 1 of the SSA which state that the determination of Aeronautical Charges is to be as per shared till inflation -X price cap model. The determination of Aeronautical Charges is preceded by the calculation of Target Revenue and the same is calculated as under:

“Calculating the aeronautical charges in the shared till inflation – X price cap model

The revenue target is defined as:

$$TR_i = RB_i \times WACC_i + OM_i + D_i + T_i - S_i$$

Where TR = Target Revenue

RB = regulatory base pertaining to Aeronautical Assets and any investments made for the performance of Reserved Activities etc. which are owned by the JVC, after incorporating

efficient capital expenditure but does not include capital work in progress to the extent not capitalised in fixed assets. It is further clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed for capitalization in the regulatory base. It is further clarified that the Upfront Fee and any pre-operative expenses incurred by the Successful Bidder towards bid preparation will not be allowed to be capitalised in the regulatory base

WACC = nominal post-tax weighted average cost of capital, calculated using the marginal rate of corporate tax.

OM= efficient operation and maintenance cost pertaining to Aeronautical Services. It is clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed as part of the operation and maintenance cost.

D = depreciation calculated in the manner as prescribed in Schedule XIV of the Indian Companies Act, 1956. In the event, the depreciation rates for certain assets are not available in the aforesaid Act, then the depreciation rates as provided in the Income Tax Act for such asset as converted to straight line method from the written down value method will be considered. In the event, such rates are not available in either of the Acts then depreciation rates as per generally accepted Indian accounting standards may be considered.

T = corporate taxes on earnings pertaining to Aeronautical Services.

S = 30% of the gross revenue generated by the JVC from Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges. (emphasis added)

“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (eg: Public Admission Fee)

i = time period (year) i “

It is therefore clear that as per the calculation of Target Revenue in terms of Schedule 1 of the SSA, S-factor is 30% of the gross revenue generated by DIAL from Revenue Share Assets. The Revenue Share Assets mainly consist of Non-Aeronautical Assets. Hence, in order to accurately calculate the gross revenue from Revenue Share Assets, the definition of ‘Non-Aeronautical Assets’ as provided in the OMDA has to be considered and applied.

From the definition of Non-Aeronautical Assets, it clearly transpires that Existing Assets (also known as Demised premises or AAI Assets) lie outside the purview of Non-Aeronautical Assets. As per the said definition, the Non-Aeronautical Assets would include:

- (i) All assets required for the performance of Non-Aeronautical Services listed in Part I of Schedule 6.
- (ii) All assets required for the performance of Non-Aeronautical Services listed in Part II of Schedule 6, if they are (a) located within terminal building, (b) conjoined to other aeronautical assets and without direct access, or (c) are predominantly servicing/ catering any terminal complex/ cargo complex, and
- (iii) all additional land (other than the Demised Premises), property and structures thereon acquired or leased during the Term, in relation to such Non-Aeronautical Assets.

It is important to note the words “irrespective of whether they are owned by the JVC or any third Entity” appearing in the definition of Non-Aeronautical Assets under OMDA. The term Entity has been defined in OMDA as “any person, body corporate, trust, partnership firm or other association of persons/ individuals whether registered or not”. The Third Entity obviously means and refers to an entity which is not a party to OMDA. In fact the Lease Deed defines the term Third Party as “any Entity other than the Parties to this Lease Deed”. As such, the meaning and import of Third Entity is very clear and means an Entity other than JVC and AAI who are parties to OMDA. In other words AAI is not a Third Entity referred to in the definition of Non-Aeronautical Assets. Also it is worth noting that wherever a reference to AAI has been made, the same is clearly referred to as AAI. Therefore the Non-Aeronautical Assets referred only to ‘assets owned’ by either JVC or any Third Entity, and not to any assets owned by AAI. The Existing Assets are neither owned by JVC nor owned by any Third Entity and they are owned by AAI only. The AAI assets/Demised Premises/Existing Assets have been clearly left out in the definition of Non-Aeronautical Assets. There is no doubt that Existing Assets are owned by AAI only.

Incidentally, it is also relevant to note the use of the word ‘irrespective’ and ‘owned’ appearing in the definition of Non-Aeronautical Assets under OMDA. These words have been used in relation to JVC or a third Entity and not in relation to AAI. The word ‘owned’ means any asset that goes into the balance sheet of the JVC or any third Entity. The Existing Assets are owned by AAI and they are in the balance sheet of AAI. It therefore, clear that any asset which is not owned by the JVC or any third Entity is not part of Non-Aeronautical Assets as defined in the OMDA.

The above position is also clear and demonstrated from the following:

The method of reversion given under **Article 5.2 of the Lease Deed** specifies a different mechanism of reversion for Demised Premises (which includes Airport Site as well as Existing Assets) as these are owned by AAI and not by DIAL or by any third Entity and the Lease Deed correctly provides that such Demised Premises shall be surrendered at the end of the Term and not transferred.

The definition of **Transfer Date** under OMDA also, makes a differentiation between methods of transfer of assets which are owned by the DIAL and the ones which are owned by AAI but are leased to DIAL as a part of the Demised Premises. In the case of the former both possession as well as ownership is to be transferred by DIAL to AAI on the Transfer Date, where as in the case of the latter, only possession is to be transferred since the ownership of such assets lies with the AAI only.

Schedule 11 of the OMDA which pertains to obtaining insurance for “Aeronautical Assets, Non-Aeronautical Assets and Existing Assets” also provides that Existing Assets are not included in Non-Aeronautical Assets. Schedule 11 envisages three categories of assets, each separate and distinct from the other, i.e., Aeronautical Assets, Non-Aeronautical Assets and Existing Assets. It is therefore clear that Existing Assets are in their own category distinct from Non-Aeronautical Assets.

In view of the above, Existing Assets are not Non-Aeronautical Assets and therefore, the same are outside the purview of Revenue Share Assets under SSA.

It is also pertinent to point out that as per the scheme of the SSA, since Non-Aeronautical Assets are a part of Revenue Share Assets, revenue from the same is included in the calculation of S-factor. However, revenue from Non-Aeronautical Assets is a subset of “*non-aeronautical revenue*” and therefore, in terms of the SSA, it is revenue from Non-Aeronautical Assets only that is to be considered for calculation of S-factor and not the non-aeronautical revenue as a whole. In this regard, it is also pertinent to point out that the **National Civil Aviation Policy**, in **Clause 12(c)** lays down that for future airports, 30% of the non-aeronautical revenue shall be used for cross-subsidization which is distinct from the mandate of the SSA. Therefore as far IGI Airport, Delhi is concerned, the mandate contained in SSA i.e. 30% of gross revenue from Non-Aeronautical Assets shall be followed and not 30% of non-aeronautical revenue.

2.7.3 Revenue from disallowed area

As per Non aero definition provided under OMDA the non-aeronautical assets are those which are required or necessary for the performance of Non-Aeronautical Services.

“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (e.g. Public admission fee etc.)

“Non-Aeronautical Assets” shall mean:

- 1. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part I of Schedule 6 and any other services mutually agreed to be added to the Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity)*
- 2. All assets required or necessary for the performance of Non-Aeronautical Services at the Airport as listed in Part II of Schedule 6 hereof as located at the Airport (irrespective of whether they are owned by the JVC or any third Entity), to the extent such assets (a) are located within or form part of any terminal building; (b) are conjoined to any other Aeronautical Assets, assets included in paragraph (i) above and such assets are incapable of independent access and independent existence; or (c) are predominantly servicing/ catering any terminal complex/ cargo complex*

The technical auditor i.e. EIL in its evaluation opined that that the subject area of 8652 sq. mt. need not have been built as there are sufficient F&B area already available. Authority based on technical auditor’s report has disallowed the cost pertaining to this area while approving project cost. Since the authority had ascertained that the area was not required for performance for non-aeronautical services hence the same cannot be considered as part of revenue from Revenue Share Assets.

Accordingly we have adjusted the revenue from Revenue Share Assets to this extent. An auditor certificate for revenue from disallowed area is attached as **Annexure – 6**.

2.7.4 Exclusion of Annual Fee in the calculation of S-Factor

From the method of calculation of S-factor for the purpose of calculating the Target Revenue, it clearly transpires that the Annual Fee payable by DIAL to the AAI should be deducted from the gross revenue from Revenue Share Assets. The following contractual position clearly establishes the same:

Clause 3.1.1 of the SSA provides that *'the Upfront Fee and the Annual Fee paid/ payable by the JVC to AAI under the OMDA shall not be included as a part of costs for provision of Aeronautical Services and no pass through would be available in relation to the same'*.

On the same basis it follows that Annual Fee, which is not a cost for provision of aeronautical services as per Clause 3.1.1, is also not a cost for provision of Non-Aeronautical Services and in turn it is not a cost in relation to revenue from Revenue from Revenue Share Assets.

The aforesaid position is also buttressed by the proposition that a cost in relation to a particular revenue is the cost incurred to earn the said revenue. Conversely, cost in relation to a particular revenue is such cost, without incurring which the said revenue cannot be earned. As such, any cost in relation to a revenue would have to be incurred before any such revenue can be earned. However, Annual Fee is not a cost in relation to revenue from Revenue Share Assets since, the same accrues only after the said revenue has been earned and is not a pre-requisite for earning such revenue.

On the other hand, as per OMDA, the definition of "Revenue meaning all pre-tax gross revenue of JVC (subject to deductions mentioned in OMDA) specifically provides that "annual fee payable to AAI pursuant to Article 11 and Operational Support Cost payable to AAI shall not be deducted from Revenue. However, there is no such prescription for not deducting the Annual Fee paid/payable to AAI while calculating "S" factor.

Indisputably, payment of Annual Fee is not a cost in relation to the gross revenue generated by the JVC from the Revenue Share Assets.

It may not be out of place to bring out here the difference in wordings in SSA at two places;

Clause 3.1.1 of SSA provides that

...GOI further confirms that, subject to Applicable Law, it shall make reasonable endeavours to procure that the Economic Regulatory Authority shall regulate and set/ re-set Aeronautical Charges, in accordance with the broad principles set out in Schedule 1 appended hereto. Provided however, the Upfront Fee and the Annual Fee paid / payable by the JVC to AAI under the OMDA shall not be included as part of costs for provision of Aeronautical Services and no pass-through would be available in relation to the same. However, Schedule 1 of the same SSA states that .. "S = 30% of the gross revenue generated by the JVC from Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges."

Clearly while drafting the SSA, when some stipulation was to be made with reference to Annual Fee, it was clearly mentioned as such (3.1.1.of SSA).

At any rate, AF is not a cost to earn such revenue because evidently, even if Revenue is Nil there can still be costs associated with and incurred to earn Revenue (that happens to be nil) but in such a case Annual Fee also is Nil. Further, the costs in relation to such revenue shall not be included while calculating Aeronautical Charges shall mean the costs in relation to such revenue shall not be deducted from the gross revenue generated from Revenue Share Assets.

From the foregoing it is clear that Annual Fee is not a cost in relation to Revenue Share Assets. As such, the Annual Fee can be deducted from gross revenue generated from Revenue Share Assets.

Hence, Annual Fee shall be reduced from gross revenue generated from Revenue Share Assets and 30% of the resultant gross revenue generated from Revenue Share Assets only shall be considered for calculation of Aeronautical Charges in terms of the SSA.

DIAL has accordingly considered revenue from revenue share assets after excluding revenue from existing assets and annual fee. The audit certificate certifying revenue from existing assets is attached herewith as **Annexure-7**. Accordingly we request Authority to exclude income from demised premises and annual fee from the revenue from revenue share assets.

2.8 Revised true up for first control period

The revised true up for the first control period is as follows

Table 4 True up for first control period proposed by DIAL (Rs/Cr)

Particular	2010	2011	2012	2013	2014
Return on RAB	359.23	761.34	1,205.21	1,109.75	1,065.45
Expense	366.93	512.60	943.31	593.88	749.56
Depreciation	111.90	224.81	374.96	337.28	372.63
Taxes	-	-	-	-	-
Gross Target Revenue	838.05	1,498.75	2,523.48	2,040.91	2,187.64
Less: Cross Subsidy from NAR	27.34	66.06	110.64	128.29	153.72
Net Target Revenue	810.71	1,432.69	2,412.83	1,912.62	2,033.92
Actual Revenue	422.14	464.81	482.92	2,126.95	2,671.54
Difference	388.57	967.88	1,929.91	(214.33)	(637.62)
PV Factor	1.71	1.50	1.31	1.14	1.00
Total	3,760.15				

3 Truing up for the second control period: 1st April 2014 to 31st March 2019

The Authority has approved the tariff for the second control period vide its order no 40/2015-16 on 8th December 2015 basis the projection considered therein. DIAL has considered the true-up of second control period eligibility basis the actual. Accordingly the revised building blocks have been worked out, details of which are presented in the subsequent sections. It is pertinent to note that the Financial Year 2018-19 forming part of the second control period has not been completed hence has been considered basis projection.

3.1 True up of Regulatory Asset Base –

3.1.1 Opening RAB

As discussed in para 2.5.1 above, the excess deduction of DF to the tune of Rs 176.36 crore needs to be adjusted from Regulatory Asset Base. Further, the amount corresponding to baggage screening equipment earlier funded through PSF is required to be considered in the opening RAB as explained at Para 2.5.2. The opening RAB as on 1st April'2014 will get revised to that extent and the revised opening RAB will be as follows:

Particular	As per AERA	As per DIAL
Regulatory Asset Base as on 31 st March'14	6748.22	6919.27
Hypo RAB as on 31 st March'14	357.38	357.38
Baggage Screening Equipment	-	96.71
Total	7105.60	7373.36

3.1.2 RAB Addition

Authority in order no 40/2015-16 has decided to true up the projected additions to RAB based on actual audited values of these additions. For the purpose of true up for second control period DIAL has considered the actual aeronautical addition to regulatory asset base.

The assets which are directly attributable to aero asset has been allocated as aero, assets which are directly attributable to non-aero has been allocated to non-aero asset. Assets which were common have been allocated in their respective ratio.

Based on actual addition and allocation basis, the auditor has certified actual aeronautical addition during second control period. An auditor certificate in this regard is attached as **Annexure – 8**.

3.1.3 RAB Allocation

The asset allocation has been scientifically derived from a methodology listed below:

- a) Firstly, the admissibility test has been applied to all assets in the books. The Upfront Fee paid to AAI, capitalized as Intangible asset, has not been considered as part of Aeronautical Asset since it is not mandated to be classified under Aeronautical Assets as per SSA. As such this has been tagged as In-Admissible Assets.
- b) On the balance assets: Asset which directly related to an activity covered under Schedule 5 of OMDA is tagged as Aeronautical. Assets on airside are classified into Aeronautical Assets and are 100% allocable to the Aeronautical Assets. Investment in assets like Runways, Drainage and Culverts, Taxiways, Aprons and Bays, Airfield Ground Lighting (AGL), Satellite rescue and fire station, perimeter roads, boundary wall, Sub-stations etc. have been allocated as Aeronautical.
- c) Terminals: The investment in cargo terminal is considered as non-aeronautical as the same is covered as Non-Aeronautical Service as per Schedule 6 of OMDA. In case of the passenger terminal building (PTB), they are primarily used for passenger processing and facilitation. PTB are therefore aeronautical asset except in where such area is clearly identified to retail or commercial activity which are classified as Non-Aeronautical Asset.
- d) Assets which have common usage and support the overall functioning of the management of the airport for example Administrative office, furniture, laptops etc. have been allocated on the overall terminal area mix of Indira Gandhi International Airport.
- e) Assets which are not directly allocable to either aeronautical or non-aeronautical are classified as mixed assets. In case such assets are related or located to a particular terminal the same has been allocated based on that terminals area allocation mix. The common asset like terminal building has been allocated based on area allocation. The areas within the terminal buildings related to passenger facilitation represent an aeronautical asset in accordance with the principle of avoidable cost concept. Investments in the terminal building purely on account of retail or commercial activities have been allocated to non-aeronautical. DIAL had submitted the actual terminal area ratio on in its submission for the second control period. However, the authority had considered area allocation submitted by Jacobs consultants dtd. 17th November'2011 (attached as **Annexure 9**) as the basis for its determination in second control period. In the present submission DIAL is considering the allocation as considered by Authority in its order no 40/2015-16 pending adjudication at TDSAT.

3.2 Weighted Average Cost of Capital (WACC)

AERA in its order no 40/2015-16 had considered WACC of 9.97%. Authority in its order for second control period had continued with the decision it had taken in the order no 3/2012-13 for first control period for not considering any adjustments related to currency fluctuations on foreign currency borrowings or its interest payments.

In parlance with para 8.25 of the order 40/2015-16 and para 2.2 above, DIAL has reviewed its position on forex loss again and decided to accept authority's view to consider foreign exchange rate fluctuations by expensing out actual losses on this account and true up of WACC. Accordingly, the participle of WACC are considered for true up and presented below:

Cost of Equity- AERA in its order considered cost of equity @16%, however in line with our submission at para 2.1.1 above the cost of equity should be 22.8%. Accordingly we have revised our submission considering cost of equity @ 22.8%.

Return on RSD- DIAL has considered return on RSD in line with TDSAT order. The detailed rational has been presented at para 2.3 above. Accordingly return on RSD has been considered as equivalent to cost of equity at 16%.

Cost of debt - The cost of debt is calculated based on actual outstanding debt and interest. Following is the summary of debt and interest cost for second control period:

Table 5: Details of cost of debt for second control period

Particular	2015	2016	2017	2018	2019
Average debt	5,395.47	5,418.91	5,396.03	5,311.91	5,301.36
Interest	488.58	486.54	467.26	492.80	575.17
Effective cost of debt	9.36%	9.36%	9.36%	9.36%	9.36%

3.2.1 Return on Refundable security deposit (RSD)

As per TDSAT order DIAL is eligible for return on RSD however TDSAT does not specify the quantum of return to be allowed on RSD. KPMG and Kalypto (subsidiary of CARE Ratings) also opined that RSD has equity like feature and should be treated akin to equity. Hence, the return between debt and equity should be allowed by AERA.

Since the RSD has feature more akin to equity, DIAL has considered return equivalent to equity.

The WACC accordingly has been revised basis the actual gearing of debt, equity and RSD. Further, the actual cost of debt has been considered. The revised WACC for the second control period is presented in the table below:

Table 6: Details of WACC for second control period

Particular	Allowed by AERA	1st April'14 to 31st March'19
Gearing		
Equity	29.18%	27.14%
RSD	18.67%	15.72%
Debt	52.16%	57.14%
Cost		
Equity	16.00%	22.86%
RSD	0.00%	16.00%
Debt	10.17%	9.36%
WACC for CP III	9.97%	14.07%

3.3 Depreciation

As per AERA order no 40/2015-16 the depreciation for second control period is subject to true up based on actual. The actual aeronautical related depreciation during the second control period has been verified by the auditor and the relevant audit certificate attached as **Annexure - 8** and **Annexure – 10** (relating to depreciation on baggage screening equipment). Following is the summary of actual depreciation and depreciation allowed by AERA:

Table 7-Depreciation for second control period

Particular	2015	2016	2017	2018	2019	Total
As per AERA order no 40/15-16						
RAB	510.07	483.61	488.24	494.28	499.08	2,475.28
HRAB	29.24	27.28	26.99	26.79	26.48	136.78
Total	539.31	510.89	515.23	521.07	525.56	2,612.06
RAB	504.94	506.46	514.79	520.86	528.25	2,575.29
HRAB	27.86	27.73	27.86	27.96	27.93	139.35
Baggage Screening Equipment	8.75	8.75	8.75	8.75	8.75	43.73
Total	541.54	542.94	551.40	557.57	564.92	2,758.37

3.4 Operating expense

In line with the order no 40/2015-16 the operating expenses are subject to true up. Accordingly we have considered actual aeronautical expense for the purpose of second control period true up. Further, we have considered following while considering actual expense:

3.4.1.1 Forex as actual outgo basis

As explained in para 2.2 above, DIAL has considered the actual forex loss as expense for the purpose of tariff determination. Accordingly the aeronautical portion of forex loss has been considered as part of administrative expense. Details of forex loss during second control period:

Table 8: Details of forex loss for second control period (Rs/Cr)

Particular	2015	2016	2017	2018	2019	Total
Forex - Aeronautical	471.61	12.41	73.02	(0.42)	35.11	591.74
Forex - Non-Aeronautical	57.40	1.51	8.89	(0.05)	4.27	72.02
Total	529.02	13.93	81.91	(0.47)	39.39	663.76

The above details have been verified by the auditors and the certificate to this effect is annexed herewith as **Annexure 11**.

3.4.1.2 Refinancing cost

DIAL as part of cost efficiency and cash flow management had refinance its foreign currency loan and RTL by long term bonds. As part of refinancing DIAL had to incur various cost in the form of upfront fee, prepayment charges, break cost and processing fee etc. The cost to the extent of revenue in nature has been considered as part of operating expense and aeronautical portion of such operating expense has been considered as part of aeronautical expense. Such expense have been allocated in asset allocation ratio and shown separately in administrative expense. The auditor certificate for the charges is annexed herewith as **Annexure 12 and Annexure 13**.

Table 9 Details of refinance cost (Rs/Cr)

Particular	2015	2016	2017	2018	2019
IRS break cost	91.83	-	8.17	-	-
ECB Break cost	9.22	-	11.38	-	-
Prepayment Charges	-	-	29.42	-	-
Upfront & processing fee	27.15	14.17	38.10	8.83	8.83
Total	128.20	14.17	87.07	8.83	8.83
Aeronautical portion	118.43	14.79	81.11	10.43	7.92

3.4.1.3 Allocation of expenses

DIAL has allocated expenses based on actual expenses recorded during the second control period. The methodology followed for the allocation into aeronautical and non-aeronautical expenses is as follows:

- All the expenditure attributable directly to Aeronautical Services or Non-Aeronautical Services were allocated accordingly; and
- Classification of the expenditure is done based on the nature of the cost centre and respective expenditure incurred in the cost centre.
- For the remaining costs, which cannot be directly measured, the relevant drivers were used to bifurcate such costs.

The audit certificate related to allocation of operating expense is annexed herewith as **Annexure-14**

3.4.1.4 Other considerations

Property tax- The Airport land leased out to DIAL falls partly under the jurisdiction of South Delhi Municipal corporation (SDMC) and partly under Delhi Cantonment Board (DCB). DIAL has to pay property tax to both the municipalities. Authority in previous control period had considered such tax amount on actual payment basis. DIAL has followed the same principal for the second control period and considered the same on payment basis for the second control period. An audit certificate in this regard is attached as **Annexure – 21**.

Airport Operator Fee- In line with the contractual arrangement DIAL has to pay 3% of gross revenue to the airport operator. Authority in order no 40/2015-16 had considered 3% of aeronautical revenue for the purpose of aeronautical tariff determination. DIAL has followed the same and considered 3% of aeronautical revenue of previous year as pass through in aeronautical tariff.

Airport Authority of India (AAI) Voluntary Retirement Scheme (VRS) – AAI VRS has been considered on payment basis in line with approval accorded by AERA.

Following are the details of expense allowed by AERA and actual incurred during second control period:

Table 10: Details of expense for second control period (Rs/Cr)

Particular	2015	2016	2017	2018	2019	Total
As per AERA approval						
Airport Operator Fee	84.21	89.70	75.01	14.64	16.18	279.74
Manpower cost	125.09	137.60	151.36	166.49	183.14	763.68
Operating expense	286.32	308.88	333.23	359.52	387.92	1,675.87
Administrative expense	118.97	127.08	135.74	145.01	154.93	681.73
Property tax	6.08	6.08	6.08	6.08	6.08	30.40
Utillity cost	112.21	120.21	123.28	127.62	137.52	620.84
Payment to AAI for VRS	16.81	16.39	15.81	15.32	14.79	79.12

Particular	2015	2016	2017	2018	2019	Total
Forex and Bank Charges	-	-	-	-	-	-
Total	749.69	805.94	840.51	834.68	900.56	4,131.38
As per actual						
Airport Operator Fee	80.15	84.56	97.97	113.33	51.16	427.17
Manpower cost	118.63	112.54	117.25	147.67	169.74	665.83
Operating expense	253.56	252.61	261.63	314.92	360.20	1,442.92
Administrative expense	141.29	135.89	164.05	204.72	229.58	875.53
Property tax	20.35	5.30	5.27	28.03	6.98	65.93
Utillity cost	112.32	121.66	106.54	113.20	159.47	613.19
Payment to AAI for VRS	16.81	16.40	15.81	15.33	14.80	79.14
Forex and Bank Charges	590.05	27.20	154.13	10.01	43.03	824.43
Total	1,333.15	756.17	922.66	947.21	1,034.97	4,994.15
Difference for true up	583.46	(49.77)	82.15	112.53	134.41	862.77

3.5 Aeronautical Tax

The Authority has considered the calculation of tax at decision no 16 of the order no 40 / 2015-16 based on the actual tax paid by DIAL. DIAL has however challenged the treatment of consideration of taxes in the appeal no 10 of 2012 before the AERAAT as well in the appeal no 1/ 2016. TDSAT has adjudicated on the matter in its order dated 26th April 2018. DIAL aggrieved by the order has challenged several issues before the Supreme Court which includes the calculation of tax for aeronautical revenues. DIAL, without prejudice to the rights and outcome of the appeals mentioned above has considered the taxes as decided by the Authority in the order no 40/2015-16.

We further refer to the direction of the TDSAT in the judgment dated 15th November 2018 in the matter of AERA appeal no 4 of 2013. The Judgment at Para 41(i) remands the matter of considering the S-Factor as part of revenue in calculation of tax, to AERA. DIAL is also of the view that the S Factor should be considered part of the aeronautical revenue while calculation of tax.

Accordingly, DIAL has considered taxes paid actual by the company for regulatory purpose and then allocated to the aeronautical segment. The allocation of tax is proposed in the ratio aero and non-aero PBT. Following is the detail of tax considered in regulatory building block compared to tax allowed by AERA in order no 40/2015-16:

Table 11- Details of Aeronautical tax for second control period

Particular	2015	2016	2017	2018	2019	Total
Tax allowed by AERA	-	-	-	-	-	-
Actual Aero Tax	-	80.33	153.24	-	-	233.57
Total	-	80.33	153.24	-	-	233.57

3.6 Cross subsidy from revenue from revenue share assets

As per the tariff order 40/2015-16, revenue from revenue share assets is subject to true up based on actual. Accordingly DIAL has considered such revenue based on actual.

Other income is not generated from the services mentioned in Schedule 6 nor from aeronautical related assets. It is in the part of the Airport operator cash management process. It is only because of the efficiency brought in by the airport operator in managing working capital. Also Authority in order 3/2012-13 has categorically excluded other income for cross subsidy purpose considering part of working capital management though Authority has not provided any cost for working capital.

Interest income relate to investment of interim surplus funds and the retention of the share-holders' funds in the business till the same are paid out as dividends. Such incomes do not form part of either aeronautical or non-aeronautical revenues. Accordingly this is outside regulatory purview.

The cross subsidy from revenue share assets would include Fuel Throughput Income and exclude revenue from AAI/existing assets. Further, as detailed at para 2.7.3 the S-Factor should be considered post Annual Fee payable to AAI. DIAL has accordingly considered the S-Factor in calculation of target revenue for the second control period. The revenue has been certified by the Auditor and attached as **Annexure – 23**.

Following are the details of revenue from Revenue Share Assets allowed by AERA vis a vis actual:

Table 12: Details for Revenue from Revenue Share Assets for CP II (Rs/Cr)

Particular	2015	2016	2017	2018	2019	Total
Allowed by AERA						
Revenue from Revenue share asset - Others	985.82	1,111.47	1,249.29	1,397.36	1,599.11	6,343.05
Revenue from Revenue share asset - Cargo	140.34	146.90	158.77	170.29	185.98	802.28
Total	1,126.16	1,258.37	1,408.06	1,567.65	1,785.09	7,145.33
S-Factor	337.85	377.51	422.42	470.30	535.53	2,143.60
Actual						
Revenue from Revenue share asset - Others	1,001.78	1,200.40	1,328.49	1,547.00	1,705.26	6,782.94
Revenue from Fuel Farm	132.18	141.85	153.86	176.77	191.47	796.13
Revenue from Revenue share asset - Cargo	157.36	159.76	163.04	199.25	211.84	891.25
Less: Revenue from existing assets	242.71	281.83	324.10	374.22	374.22	1,597.08
Less: Revenue from disallowed area	15.31	16.96	19.79	23.73	25.62	101.41
Total	1,033.31	1,203.21	1,301.50	1,525.08	1,708.73	6,771.83
S-Factor post Annual Fee	167.43	194.96	210.88	247.11	276.87	1,097.24

3.7 Base Airport Charges

In terms of Clause 3.2 of the SSA, it has been mandated that the Aeronautical Charges which DIAL is entitled to collect, are to be calculated in terms of Schedule 6 of the SSA. Relevant portion is reproduced hereinunder:

“3.1.2 The Aeronautical Charges for any year during the Term shall be calculated in accordance with Schedule 6 appended hereto. For abundant caution, it is expressly clarified that the Aeronautical Charges as set forth in Schedule 6 will not be negotiated post bid after the selection of the Successful Bidder and will not be altered by the JVC under any circumstances.”

....

“Schedule 6

Aeronautical Charges, for the purposes of this Agreement, shall be determined in the manner as set out hereunder:

1. *The existing AAI airport charges (as set out in Schedule 8 appended hereto) (“Base Airport Charges”) will continue for a period of two (2) years from the Effective Date and in the event the JVC duly completes and commissions the Mandatory Capital Projects required to be completed during the first two (2) years from the Effective Date, a nominal increase of ten (10) percent over the Base Airport Charges shall be allowed for the purposes of calculating Aeronautical Charges for the duration of the third (3rd) Year after the Effective Date (“Incentive”). It is hereby expressly clarified that in the event JVC does not complete and commission, by the end of the second (2nd) year from the Effective Date, the Mandatory Capital Projects required to be completed and commissioned, the Incentive shall not be available to the JVC for purposes of calculating Aeronautical Charges for the third (3rd) year after the Effective Date.*

2. *From the commencement of the fourth (4th) year after the Effective Date and for every year thereafter for the remainder of the Term, Economic Regulatory Authority/ GOI (as the case may be) will set the Aeronautical Charges in accordance with Clause 3.1.1 read with Schedule 1 appended to the Agreement, subject always to the condition that, at the least, a permitted nominal increase of ten (10) percent of the Base Airport Charges will be available to the JVC for the purpose of calculating Aeronautical Charges in any year after the commencement of the fourth year and for the remainder of the Term.*

..”

On an analysis of Clause 2 of Schedule 6 of the SSA it can be seen that Clause 2 of Schedule 6 of the SSA provides that ‘ the Authority/ GOI (as the case may be) will set the Aeronautical Charges in accordance with Clause 3.1.1 read with Schedule 1 appended to this agreement, subject always to the condition that, at the least, a permitted nominal increase of ten (10) percent of the Base Airport Charges will be available to the JVC for the purposes of calculating Aeronautical Charges in any year after the commencement of the fourth year and for the remainder of the Term.’

As such, your good office is required to evaluate the Aeronautical Charges calculated in accordance with Schedule 1 of the SSA in comparison to the Aeronautical Charges calculated in accordance with Schedule 6, at the time of setting of the Aeronautical Charges, i.e., at the beginning of a control period.

Further, Clause 2 of Schedule 6 of the SSA expressly states that the 'permitted nominal increase' as assured by the SSA is available to DIAL for the purpose of calculation of Aeronautical Charges. Therefore, from the foregoing it can be inferred that in terms of the SSA, the date of levy of Base Airport Charges should coincide with the date on which the aeronautical tariff calculated under Schedule 1 of the SSA is calculated.

In view of the above, it is pertinent to examine the contents of the Second Tariff Order to determine the date as on which the calculation of Aeronautical Charges under Schedule 1 has been done by your good office for the Second Control Period. The relevant portion of the Second Tariff Order is as under:

"25.16 The Authority would like to mention that the X-factor of +96.08% is based on the date of implementation of new tariffs on 01.01.2016 that is, almost one year and nine months into the second Control Period...

...

Decision No. 22: Regarding the Tariff Structure/Rate Card to be considered for the second Control Period, based on the material before it and its analysis, the Authority has decided:

22.a To determine an X-factor of +96.08% (with date of implementation of tariff as 01.01.2016) based on its decisions in respect of regulatory building blocks towards determination of aeronautical tariffs for the Second Control Period (01.04.2014 – 31.03.2019) for the IGI Airport, New Delhi.

...

Order

28.1 In exercise of power conferred by Section 13(1)(a) of the AERA Act, 2008 and based on the above decisions, the Authority hereby determines the aeronautical tariffs to be levied at IGI Airport, New Delhi for the Second Control Period (2014-15 to 2018-19), effective from 01.01.2016 and the rate card so arrived at as of 01.01.2016 upto 31.03.2019 has been attached as Annexure I to the Order. ..."

In terms of the Second Tariff Order, it is evident that the Aeronautical Charges for the Second Control Period were calculated keeping in mind the implementation date of 01.01.2016. Since, in terms of the above, the date of implementation of the Aeronautical Charges as calculated under Schedule 1 of the SSA should coincide with the date of implementation of Base Airport Charges when the former is lower than the latter, the date of implementation of Base Airport Charges should also be 01.01.2016 for the Second Control Period.

Since the X-factor and the Aeronautical Charges for the Second Control Period have been calculated taking the date of 01.01.2016 as the benchmark implementation date and it is these Aeronautical Charges which have been compared with the Base Airport Charges to determine whether the Base Airport Charges would be applicable or not. It is evident that the Base Airport Charges would be implemented on the same date as

on which the Aeronautical Charges would have been implemented had the same been found to be higher in comparison to the Base Airport Charges. As such, while deciding whether the Aeronautical Charges as calculated under Schedule 1 of the SSA would apply or Base Airport Charges are to apply, the date of implementation would have to be kept constant which in the scenario of the Second Control Period is 01.01.2016. In view of the foregoing, it is submitted that the date of applicability of the Base Airport Charges for the Second Control Period should be 01.01.2016 and the true up for the same has been considered.

In order to substantiate the above claim the following table indicates that the aeronautical tariff as approved under tariff order no.40 /2015-16 had fallen below BAC +10% of BAC from 01.01.2016. The auditor certificate in respect of revenue calculated basis the tariff order no 40/2015-16 traffic and BAC +10% of BAC tariff is also attached herewith as **Annexure 15**

Table 13 Details of BAC eligibility

Particular	2015	Apr-Dec'15	Jan-Mar'16	2017	2018	2019
Revenue Approved in Order No. 40	2,989.85	2,390.35	110.02	488.02	539.50	596.62
BAC Revenue with Traffic in Order No. 40	689.33	554.27	184.08	790.94	847.36	907.88
BAC Eligibility	NO	NO	YES	YES	YES	YES

Accordingly DIAL is eligible for minimum tariff equivalent to the BAC+ 10% of BAC from 1st January 2016. The revenue basis the actual tariff for the period 01.01.2016 to 31st March 2019 is attached as **Annexure – 16**.

3.8 Summary of the building block for second control period:

The revised true up for second control period basis above submission is given below:

Table 14: Summary of Building Block for second control period

Particular	2015	2016	2017	2018	2019	Total
Regulatory Asset Base	6,854.92	6,365.81	5,927.18	5,463.33	5,291.95	
WACC	14.07%	14.07%	14.07%	14.07%	14.07%	
Return on RAB	964.23	895.43	833.73	768.48	744.38	4,206.25
Expense	1,333.15	756.17	922.66	947.21	1,034.97	4,994.15
Depreciation	541.54	542.94	551.40	557.57	564.92	2,758.37
Taxes	-	80.33	153.24	-	-	233.57
Target Revenue	2,838.93	2,274.86	2,461.03	2,273.26	2,344.27	12,192.35

Particular	2015	2016	2017	2018	2019	Total
Cross subsidy- Revenue from revenue share asset	167.43	194.96	210.88	247.11	276.87	1,097.24
Net Target Revenue	2,671.50	2,079.90	2,250.15	2,026.15	2,067.40	11,095.11
True up for first control period	3,760.15					
Adjusted Net Target Revenue	6,431.65	2,079.90	2,250.15	2,026.15	2,067.40	14,855.26
Actual Aeronautical Revenue	2,818.74	3,265.73	3,777.67	1,528.70	820.64	12,211.49
Difference	3,612.91	(1,185.83)	(1,527.52)	497.45	1,246.76	2,643.77
Present value of true up						
WACC	14.07%					
PV Factor	1.69	1.48	1.30	1.14	1.00	
True up as on 1st April'2019	6,116.25	(1,759.93)	(1,987.47)	567.42	1,246.76	4,183.03
BAC True UP		273.57	1,087.80	1,061.72	1,017.33	3,440.42

The actual aeronautical revenue has been certified by the Auditor along with billable pax and ATM for the second control period upto FY'18 are attached as **Annexure – 24**.

4 Projection for third control period (1st April 2019 to 31st March 2024)

4.1 Regulatory Asset Base

The following principle has been used to compute the Regulatory Asset Base (RAB) used for tariff determination. RAB representing the aeronautical assets is calculated as below:

RAB at the start of a year/period (Opening RAB) + Projected/Actual Capital Investment (based on capitalization date) - Projected/Actual Disposals - Projected/Actual Depreciation = RAB at the end of a year/period (Closing RAB)

RAB for Tariff Determination = $\frac{\text{(Opening RAB + Closing RAB)}}{2}$

4.1.1 Opening regulatory asset base

The regulatory asset base had been adjusted to the extent of excess recovery made by DIAL on account of DF. Further based on actual addition and depreciation during second control period, following is the opening RAB as on 1st April'2019:

Table 15 - Opening Regulatory Asset Base

Particular	Amount
Opening RAB as on 1st April'2014	7,015.98
Addition net of deletion	528.31
Depreciation	2,619.02
Closing RAB as on 31st March'2019	4,925.26
HRAB	
Opening RAB as on 1st April'2014	357.38
Depreciation	139.35
Closing HRAB as on 31st March'2019	218.03
Overall closing RAB 31st March'2019	5,143.29

4.1.2 Addition to Regulatory Asset Base

As per clause 8.3.5 of OMDA, DIAL has to do periodic review of the master plan. Recently DIAL in consultation with M/s AECOM and M/s NACO had prepared Major Development Plan and accordingly submitted the expansion plan to AERA for its consideration. DIAL as part of prudent process approached AERA for in principle approval of capex based on preliminary designs and estimates. The existing terminals had reached to its sweat capacity and there was dire need of next level of expansion.

DIAL has conducted consultation with various users and submitted capex plan to relevant Authorities including AERA. AERA had appointed KITCO to review the capex plan submitted by DIAL. KITCO has reviewed DIAL submission and submitted its recommendation to AERA.

The development works at IGI Airport under Phase 3A Expansion primarily include:

1. Expansion of Terminal 1 and associated facilities – Post expansion capacity of T1 will be increased from 20 million to 40 million passengers per annum.
2. Airfield works including 4th Runway
3. Landside/Connectivity works
4. Eastern Parallel Cross Taxiways
5. Modifications to Terminal 3 and associated facilities - Post changes T3 will have improved facilities for transfer passengers and improved levels of service for International and Domestic passengers.

4.1.3 Expansion plan for third control period:

4.1.3.1 Expansion of Terminal 1 and associated facilities

Terminal 1 (T1) of IGI Airport, New Delhi handles the domestic traffic of Low Cost Carriers (LCC). These carriers have registered a phenomenal growth during the last few years, calling for an expansion of the terminal. Since T1 is operating beyond its capacity, we have proposed to undertake the expansion of terminal building (T1D and T1C), the airside and city side. The departure terminal (T1 D) and arriving terminal (T1 C) will be merged and expanded to accommodate 40 million passengers per annum.

The work would involve:

- a) Expansion of departures /arrival buildings with a new architectural façade on the city side; Integrating with existing Terminal buildings, demolition of some of the existing facilities to facilitate expansion of the terminal footprint and airside asset to meet passenger requirement as per the master plan forecast. The above expansion will increase the terminal area from the current 63,000 SqM to 1,93,000 SqM. Various additional features will be added to the expanded terminal like:
 - Increase of entry gates from 8 to 13
 - Hand baggage processing capacity (currently 160-180 bags per hour) to increase to 250-300 bags per hour
 - Arrival Baggage carousels to increase from 8 to 10 with claim length increased to 70 M

- Construction of Node Building & Pier with 22 PBBs connected to departure and arrival halls
 - All the additional features needed to be integrated with the existing systems
- b) The Apron area for terminal 1 needs to be reconstructed and realigned. This includes the construction of 82 aircraft parking stands, strengthening of the stands, provision of stand support facilities, AGL, floodlighting and drainage of areas. The overall detailed design for the airside shall incorporate fuel hydrant for all stands. Hydrant fuel design is to be provided by another agency (fuel concessionaires), but the EPC contractor is required to coordinate and interface to ensure that the entire work is carried out as per plan.
 - c) Revamping of existing grading and redesign of the existing drainage facility (including the main drainage system on the northern side which collects all the water from various drains within the airport area and channelizes the water outside the airport boundary) for both landside and airside areas falling on the northern part of the IGI airport to provide quick and efficient removal of the surface water taking into consideration the future expansion that may occur in the development of the surrounding areas. This drainage facility would also take into consideration all the future developments envisaged in the master plan including the increase in the surface water run-off due to construction of Eastern Cross Taxiway.
 - d) New landside facilities including landscaping works – the associated works at the landside including utility buildings, road network for connectivity to the terminals, security check points, landside drainage, water system, rain water harvesting, landscaping and revamping of the existing above systems;
 - e) Various electrical, mechanical and plumbing works including HVAC, lighting, sanitary, fire detection & prevention; and other facilities in the terminal & pier building – This includes new utilities / buildings and up-gradation of existing substations & other systems including complete re-design of MEP systems to meet the requirement of the new terminal building and its associated facilities which require 100% DG backup, UPS, SCADA, exterior illumination, fire detection / firefighting etc.
 - f) Special Airport Systems e.g. Baggage Handling System, X ray security screening for passengers and baggage as per Bureau of Civil Aviation Security guidelines, Passenger Boarding Bridges, VHT systems, visual docking system, Flight Information Display System, Public Address System etc.
 - g) All utility enhancements required due to expansion of the airport capacity.

4.1.3.2 Airfield works

The proposed developments on Airfield would cover:

- a) Construction of 4th RWY & associated Rapid Exit Taxiways – parallel to RWY 11/29, of the size 4375 M X 60 M plus 7.5 M wide shoulders, suitable for operation of A-380 /other equivalent Code F aircraft, in compliance with ICAO Standards & recommend practices / DGCA Civil aviation requirements, pavement designs based on LEDFAA design program and existing soil characteristics, RWY geometry / RET and other Taxi links as per Aircraft Mix as defined in the Master Plan of IGI Airport.
The RWY will be designed with Cat 3B AGL & navigational aids at both ends. The RWY strip will be graded as per ICAO standards. Its drainage designs will be developed so as to integrate with the over-all drainage system of the airport, leading to the eventual out-fall of the airport. This new RWY will be supported by an additional ARFF Station suitable for Cat 10 requirements as per ICAO standards as per Master Plan.

- b) Construction of North Parallel Taxiway and related RETs (at north of Runway 10-28) (approx. 4000M) with other taxi links equipped with CAT 3B AGL.
- c) Complete rehabilitation of old runway 9/27 to extend its life.
- d) All utility enhancements required due to expansion of the airfield systems.

4.1.3.3 *Landside/Connectivity works*

- a) T1 Kerb widening
- b) Widen Northern Access Road to 5+5 lanes
- c) Central spine road widening to 6+6 lanes
- d) New access road (parallel to central spine) connecting to NH8
- e) Underpasses for Radisson Road

4.1.3.4 *Eastern Parallel Cross Taxiways Package*

- a) New Eastern Parallel Cross Taxiways (A 2.4-KM code F taxiway, which at certain locations will go above the airport approach roads with vehicular traffic underneath)
- b) New Taxiway in between TWY Y and TWY Z7 Isolation bay; New TWY connection in between TWY P and RWY 28 end
- c) RETs on RWY 11L-29R
- d) Other taxiways associated with RWY 11L-29R

4.1.3.5 *Expansion of Terminal 3 and associated facilities*

In order to accommodate increasing international transfer passenger through Terminal 3 (T3) and to further improve facilities at IGI Airport, DIAL is proposing to undertake following works in Terminal 3:

- a) Construction of additional transfer area for I-I (international to international) in Terminal 3. The floor plate at the arrival of Pier A & B junction area will be increased for I-I transfer to the tune of 3000 SqM area;
- b) Installation of the 7th check in island along with its Baggage Handling & screening systems, additional arrival baggage carousels (2 Nos), increase in the number of emigration and immigration counters and other related IT & MEP works; installation of baggage carousals at the arrival with necessary IT & MEP works; creation of swing corridors to handle I-D & D-I passengers along with its related equipment & IT /MEP Systems.

4.1.4 *Addition to RAB*

The expansion plan with all detailed work plan and drawings have been shared with AERA for prior approval of expansion vide our letter number DIAL/2017-18/CEO-Office/971 dated 12.10.2017 along with all necessary details.

AERA appointed M/s KITCO to analyze the reasonableness of capex plan of DIAL. KITCO reviewed the project cost with all design and construction plan and submitted report to AERA. Based on KITCO report AERA vide letter dtd. 29th June'2018 intimated DIAL about the cost recommended by KITCO. Following is the recommended capital cost to DIAL for phase 3A expansion:

Table 16: Phase 3 A expansion details (Rs/Cr)

Package	Details	Recommended cost by KITCO
1	Expansion of Terminal 1	2,431.00
2&4	Airfield works including 4th Runway & eastern parallel cross taxiways	4,318.45
3	Landside/connectivity works	366.17
4	Modification of Terminal 3	166.98
	Total	7,282.60
	Others	686.00
	Grand Total	7,968.60

The expansion plan has been considered at the cost as considered by the Authority in the table above. However, the actual capital expenditure would be based on price discovery from competitive bidding. We request the Authority to consider the actual capex as and incurred during the control period under review as well as during the tariff determination for subsequent control period.

The capital expenditure basis the internal estimates based on capex plan is expected to culminate in the FY 2022 with following addition to aeronautical asset base of above expansion works

Table 17: Capitalisation detail for third control period (Rs/Cr)

Year	2020	2021	2022	2023	2024	Total
Aero - (a)	385.67	2,071.94	5,202.54	-	-	7,660.15
Non-Aero -(b)	-	32.47	275.98	-	-	308.46
Total (C)= (a) +(b)	385.67	2,104.41	5,478.53	-	-	7,968.60
Add: Financing allowance						
Aeronautical asset (d)	30.57	164.22	412.35	-	-	607.14
Total addition to RAB (a+d)	416.23	2,236.16	5,614.89	-	-	8,267.29

4.1.5 Financing Allowance

The expansion phase is highly capital intensive project and the Airport Operator has to invest its capital from the start of the project. Funding of such project cost will be done via debt and equity/internal accruals. Debt carries interest, the equity has its own cost/internal accruals also carry opportunity cost. Such cost is being capitalized in the asset and accordingly it should be allowed as part of RAB.

This understanding is also being captured under tariff guidelines issued for airport operator as financing allowance. DIAL for the purpose of tariff determination has considered financing allowance in RAB.

4.1.6 General Capex

DIAL has completed the construction of the new airport and associated works in FY 2010. The Terminal 3 building is now nine year old and requires high maintenance and major repairs. A detailed capex plan relating to routine capex which is envisaged during the third control period with rationale is attached as **Annexure-17**. Highlights of the key works are as follows:

4.1.6.1 Civil Works:

- a. Water proofing for terminal and node building - The water proofing to the terminal building and Node Building terrace was done during project time and it is getting damaged due to ageing factor. Generally the life of water proofing will be around 8 to 10 years. Hence, there is a need water proofing. The estimated cost of the project is Rs. 50 Cr.
- b. Refurbishment of BBA and BMA flooring
- c. Strengthening of pump house at T2
- d. Refurbishment for creating security hold area for T2
- e. Refurbishment of staff and VIP toilets at T2

4.1.6.2 Electrical:

- a. LED Installation as part of Energy conservation - As Part of Energy conservation we have to install LED fittings at Terminal-3. Estimated cost is of Rs. 20 Cr.
- b. Installation of UPS At terminal and Replacement of Battery of Following Capacity. Estimated cost of Rs 10 Cr.

4.1.6.3 Mechanical:

- c. Additional Chiller/Cooling tower/Pumps/Replacement of AHU coils/fans/pipe/insulation in a phased manner.
- d. Replacement of smoke detector, cooling tower/chiller/pumps/piping/AHU coils/fans/split units in a phased manner

4.1.6.4 Airport System

- a. Automated EBS is planned to manage Peak Volumes and optimize resources considerably.
- b. Improvement of BHS efficiency at Terminal 2
- c. Integration of X-Ray machines with BHS SCADA and Matrix Server for seamless transaction.

4.1.6.5 Airside

- a. LED type fixtures for the taxiways as part of operational efficiency improvements
- b. ASDs are to be provided to monitor consecutive / adjacent lamp failures, for complying with regulatory requirements
- c. CMS operating logics are to be upgraded as per the prevailing operational procedures for ensuring appropriate lighting and control of the systems.
- d. Additional VOR sign boards, replacement of old signs and new signs are to be provided as per the operational requirements

4.1.6.6 Security related expense (PSF)

Due to various security compliances PSF has to incur capital expenditure during third control period.

Following are the details of general capex:

Table 18: Details of general capex for third control period (Rs/Cr)

Particular	2020	2021	2022	2023	2024	Total
A.Project & Engineering						
Civil	21.50	21.50	11.00	16.00	16.00	86.00
Electrical	25.55	6.90	4.80	4.65	3.30	45.20
Mechanical	16.00	13.90	11.15	7.45	9.15	57.65
Airport Systems	17.00	96.50	48.25	4.00	-	165.75
TMT	3.10	1.85	1.50	2.10	0.80	9.35
STP WTP	4.48	4.75	-	-	-	9.23
Airside Civil	12.50	13.00	14.70	11.00	8.00	59.20
Airside Electrical & AGL	14.00	13.40	24.55	27.00	25.00	103.95
A. P&E Total	114.13	171.80	115.95	72.20	62.25	536.33
B.Security- System	2.06	2.16	0.56	3.06	190.06	197.90
C.Security- IT	21.65	124.3	6.25	4.3	8.85	165.35
D. Operation related						
i. Terminal 2&3	0.82	0.30	7.02		0.22	8.36
ii. Terminal 1	55.20	18.98	16.10	21.10	43.10	154.48
Total	56.02	19.28	23.12	21.10	43.32	162.84
E. Special Project	284.00					284.00
G.Total	477.86	317.54	145.88	100.66	304.48	1,346.42

The allocation of the general capex has been considered in the asset ratio for FY'18-19.

4.1.7 Depreciation

In line with the SSA the depreciation has to be calculated in the manner as prescribed in schedule III of the Indian Companies Act 2013, in the event the depreciation rates for certain assets are not available in the aforesaid Act, then the depreciation rates as provided in the Income Tax Act for such asset as converted to straight line method from the written down value method will be considered. Accordingly, depreciation has been considered basis of useful life of asset as per companies act or remaining concession period whichever is lower.

This is also in line with the Authority's order no. 35/2017-18 dtd 12th Jan'2018 and amendment to order no 35/2017-18 dtd. 9th April'2018.

For the purpose of addition to RAB DIAL has considered average rate of depreciation at 5.92%

Following is the depreciation considered for third control period of existing regulatory assets:

Table 19: Details of Depreciation on existing assets for third control period (Rs/Cr)

Particular	2020	2021	2022	2023	2024	Total
Existing Asset						
Buildings	153.27	153.21	153.15	153.10	152.90	765.64
Lease Hold Improvements	2.24	0.46	0.51	0.11	-	3.32
Bridges,Culverts and Bunders	14.82	14.82	14.82	14.82	14.82	74.09
Electrical installation	88.42	57.53	26.44	25.98	22.85	221.23
Roads other than RCC	31.62	16.29	1.20	1.16	1.14	51.41
Runways,taxiways and Apron	107.16	106.32	103.29	96.17	91.68	504.62
Plant and Machinery	196.17	180.39	156.52	155.50	150.22	838.79
Office Equipment	0.31	0.23	0.10	0.02	0.01	0.67
Computer and Data processing	6.13	5.63	4.45	2.59	1.42	20.23
Furnitures & Fittings	16.54	11.30	3.80	3.40	3.05	38.09
Vehicles	0.72	0.66	0.61	0.42	0.42	2.83
Intangible Asset (Land use rights)	0.83	0.83	0.83	0.83	0.83	4.15
Intangible others	0.34	0.32	0.21	0.09	0.03	0.99
DF-Assets	(158.82)	(141.42)	(117.00)	(116.95)	(116.95)	(651.15)
Total	459.75	406.55	348.94	337.26	322.41	1,874.91
Expansion Asset	37.89	137.22	381.65	554.32	564.96	1,676.05
Total	497.64	543.77	730.59	891.58	887.38	3,550.96
Depreciation on Hypo RAB	24.82	23.00	22.50	23.03	22.69	116.04
Depreciation on Baggage						
Screening Assets	8.75	8.75	8.75	8.75	8.75	43.73
G.Total	531.21	575.52	761.84	923.35	918.81	3,710.73

The allocation of depreciation for third control period in aero and non-aero for existing regulatory assets as on March'2018 has been certified by the Auditor and same is attached as **Annexure – 20**.

4.1.8 Regulatory Asset Base for third control period:

Considering above additions and depreciation, following is the Regulatory Asset Base for third control period:

Table 20 - Regulatory Asset Base for third control period

Particular	2019	2020	2021	2022	2023	2024
Opening RAB	5,141.66	4,872.28	5,213.47	7,184.78	12,192.45	11,392.84
Addition	258.87	838.83	2,515.08	5,738.26	91.97	267.43
Depreciation	528.25	497.64	543.77	730.59	891.58	887.38
Closing RAB	4,872.28	5,213.47	7,184.78	12,192.45	11,392.84	10,772.90
Average RAB- A	5,006.97	5,042.88	6,199.13	9,688.62	11,792.65	11,082.87
Hypo RAB						
Opening	245.96	218.03	193.21	170.21	147.71	124.68
Depreciation	27.93	24.82	23.00	22.50	23.03	22.69
Closing	218.03	193.21	170.21	147.71	124.68	101.99
Average Hypo RAB-B	232.00	205.62	181.71	158.96	136.20	113.33
Baggage Screening Asset - C	57.35	48.60	39.86	31.11	22.37	13.62
RAB for return (A+B+C)	5,238.97	5,297.10	6,420.69	9,878.69	11,951.21	11,209.83

4.2 Weighted Average Cost Capital (WACC)

4.2.1 Equity

The equity investment in DIAL is Rs 2450 Cr which will remain in the company during third control period. There are no plan for further equity investment in the company.

Cost of Equity:

TDSAT in its order dtd 23rd April'2018 for first control period tariff appeal 10/2012 directed that although rate of 16% as return on equity not interfered with, AERA may redo the exercise through a scientific and objective approach, independently of any observations in the Third Control Period. In the present circumstance where the report conducted by the Authority is not available with DIAL we are considering the rate at 16%. We may basis fresh study amend or modify the cost of equity proposed.

DIAL as per SSA has considered post tax cost of equity. With the gross up from marginal rate of tax the effective cost of equity comes to 22.86% as explained in para 2.1.1. Accordingly DIAL has assumed cost of equity at 16% grossed up with marginal rate of corporate tax which results to 22.86% for third control period of IGI Airport.

4.2.2 Refundable security deposit (RSD)

As part of OMDA, DIAL has a right to develop land at the Airport for provision of non-transfer asset. Total land available for the development of non-transfer asset is 205 acre. DIAL as part of phase I had monetized 45 acre of land during first control period tariff and raised refundable security deposit of Rs. 1373.11 cr. DIAL has invested the money raised through non transfer asset into the airport expansion project. These assets are outside the regulatory till and it was not mandated for DIAL to use this funding for financing the project cost. Given the fact that these funds have been utilized for financing the project, DIAL should be provided a fair return on these funds which has opportunity cost. These funds are quasi-equity by nature given their super long tenor and being culled out from a bottom-line impacting revenue stream.

AERA in order no 3/2011-12 for first control period had allowed zero return over the money invested via RSD. DIAL had filed an appeal against the AERA order for first control period. The Appellate tribunal TDSAT on 23rd April'2018 has upheld that the RSD is eligible for return. The relevant extract of the para 106 of the order dated 23.04.2018 relating to the return on RSD is reproduced below:

“Clearly, in our opinion, this money has wrongly been treated as debt at zero cost. The well accepted commercial practices and norms need to be respected by the Authority and therefore, return on RSD amount should be re-determined by it for the reasons indicated above. Instead of interfering with the impugned tariff determination we direct that the amount due to DIAL under this head should be worked out and made available to DIAL through appropriate fiscal exercises which should be undertaken when the exercise of redetermination of tariff for IGI Airport, Delhi is next undertaken in due course.

Appellate tribunal has not quantified the quantum of return to be allowed on RSD.

At the start of control period i.e. 1st April'2019, the expected security deposit is Rs 1373.11 cr which DIAL expects to continue at the same level and no additional refundable security deposit is envisaged during third control period. A certificate of year wise refundable security deposit is attached herewith as **Annexure – 22**.

Cost of RSD:

In view of the detailed rationales given at para 2.3 of this submission DIAL has considered cost of RSD at 16%.

4.2.3 **Existing debt**

Bond I – USD 288.75 Mn

The outstanding balance of ECB of USD 350 Mn as on 3rd Feb'2015 was USD 288.75 mn which was refinanced by seven year long term bond. The effective interest was 6.475% including 0.35% of withholding tax. As part of minimizing foreign exchange exposure DIAL has fully hedged the principal amount of the loan through call spread options. Out of the total exposure USD 80 Mn was hedged in Jan'17 and balance USD 208.75 Mn in Jan'18. The effective cost of hedge comes to 3.675% accordingly the overall cost of debt is 10.15% (Base rate 6.125%+ withholding tax 0.35%+ hedge cost 3.677%). For the purpose of projections we have considered the exact payment schedule agreed with bankers.

The bond refinancing was done on 3rd Feb'2015 at exchange rate of Rs. 61.60 per USD and DIAL had taken call spread options for USD 80 mn at the rate of Rs. 68.00 in Jan'2017 and balance USD 208.75 Mn was hedged at the rate of Rs 63.80 per USD in Jan'2018. The call spread option covers hedge risk upto Rs. 85 per USD till maturity of the bond any risk beyond this level has to be borne by DIAL. Accordingly, DIAL had minimized the foreign exchange risk against the principal outstanding however risk towards the unhedged currency portion still remain i.e. exchange rate at which the loan is hedged versus the rate at which the loan had been drawn.

The repayment of this bond is due in FY'22 accordingly there will be expected forex loss to DIAL to the extent of unhedged currency portion. Further, for the purpose of projection DIAL has considered repayment of this bond in FY'22.

Bond II – USD 522.60 Mn

The outstanding balance of ECB-2 facility of USD 100.12 Mn (outstanding USD 83.92 Mn) and RTL of Rs 3047.50 cr (Outstanding Rs 2928.20 Cr) has also been refinanced by long term bond worth of USD 522.6 Mn payable after 10 year. The effective interest was 6.475% including 0.35% of withholding tax. The principal payment in this loan is also fully hedged and the effective hedge cost is 3.55% accordingly overall cost of debt including withholding tax and hedging cost is 10.02% (Base rate 6.125%+ withholding tax 0.35%+ hedge cost 3.547%).

The principle repayment of the loan has been fully hedged. DIAL had taken call spread option with a range starting from for Rs 67.85 per USD with an upper limit of Rs 101.86 per USD for principal obligation. The repayment of this bond is not due in current control period.

The repayment of the stated loan is due in the fourth control period. In order to service the repayment DIAL has provisioned for a sinking fund spread over equally over the balance period of the loan.

4.2.4 Funding for expansion capex:

The expansion capex has been assumed to be funded via debt and internal cash accrual in the ratio of 70:30.

Considering the existing exposure of foreign currency liability in terms of foreign currency bonds we expect that any additional borrowing will be possible only from domestic market in rupee terms.

Expected cost of borrowing

DIAL has considered 11% as cost of borrowing for new loans relating to funding of expansion capex.

Following are the details of year wise closing debt and interest payment:

Table 21: Debt details for third control period (Rs/Cr)

Particular	2018	2019	2020	2021	2022	2023	2024
Bond I - USD 288.75 Mn	1,886.69	1,886.69	1,886.69	1,886.69	-	-	-
Bond II - USD 522.60 Mn	3,414.67	3,414.67	3,414.67	3,414.67	3,414.67	3,414.67	3,414.67
Debt for expansion	-	-	623.18	2,432.11	6,668.50	6,740.72	6,276.63
Closing Debt	5,301.36	5,301.36	5,924.55	7,733.47	10,083.17	10,155.39	9,691.30
Interest							
Bond I - USD 288.75 Mn	148.16	204.12	204.31	204.12	170.85	-	-
Bond II - USD 522.60 Mn	344.64	371.05	371.39	371.05	371.05	371.05	371.39
Debt for expansion	-	-	120.74	401.97	647.99	737.51	715.95
Total interest cost	492.80	575.17	696.44	977.14	1,189.89	1,108.55	1,087.35

4.2.5 WACC calculation

Based on above forecast DIAL is expected to have WACC of 15.77%. Following are the details of gearing and effective WACC:

Table 22: WACC calculation for third control period

Particular	1st April'19 to 31st March'24
Gearing	
Equity	35.85%
RSD	9.50%
Debt	54.65%
Cost	
Equity	22.86%
RSD	16.00%
Debt	11.08%
WACC for CP III	15.77%

Note: Equity includes reserve and surplus is positive.

4.3 Operating expense

In line with the principle of allowing efficient cost recovery as enshrined in SSA, aeronautical operating and maintenance cost incurred by DIAL has been considered, in computing target revenue requirement. Further, SSA also acknowledges that there may be certain mandated cost which would be borne by DIAL (subject to the imposed constraints as referred in point 5 of Schedule 1 laying down the principle of tariff fixation) and the same should be considered in the O&M cost block.

SSA allows for the recovery of efficient operating and maintenance expenses pertaining to aeronautical services. In tariff filing for third control period DIAL has adopted the following aspects and principle to determine the efficient aeronautical operating and maintenance costs:

- 4.3.1 **Upcoming expansion at IGI Airport:** As explained in previous chapter IGI Airport is going ahead with the expansion of Terminal 1. The overall terminal area at IGI Airport including T1, T2 and T3 is 669068 sqm which with the expansion of Terminal 1 will increase by 128845 sqm. This translates in to increase of 19.26% in area. Accordingly there will be corresponding increase in cost to service area such as repair and maintenance of building and P&M, housekeeping etc. Also due to increase in Terminal capacity there will be increase in related cost such as administrative cost, manpower related cost and IT maintenance etc. Due to expansion the Terminal capacity will increase by 27% i.e. 86 mppa from current capacity of 66 mppa.
- 4.3.2 **Increase in minimum wages:** Historically there were normal increase of 5% in minimum wages however recently on 1st Jan'2017 the minimum wages has increased by 40% and another 6% increased has been provided wef 1st April'2017 which effectively resulted in more than 46% increase in +minimum wages against 5%-6% normal increase. This resulted an increase in all manpower related cost such as manpower hire charges, security, maintenance etc.
- 4.3.3 **Inflationary increase** – DIAL has considered inflationary increase towards expense. The inflation is considered basis the results of 52nd round of professional forecasters on macroeconomic indicators by RBI. Based on report DIAL has considered CPI of 4.5% for third control period.
- 4.3.4 **Real increase-** Considering the past trend, current economic scenario and upcoming expansion we have considered 10% real increase in some of expense.
- 4.3.5 **Base Year –** In order to form a basis of forecasting expense for third control period, DIAL has considered FY'18 as base year and applied growth percentage over it.
- 4.3.6 **Asset life-** Existing asset of DIAL is almost ten year old which required additional upkeep and repair & maintenance.
- 4.3.7 **Service level-** In order to maintain service level and ASQ level DIAL had to maintain certain standards of service which also result into addition operating expense and the same is necessary.

Above assumptions set out the basic principles of operating expense forecast for third control period.

4.3.8 Details of head wise operating expense is as follows:

- 4.3.8.1 **Manpower Cost:** In past DIAL has observed high attrition due to new upcoming airport and expansion works. Accordingly in order to retain talent, upcoming expansion and passenger growth DIAL has considered real increase of 10% in manpower cost with an inflationary increase of CPI of 4.5%. Additionally, DIAL has also considered an increase on account of expansion in line with the capacity enhancement towards additional runway as well as passenger terminal building and associated facilities.
- 4.3.8.2 **Administrative and General Expense:** Administrative and general expense consist of various expense, the key expense head in administrative and general expense are professional and consultancy, travelling and conveyance, advertising and sale promotion and head office cost. These expenses are expected to grow by real increase of 10%, with an inflationary increase of CPI 4.5%. In order to cater to the increased requirement due to the expansion at the terminal the expense would considered to increase in proportion to the additional area / capacity. Accordingly DIAL has considered the one time increase in A&G expenses in the year the expanded terminal is made operational. The increase is considered at FY'20 & FY'21 in line with the increased area.
- 4.3.8.3 **Utility expense:** The power demand at Delhi Airport is expected to rise due to increase of passengers, and expansion. DIAL has projected expected demand in next control period basis the internal estimates due to expansion and other factors.

Year	2018	2019	2020	2021	2022	2023	2024
Expected power consumption (In Mu)	247	287	321	342	398	458	471

- 4.3.8.4 **Forex-** DIAL during the tariff filling of first as well as second control period had submitted to consider the forex loss as per AS-11. Authority in its order 40/2015-16 has not accepted DIAL approach for allowing forex loss in to RAB as per AS-11 however, authority is of the view that normally, actual loss incurred by the operator on account of fluctuations in foreign exchange are expensed out while determining tariff for the operator. Following is the authority's view with respect to foreign exchange loss at para 8.25 of the order no 40/2015-16:

“While the Authority is inclined to consider foreign exchange rate fluctuations, it is not persuaded to consider the approach of making adjustments in RAB. Normally, actual losses incurred by the operator on account of fluctuations in foreign exchange are expensed out while determining tariff for the operator. The Authority is of the view that in case it were to consider foreign exchange rate fluctuations by expensing out actual losses on this account, it would also true up the WACC (including actual interest rates on domestic term loan). The Authority had communicated to DIAL to consider foreign exchange losses along with true-up of WACC. However, DIAL did not exercise any option. It seems that DIAL would like to be reimbursed for foreign exchange losses and also retain the savings they have made on account of lower interest rates. The Authority does not find this acceptable.”

Further, Authority in the same order vide decision no 13.d has decided to consider true up of the impact of foreign exchange fluctuations for the second control period subject to the complete true up of WACC.

DIAL in terms of repayment and interest payment has incurred actual foreign exchange losses which should be reimbursed in tariff. DIAL has considered the actual cash outgo relating to foreign exchange variation in the repayment and interest payment for loans in foreign currency as an expense.

An expected forex loss in third control period is on account of repayment of USD 288.75 Mn in FY'22 as explained in para 2.2 above the bond refinancing of USD 288.75 Mn was done on 3rd Feb'2015. The prevailing exchange rate at that time was Rs. 61.60 per USD. Further as part of hedge strategy DIAL had purchased call options for USD 80 mn at the rate of Rs. 67.21 in Jan'2017 and balance USD 208.75 Mn was at the rate of Rs 63.72 per USD in Jan'2018.

Accordingly DIAL still carries risk to the extent of difference between the exchange rate at the time of repayment of loan and the original exchange rate at the time of borrowing i.e. Rs 61.60 per USD. Such difference can be minimized by the call option purchased by DIAL appropriately.

Currently for the purpose projection DIAL has considered exchange rate as on 30th Sept'2018 i.e. Rs. 72.49 per USD. Since the expected exchange rate in FY'22 i.e. year of repayment is higher than the call option, DIAL will exercise its call option. However, DIAL will still have a forex loss to the extent of call option rate and actual borrowing rate.

DIAL request Authority to consider the same for tariff determination purpose.

4.3.8.5 Operating expense

Repair and Maintenance- The key assets of DIAL are almost ten years old which requires heavy maintenance cost. Also due to increased labor and material cost the estimation tend to increase. R&M towards Building and P&M has been escalated with real growth, inflation and area expansion. Maintenance cost related to IT and others have been escalated on account of real growth, inflation and passenger handling capacity.

Housekeeping- Increase in minimum wages has significantly increase the housekeeping cost in FY'18. Also, since the existing terminals are getting older the upkeep and maintenance cost of the terminal expected to increase. Going forward DIAL has considered growth in housekeeping expense by real growth of 10% and inflation. Also, due to induction of new terminal 1 the housekeeping expense will grow in consonance with increase in terminal area.

Insurance – The cost toward insurance premium has seen decline for past five years however same trend won't continue for future as it has tested the bottom levels. In line with market trend and the insurance premium for future is expected to cover at the least inflation and will definitely increase in proportion to capacity expansion. Accordingly DIAL has considered growth equivalent to inflation and passenger handling capacity of the Airport.

Consumables- expected to grow by inflation and passenger handling capacity of the Airport.

Manpower hire charges & Security expense- Manpower hire charges and security expenses are expected to grow in line with the manpower cost plus inflation and passenger handling capacity.

4.3.8.6 Airport operator fee

In line with the Authority' decision no 15.c of the order no 40/2015-16 dtd. 8th Dec'2015, DIAL has considered 3% fee on aeronautical revenue as an aeronautical expense to be treated in the Target Revenue.

4.3.8.7 Property Tax

Currently DIAL is paying Rs 6.62 cr to South Delhi Municipal Corporation and Rs 1.12 cr to Delhi Cantonment board. DIAL had considered the same while forecasting property tax. Following are the forecast towards property tax:

Table 23- Details of property tax for third control period (Rs/Cr)

Particular	2020	2021	2022	2023	2024
Property tax payable to SDMC	6.62	6.62	6.62	6.62	6.62
Property tax payable to DCB	1.12	1.12	1.12	1.12	1.12
Total	7.74	7.74	7.74	7.74	7.74

4.3.8.8 AAI VRS

AAI VRS has been capitalized in DIAL books as an intangible asset. The Authority, vide decision no 7.a of order 03/2012-13, decided to expense out VRS based on actual payment made by DIAL. During the third control period DIAL has made Rs 1.22 cr payment as per pre decided payment plan.

4.3.9 Operating expense allocation

DIAL has considered the allocation ratio of FY 17-18 as the basis for allocating expenses for third control period.

4.3.10 Summary of aeronautical operating expense for third control period:

DIAL, considering the foregoing assumptions has projected the expenses as given in the table below;

Table 24 Summary of aeronautical expense for third control period (Rs/Cr)

Particular	2018	2019	2020	2021	2022	2023	2024
Manpower Cost	147.67	169.74	195.12	224.29	270.71	395.20	454.28
Admin & General expense	215.15	237.50	261.15	301.81	369.28	531.41	600.77
Utility expense	113.20	159.47	199.41	227.83	284.25	366.03	396.06
Repair & Maintenance	167.69	192.76	221.57	254.70	296.44	413.22	475.00
Housekeeping Expense	68.87	79.16	91.00	104.60	120.24	164.83	189.47
Insurance	5.92	6.19	6.47	6.76	7.42	9.84	10.28
Consumables	11.35	11.87	12.40	12.96	14.22	18.87	19.72
Manpower hire charges	40.50	46.56	53.52	61.52	74.25	108.40	124.61
Security expense	20.59	23.67	27.21	31.27	37.74	55.10	63.34
Airport operator fee	113.33	51.16	24.62	144.74	158.96	173.97	189.65
Property tax	6.47	6.98	6.99	6.99	6.99	6.99	6.98
AAI VRS	15.33	14.80	1.22	-	-	-	-
Forex	(0.42)	35.11	35.11	35.11	118.86	16.97	16.97
Total aero expense	925.65	1,034.97	1,135.79	1,412.58	1,759.37	2,260.84	2,547.14

4.4 Revenue from Revenue Share Assets

As per OMDA 30% of the gross revenue generated by the JVC from the Revenue Share Assets shall be used for the purpose of cross subsidizing Aeronautical revenue.

The revenue from revenue share asset will have an impacted on account of upcoming expansion. Due to expansion works DIAL has to shift part of its Terminal 1 operation to Terminal 2 which resulted into decline in non-aero revenue for the airport. Split of traffic, lower commercial area at Terminal 2, and reduction in commercial area at Terminal 1 due to expansion activities have resulted into such decline.

The revenue from revenue share assets has been allocation in to five sub heads:

- Air traffic linked revenue
- Passenger related revenue
- International passenger related revenue
- Contract linked revenue
- Cargo

4.4.1 Air Traffic related revenue

Ground Handling Revenue – DGCA vide notification dtd. 25th Oct'2018 attached herewith as **Annexure – 18** barred third party ground handler services at the airport. Following is the relevant extract of ground handling policy:

3. Ground handling services at airports.–

(a) All domestic scheduled airline operators and scheduled helicopter operators will be free to carry out self-handling at all airports including Civil Enclaves.

(b) A foreign airline may undertake self-handling in respect of passenger and baggage handling activities excluding security functions listed out in para 1 of AVSEC Order 03/2009 at the airport terminals restricted to the passenger check-in at pre security hold area, at all the airports except Civil Enclaves or Joint User Defence Airfields.

Due to this development it will be cost efficient for airlines to do self-handling and accordingly most of the airlines may start self-handling this will result into reduction of revenue share income to DIAL from such third ground handler. For the financial year 2017-18 the third party ground handling income was Rs 29.67 crore. The same will be discontinued from FY'19 onwards. Other ground handling revenue is expected to grow in line with the overall ATM growth. Similarly BME revenue is expected to grow in line with the ATM growth.

4.4.2 Passenger related revenue

Flight kitchen – Revenue from flight kitchen is expected to growth in line with the overall pax growth which is in the range of 5% to 7%. Flight kitchen revenue majorly comes from full service carriers however the passenger growth is mainly expected towards LCC hence the growth towards this stream is expected to be subdued. If we refer the statistic of FY'18 then we can infer that almost 58% of the passenger including domestic FSC and international FSC contributes almost 86% of flight kitchen revenue and only 14% revenue comes from LCC carriers. Accordingly, the growth in flight kitchen revenue will be lower than passenger growth however optimistically we have considered growth in line with the overall passenger growth and will accordingly the growth will not be more than 6%-8%.

Car Park – Revenue from car park have impact of various other factors such as alternate mode of transport, availability and tariff. Delhi Metro on June'2018 commenced operation of one metro station at domestic airport. This metro station connects Airport to various part of city and accordingly it will have adverse impact over the car park revenue, upcoming expansion work at Terminal 1 will lead to reduction in available parking bays and better bus connectivity to city will also have adverse impact over car park revenue.

As per the concession agreement the revenue share from the car park JV will increase to 40% from current level of 20% wef 1st April'2020. The impact of the increased revenue share has been considered in the projections of revenue from car park.

With respect to car park revenue forecast DIAL has assumed growth in line with the pax growth and no growth in the year of completion of expansion work at Terminal 1. Increase on account of revenue share is also been considered.

Car Park (Radio Taxi) - Radio taxi model is in the last leg due to wider popularity and acceptance of taxi aggregators like Ola and Uber. There is continuous drop in radio taxi business. The radio taxi count has also been reduced to 12.80 lakh in FY'17 from 15.06 in FY'16 (15% reduction) and further 11.20 lakh in FY'18 (12% reduction vis a vis FY'17). It is assumed that the income for radio taxi would be reducing in the forecasted years. However, optimistically we have considered that the radio taxi would remain at the same levels including inflation impact.

Retail duty paid- In FY'18 Retail duty paid has observed exceptional growth due to onetime refresh however same growth will not continue. The shifting of domestic operation from Terminal 1 to Terminal 2 has adverse impact on retail revenue. Due to this shifting the average monthly sale at various outlets at Terminal 1 dropped by almost 30%. Accordingly the retails revenue is not expected to grow more than 6%-8% which is inline with the overall passenger growth. Also, there will be no growth in one year prior to the expansion work of Terminal 1 due to relocation activities and disruption in the operations.

F&B and lounge income– The F&B revenue in past three year has seen double digit growth however same will not sustain in long run. In FY'18, there was F&B refresh which led to growth in F&B revenue. Similar to the retail at Terminal 1 the F&B average monthly sale has been reduced by 30% due to shifting of domestic operation from Terminal 1. Going forward this growth may not sustain and accordingly in case of F&B and lounge we have considered growth in line the passenger traffic and no growth twelve month prior to the completion of Terminal 1 expansion work due to relocation activities.

Other non-aero revenue- Other non-aero revenue is expected to grow in line with the passenger growth.

4.4.3 International pax related revenue

Duty Free: - Duty Free has reached to its saturation level and there is no room for any inorganic growth. There are various international airport being developed in India which resulted in to lower international traffic at Delhi Airport. Growth at Delhi airport is expected to be as per pax growth which is still higher than the trend at competitive Airport.

Considering above factors DIAL has considered growth in duty free revenue in line with international pax.

4.4.4 Others

Advertisement revenue – The inorganic growth in case of advertisement comes from creation of new sites. Currently at Delhi Airport advertisement capacity has reached to its saturation and going forward advertisement revenue will see only organic growth. Also, from pricing strategy perspective cost of

advertisement at Delhi Airport already very high compare to any other location of Delhi. Hence, there is no room for price increase. Accordingly, DIAL has considered organic growth in terms of inflation only.

Forex- Due to increase in usage of credit card as well as digitization there is expected de-growth in the forex revenue. DIAL has assumed 10% YoY de-growth in forex revenue. However, with inflationary increase of 4.5% the effective de-growth comes to 5.5%

Land & Space

In recent past there are one time land allotment like land for Terminal 1C to DCSC, land allotment for MRO and FBO, commencement of new air cargo logistic facility (ACLCL). However, going forward there are no business plan for allotment of new land/space. Hence, going forward DIAL has considered only 7.50% growth in line with the contractual arrangement.

Other contract linked non-aero revenue- Other revenue like hangar, Common Area Management (CAM), Airport Service Charges (ASC), transit hotel and telecom are expected to grow by CPI linked inflation.

IT JV – The outsourcing of IT works brings efficiency and benefit to DIAL. DIAL has entered into a Master Service Agreement with an IT service provider. This contract is in the nature of cost contract which ensure minimum subsistence level to the service provider. Any shortfall to the subsistence level has been funded by DIAL and similarly the excess amount being paid to DIAL. The income from IT JV has been considered based on contractual arrangement till FY'20. The Revenue for FY'21 to FY'24 has been considered based on expected arrangement of revenue share.

4.4.5 Cargo Revenue

Cargo Revenue is expected to grow organically in line with the cargo traffic projection.

Further, the cross subsidy from revenue share assets would include Fuel Throughput Income and exclude revenue from AAI/existing assets. Further, as detailed at para 2.7.4 the S-Factor should be considered post Annual Fee payable to AAI. DIAL has accordingly considered the S-Factor in calculation of target revenue for the second control period.

Following is the summary of revenues from revenue share asset during third control period:

Table 25- Revenue from Revenue Share Assets for CP III (Rs/Cr)

Particular	2018	2019	2020	2021	2022	2023	2024
Fuel Farm	176.77	191.47	204.38	217.70	230.66	243.44	255.90
Ground Handling	116.54	127.74	104.68	111.50	118.14	124.69	131.07
BME	7.99	8.76	9.35	9.96	10.55	11.13	11.70
Flight Kitchen	55.10	59.50	64.02	68.72	73.48	78.20	82.85
Car Park	25.74	27.79	29.91	64.20	64.20	68.33	72.39

Particular	2018	2019	2020	2021	2022	2023	2024
Radio Taxi	15.98	17.25	17.25	17.25	17.25	17.25	17.25
Retail duty paid	125.45	130.45	135.42	140.38	140.38	144.89	149.20
F&B	90.54	97.76	105.21	112.92	112.92	120.18	127.32
Lounge Income	42.31	45.69	49.16	52.77	52.77	56.16	59.50
Other passenger link revenue	21.55	23.27	25.04	26.88	28.74	30.59	32.40
Duty Free	365.25	391.58	418.02	445.41	473.33	501.14	528.75
Advertisement	169.34	176.96	184.92	193.25	201.94	211.03	220.52
Forex	64.26	60.44	56.84	53.46	50.28	47.29	44.47
Land & Space	310.39	333.67	358.69	385.60	414.52	445.60	479.03
Other contract linked revenue	78.33	95.42	99.35	103.46	107.75	112.24	116.93
IT JV	45.25	108.98	78.12	42.21	45.14	48.04	50.89
Cargo	199.25	211.84	224.69	238.05	251.79	265.65	279.59
Gross Total	1,910.04	2,108.57	2,165.05	2,283.73	2,393.85	2,525.85	2,659.77
Less: Revenue from Existing Assets	374.22	374.22	374.22	374.22	374.22	374.22	374.22
Less: Revenue from disallowed area	23.73	25.62	27.57	29.59	31.64	33.67	35.68
Revenue from Revenue Share Assets	1,512.10	1,708.73	1,763.26	1,879.92	1,987.99	2,117.96	2,249.88

4.5 Taxation

DIAL computed MAT and normal tax as per law and also considered the carried forward business losses and unabsorbed depreciation as per act. In our calculation we have considered the MAT paid by the company and credit of the same has been considered in accordance with the law.

DIAL has computed tax for the company as a whole and actual tax payable has been allocated in the ratio of Aeronautical and Non-Aeronautical PBT.

Following are the details of aeronautical tax for third control period:

Table 26- Details of Aero tax for third control period (Rs/Cr)

Particular	2020	2021	2022	2023	2024	Total
Aero Tax	289.64	281.73	243.79	147.45	160.21	1,122.82

4.6 Traffic

The OMDA agreement required DIAL to develop an initial master plan (completed in Sept'2006) and provides an obligation to revise the master plan every ten year or at shorter interval if traffic forecast or other reason require an earlier assessment.

Since the current terminal capacity is reaching to its saturation level, need to improve turnaround time and operating efficiencies, predominance of belly cargo over freighter aircraft, dynamic changes in aviation industry, intra city connectivity like Delhi Metro etc. have arises the need of review the existing master plan and get IGI Airport ready to cater future need of Delhi NCR region. With this vision DIAL appointed Landrum & Brown (L&B) to review the initial master plan in 2015.

L&B is the industry expert in master planning and strategy, airfield and airspace, terminal planning and design, environment, financial/business planning, ground transportation, commercial development and activation planning services.

As part of master plan L&B provided the traffic forecast for IGI Airport, relevant extract of the report is attached herewith as **Annexure 25**. DIAL for the purpose of tariff filing for third control period has considered the growth projected by L&B in base case scenario. Following is traffic growth rate provided by L&B:

Table 27: Traffic growth for third control period

Particular	2020	2021	2022	2023	2024
Passenger					
Domestic	7.9%	7.6%	7.2%	6.6%	6.1%
International	6.8%	6.6%	6.3%	5.9%	5.5%
ATM					
Domestic	6.9%	6.8%	6.1%	5.7%	5.2%
International	6.0%	5.5%	5.3%	4.9%	4.8%
Cargo					
Domestic	7.5%	7.3%	6.9%	6.4%	6.0%
International	5.4%	5.3%	5.2%	5.0%	4.9%

Above growth forecast has been applied to the billable departure traffic, ATM and cargo handled for FY'18.

4.7 Inflation

For the purpose of inflation DIAL has considered the RBI survey of professional forecasters on macroeconomic indicators – result of the 51st round. Same is attached as **Annexure 19**.

As per the survey we have considered median CPI Headline inflation for FY'20. This effectively comes to 4.5%.

5 Building Block and X Factor for third control period

As explained in the principle of tariff determination the tariff for Delhi Airport will be determined based on building block approach defined under State Support Agreement. Accordingly, DIAL made its submission on various building block under above referred sections. In line with the above submission following are the resultant building block and X-Factor:

Table 28 Building block for third control period

Particular	2020	2021	2022	2023	2024	Total
Regulatory Asset Base	5,297.10	6,420.69	9,878.69	11,951.21	11,209.83	
WACC	15.77%	15.77%	15.77%	15.77%	15.77%	
Return on RAB	835.34	1,012.52	1,557.84	1,884.67	1,767.75	7,058.12
Operating expense	1,135.79	1,412.58	1,759.37	2,260.84	2,547.14	9,115.71
Depreciation	531.21	575.52	761.84	923.35	918.81	3,710.73
Taxes	289.64	281.73	243.79	147.45	160.21	1,122.82
Target Revenue	2,791.97	3,282.35	4,322.83	5,216.31	5,393.92	21,007.38
Cross subsidy- Revenue from revenue share asset	285.70	304.60	322.11	343.17	364.55	1,620.14
Net Target Revenue	2,506.27	2,977.75	4,000.72	4,873.13	5,029.37	19,387.24
BAC True up	3,440.42					
True up for second control period	4,183.03					
Adjusted Net Target Revenue	10,129.73	2,977.75	4,000.72	4,873.13	5,029.37	27,010.69
Discount Factor						
WACC	15.77%					
PV Factor	0.86	0.75	0.64	0.56	0.48	
PV of ARR	8,749.89	2,221.76	2,578.42	2,712.87	2,418.46	18,681.41
PV of Projected Revenue	4,167.35	3,953.44	3,737.44	3,519.28	3,303.90	18,681.41
X- Factor Increase	412.36%					

6 Annual Tariff Proposal

As regard to the annual tariff proposal it is submitted that the detailed pricing proposal (rate card) will be submitted on receipt of approval of MYTP from AERA.

6.1 Passenger Service Fee

In terms of the Operation Management and Development Agreement (OMDA), DIAL has been granted the right to levy various charges which have been listed out in Chapter XII of the OMDA (“Tariff and Regulations”). Such Charges include the following:

- i. Aeronautical Charges (Clause 12.1)
- ii. Charges for Non-Aeronautical Services (Clause 12.2)
- iii. Charges for Essential Services (Clause 12.3)
- iv. Passenger Service Fee (Clause 12.4)

Under the scheme of the OMDA, while DIAL is free to fix Charges for Non-Aeronautical Services and has to provide Essential Services to the passengers for free, the Aeronautical Charges as well as the Passenger Service Fee have to be determined by AERA in terms of the AERA Act.

Further, the methodology for calculation of aeronautical tariff is given in Schedule 1 of the SSA whereas the intent and purpose of Passenger Service Fee is given in Rule 88 of the Aircraft Rules, 1937. The clauses of the OMDA and the SSA as well as the statutory scheme relevant for the levy and calculation of aeronautical tariff is as follows:

OMDA

“

..

2.1 Grant of Function

2.1.1 AAI hereby grants to the JVC, the exclusive right and authority during the Term to undertake some of the functions of the AAI being the functions of operation, maintenance, development, design, construction, upgradation, modernization, finance and management of the Airport and to perform services and activities constituting Aeronautical Services, and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport and the JVC hereby agrees to undertake the functions of operation, maintenance, development, design, construction, upgradation, modernization, finance and management of the Airport and at all times keep in good repair and operating condition the Airport and to perform services and activities constituting Aeronautical Services and Non-Aeronautical Services (but excluding Reserved Activities) at the Airport, in accordance with the terms and conditions of this Agreement (the “Grant”).

2.1.2 Without prejudice to the aforesaid, AAI recognizes the exclusive right of the JVC during the Term, in accordance with the terms and conditions of this Agreement, to:

- (i) develop, finance, design, construct, modernize, operate, maintain, use and regulate the use by third parties of the Airport;
- (ii) enjoy complete and uninterrupted possession and control of the Airport Site and the Existing Assets for the purpose of providing Aeronautical Services and Non-Aeronautical Services;
- (iii) determine, demand, collect, retain and appropriate charges from the users of the Airport in accordance with Article 12 hereto; and
- (iv) Contract and/or sub contract with third parties to undertake functions on behalf of the JVC, and sub-lease and/or license the Demised Premises in accordance with Article 8.5.7.

...

2.2.3 **Aeronautical Services, Non-Aeronautical Services and Essential Services**

Subject to the foregoing and to Applicable Law, JVC shall undertake/ provide Aeronautical Services and Essential Services at the Airport Site. JVC may seek to undertake/provide Non-Aeronautical Services at the Airport Site by including them in the proposed (draft) Master Plan, provided however, if the same form a part of the (final) Master Plan then the same shall be undertaken as provided in this Agreement. JVC and AAI shall upon mutual agreement between the Parties update the list of Non-Aeronautical Services to include such other activities, as requested by AAI or JVC.

Notwithstanding anything contained in this Agreement, the JVC shall not undertake any activities at the Airport Site other than the Aeronautical Services, Non-Aeronautical Services and Essential Services.”

“Aeronautical Charges”, “Non-Aeronautical Services” and “Passenger Service Fee” are defined in the OMDA as follows:

“Aeronautical Services” shall have the meaning assigned hereto in Schedule 5 hereof.

“Aeronautical Charges” shall have the meaning assigned thereto in Article 12.1.1.

“Non-Aeronautical Services” shall mean such services as are listed in Part I and Part II of Schedule 6 hereof.

“Passenger Service Fees” shall mean the fees charged per embarking passenger at the Airport as described in the State Support Agreement.

.....

CHAPTER XII

TARIFF AND REGULATION

12.1 **Tariff**

12.1.1 For the purpose of this Agreement, the charges to be levied at the Airport by the JVC for the provision of Aeronautical Services and consequent recovery of costs relating to Aeronautical Assets shall be referred to as Aeronautical Charges.

12.1.2 The JVC shall at all times ensure that the Aeronautical Charges levied at the Airport shall be as determined as per the provisions of the State Support Agreement. It is hereby expressly clarified

that any penalties or damages payable by the JVC under any of the Project Agreements shall not form a part of the Aeronautical Charges and not be passed on to the users of the Airport.

12.2 Charges for Non-Aeronautical Services

Subject to Applicable Law, the JVC shall be free to fix the charges for Non-Aeronautical Services, subject to the provisions of the existing contracts and other agreements.

12.3 Charges for Essential Services

12.3.1 Notwithstanding the foregoing, those Aeronautical or Non-Aeronautical Services that are also Essential Services, shall be provided free of charge to passengers.

12.4 Passenger Service Fees

12.4.1 The Passenger Service Fees shall be collected and disbursed in accordance with the provisions of the State Support Agreement.

SSA

“Aeronautical Charges” shall be the charges to be levied at the Airport by the JVC for the provision of Aeronautical Services (and consequent recovery of costs relating to Aeronautical Assets);

*“Passenger Service Fee” shall mean the fees charged per embarking passenger at the Airport as per the provision of **Schedule 8** appended hereto;*

...

SCHEDULE 1

....

Calculating the aeronautical charges in the shared till inflation -X price cap model

The revenue target is defined as follows:

$$Tr_i = RB_i * WACC_i + OM_i + D_i + T_i - S_i$$

Where: TR = Target Revenue

RB = regulatory base pertaining to Aeronautical Assets and any investments made for the performance of Reserved Activities etc. which are owned by the JVC, after incorporating efficient capital expenditure but does not include capital work in progress to the extent not capitalized in fixed assets. It is further clarified that working capital shall not be included as part of the regulatory base. It is further clarified that penalties and Liquidated Damages, if any, levied as per the provisions of the OMDA would not be allowed for capitalization in the regulatory base. It is further clarified that the Upfront Fee and any pre-operative expenses incurred by the Successful Bidder towards bid preparation will not be allowed to be capitalized in the regulatory base.

WACC = nominal post-tax weighted average cost of capital, calculated using the marginal rate of corporate tax.

OM = efficient operation and maintenance cost pertaining to Aeronautical Services. It is clarified that penalties and Liquidated Damages, if any, levied as per the provision of the OMDA would not be allowed as part of the operation and maintenance cost.

D = depreciation calculated in the manner as prescribed in the manner as prescribed in Schedule XIV of the Indian Companies Act, 1956. In the event, the depreciation rates for certain assets are not available in the aforesaid Act, then the depreciation rates as provided in the Income Tax Act for such assets as converted to straight line method for the written down value method will be considered. In the event, such rates are not available in either of the Acts then depreciation rates as per the generally accepted accounting standards may be considered.

T = corporate taxes on earnings pertaining to Aeronautical Services.

S = 30% of the gross revenue generated by the JVC from the Revenue Share Assets. The costs in relation to such revenue shall not be included while calculating Aeronautical Charges.

“Revenue Share Assets” shall mean (a) Non-Aeronautical Assets; and (b) assets required for provision of aeronautical related services arising at the Airport and not considered in revenues from Non-Aeronautical Assets (eg. Public admission fee etc.)

i = time period (year) i

$$RB_i = RB_{i-1} - D_i + I_i$$

Where: RB_0 for the first regulatory period would be the sum total of:

- (i) the Book Value of the Aeronautical Assets in the books of the JVC and
- (ii) the hypothetical regulatory base computed using the then prevailing tariff and revenues, operation and maintenance cost, corporate tax pertaining to the Aeronautical Services at the Airport, during the financial year preceding the date of such computation.

I = Investment

The X factor is calculated by determining the X factor that equates the present value over the regulatory period of the target revenue with the present value that results from applying the forecast traffic volume with a price path based on the initial average aeronautical charge, increased by CPI minus X for each year. That is, the following equation is solved for X :

$$\sum_{i=1}^n \frac{RB_i \times WACC_i + OM_i + D_i + T_i - S_i}{(1 + WACC_i)^i} = \sum_{i=1}^n \sum_{j=1}^m \frac{AC_{ij} \times T_{ij}}{(1 + WACC_i)^i}$$

where: AC_{ij} = average aeronautical charge for the j^{th} category of aeronautical revenue in the i^{th} year

T_{ij} = volume of the j^{th} category of aeronautical traffic in the i^{th} year

X = escalation factor

n = number of years considered in the regulatory period

*m = number of categories of aeronautical revenue e.g. landing charges, parking charges, housing charges, **Facilitation Component** etc.*

The maximum average aeronautical charge (price cap) in a particular year ‘i’ for a particular category of aeronautical revenue ‘j’, is then calculated according to the following formula:

$$AC_i = AC_{i-1} \times (CPI - X)$$

Where CPI = average annual inflation rate as measured by the change in the All India Consumer Price Index (industrial Workers) over the regulatory period.

Airports Economic Regulatory Authority of India Act, 2008

13. Functions of Authority. –

1. *The Authority shall perform the following functions in respect of major airports, namely:-*

a) *to determine the tariff for the aeronautical services taking into consideration-*

- i. the capital expenditure incurred and timely investment in improvement of airport facilities*
- ii. the service provided, its quality and other relevant factors*
- iii. the cost for improving efficiency;*
- iv. economic and viable operation of major airports;*
- v. revenue received from services other than the aeronautical services*
- vi. the concession offered by the Central Government in any agreement or memorandum of understanding or otherwise*
- vii. any other factor which may be relevant for the purposes of this Act: Provided that different tariff structures may be determined for different airports having regard to all or any of the above considerations specified at sub-clauses (i) to (vii);*

b) *to determine the amount of the development fees in respect of major airports;*

c) ***to determine the amount of the passengers service fee levied under rule 88 of the Aircraft Rules, 1937 made under the Aircraft Act, 1934;***

The Aircraft Rules, 1937

Rule 88. (from 14.10.2009 till 04.03.2014)

Passenger Service Fee —*The licensee is entitled to collect fees to be called as Passenger Service Fee from the embarking passengers at such rate as the Central Government may specify and is also liable to pay for security component to any security agency designated by the Central Government for providing the security service. Provided that in respect of a major airport such rate shall be as determined under clause (c) of sub-section (1) of section 13 of the Airports Economic Regulatory Authority of India Act, 2008.*

Rule 88 (after the amendment on 05.03.2014)

Passenger Service Fee – The airport licensee may collect fees to be called the Passenger Service Fee from the embarking passengers at such rate as the Central Government may specify.

The airport licensee shall utilise the fees so collected for the infrastructure and facilitation of the passengers:

Provided that the rate of fees in respect of major airports shall be as determined under clause (1) of sub-section (1) of section 13 of the Airports Economic Regulatory Authority of India Act, 2008 (27 of 2008)".

In terms of the definition of Aeronautical Charges given in the OMDA and the SSA, the said charges are to be collected against (i) provision of Aeronautical Services and (ii) recovery of cost relating to Aeronautical Assets. As such, Aeronautical Charges are to be levied and collected by way of two components by DIAL, one for provision of Aeronautical Services and the other for recovery of costs related to Aeronautical Assets, where the first is a charge onto the users for use of the Aeronautical Services whereas the second is in the form of a reimbursement to the Airport Operator of the costs related to the Aeronautical Assets. As such, the mandate of the OMDA and the SSA is not only for the Airport Operator to collect charges towards provision of Aeronautical Services but is also to collect charges towards recovery of costs related to Aeronautical Assets used for the provision of Aeronautical Services.

Similarly, as per the scheme of the AERA Act, the determination and calculation of these two components of Aeronautical Charges have been provided separately. Section 13(1)(a) of the AERA Act provides for determination of tariff for aeronautical services and is therefore, the source of power for determination of Aeronautical Charges for provision of Aeronautical Services whereas Section 13(1)(c) of the AERA Act provides for determination of Passenger Service Fee which in terms of Rule 88 of the Aircraft Rules is a fee to be collected for infrastructure and facilitation of passengers and is therefore, the source of power for determination of Aeronautical Charges towards recovery of costs related to Aeronautical Assets.

As such, from the language of the AERA Act as well as the Aircraft Rules, it is evident that (i) the component of Aeronautical Charges which is towards provision of Aeronautical Services is to be calculated under Section 13(1)(a) taking all the factors stated therein into consideration and (ii) the component of Aeronautical Charges which is towards recovery of costs of Aeronautical Assets is to be calculated as Passenger Service Fee which is collected towards infrastructure and facilitation of passengers.

In view of the above, it is submitted that the calculation of Aeronautical Charges as defined in the OMDA and the SSA, should be done by AERA under Section 13(1)(a) and Section 13(1)(c) of the AERA Act which provide respectively for the said two components of the Aeronautical Charges, i.e., charges towards provision of Aeronautical Services and charges towards recovery of costs related to Aeronautical Assets. The said methodology would be in line with the OMDA, SSA, AERA Act and Aircraft Rules as the definition of Aeronautical Charges under OMDA and SSA provide for charges for Aeronautical Services and recovery of cost relating to Aeronautical Assets which are reflected in Section 13(1)(a) and 13(1)(c) of AERA Act read with Rule 88 of Aircraft Rule.

In this background, it is proposed that for the 3rd control period:

- Aeronautical Charges / Target Revenue should be determined as per the formula stated in Schedule I of SSA,
- PSF be determined under section 13(1)(c) of AERA Act, 2008 read with Rule 88 of Aircraft Rules, 1937 with specific Building Blocks of Depreciation and Interest out of target revenue, and
- Aeronautical Charges towards aeronautical services be calculated under section 13(1)(a) of AERA Act, 2008 (target revenue minus PSF).

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Delhi International Airport Limited
(Formerly known as Delhi International Airport (P) Limited)

Registered Office:
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Letter No.: DIAL/2018-19/Regulatory/2095

Dated: 20th February'2019

To,

The Chairman,
Airport Economic Regulatory Authority of India
AERA Building, Administrative Complex
Safdarjung Airport,
New Delhi – 110 003

भारतीय विमानपत्तन आर्थिक विनियामक प्राधिकरण
सफदरजंग एयरपोर्ट, नई दिल्ली-110003

प्राप्त
13482
तारीख: 20/02/2019

Subject: Response to the queries raised by SBI CAP for DIAL CP III MYTP

Reference: Your email dtd.19th Dec'2018

Our letter no 1832 dtd. 9th Jan'2019

Dear Sir,

In furtherance to our response dtd. 9th Jan'2019 please find attached the additional information as Exhibit 1 including annexures for your kind perusal.

We will be glad to provide any further clarification if required.

For Delhi International Airport Ltd


K Narayana Rao
Director

Encl: Exhibit 1

S. No.	Query	Response																								
10	Operational Performance of the airport in the first 6 months of FY 2019 in terms of traffic achieved so far and the estimated traffic to be achieved in the balance period of FY 2019	<p>1A</p> <p>Please find the audited certificate for billable traffic for the period April'2018 to Sept'2018 as Annexure – 1 & 1A</p> <p>Following are the details of IGI Airport capacity:</p> <table border="1"> <thead> <tr> <th>Particular</th> <th>June'2011</th> <th>Jan'2019</th> </tr> </thead> <tbody> <tr> <td>Peak Hour Runway Capacity (All three runway included)</td> <td>65 movements/Hour</td> <td>73 (post infra development & new ATC going operational system will have the capacity of 86 peak hours movements/hour)</td> </tr> <tr> <td>Declared Terminal Annual Capacity</td> <td>62.7 Million</td> <td>66 Million</td> </tr> </tbody> </table>	Particular	June'2011	Jan'2019	Peak Hour Runway Capacity (All three runway included)	65 movements/Hour	73 (post infra development & new ATC going operational system will have the capacity of 86 peak hours movements/hour)	Declared Terminal Annual Capacity	62.7 Million	66 Million															
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14	YoY Increase in traffic handling capacity of Airport both in terms of terminal capacity and runway capacity along with YoY increase in floor area of the terminal from FY 2009.																									
22	Details of the complete Development Fee that was collected by DIAL year wise from the date in which DF was allowed to be collected along with the quantum of DF adjusted from the capitalized asset base.	<p>As per the SOP the DF receipt and utilization is audited by the AAI appointed auditor Ved Jain & Associates. In accordance with the auditor certificate DIAL has been disbursed DF of Rs. 3418.95 however as per auditor it is Rs 3415.35 Cr. There is a difference in calculation as per DIAL for the balance Rs 3.60 Cr which is still under reconciliation with AAI. Please refer the last communication raised by DIAL with regard to difference of Rs 3.60 Cr with AAI attached herewith as Annexure - 2.</p> <p>The last DF audit report for the month July'2017 has been attached herewith as Annexure-3. You may please refer table 3 of the said report for final DF reconciliation and year wise DF collection as Annexure XVII.</p> <p>Quantum of DF adjusted year wise is as follows:</p> <table border="1"> <thead> <tr> <th>Particular</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>As per Financial</td> <td>1816.96</td> <td>1248.04</td> <td>0.35</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>350</td> <td>3415.35</td> </tr> </tbody> </table>	Particular	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	As per Financial	1816.96	1248.04	0.35	-	-	-	-	-	-	350	3415.35
Particular	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total															
As per Financial	1816.96	1248.04	0.35	-	-	-	-	-	-	350	3415.35															
25	Details of Existing Assets and the basis for the revenue projected from the Existing Assets.	<p>Please find below the details of revenue from existing assets. A Detailed concept document along with auditor certificate was submitted vide our submission dtd 27th Nov'2018, A copy of the same is attached herewith for ready reference as Annexure -4.</p>																								

Multi Year Tariff Proposal (MYTP) for IGI Airport for third control period
Exhibit – 1 to the queries raised on 20th Dec 2018

Particulars	Revenue from Existing Assets										Total
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	(₹ in Crores)	
Land License Fee	125.34	107.13	114.55	108.06	116.25	127.89	152.91	185.72	209.62	1,247.47	
Hangar *	-	-	-	13.34	17.67	17.32	29.63	30.13	31.88	139.97	
In-flight kitchen revenues	3.22	9.65	16.54	24.53	16.41	18.51	22.46	26.16	28.24	165.72	
Retail - Duty Free	120.05	8.85	-	-	-	-	-	-	-	128.90	
Ground handling related revenues	-	9.54	-	-	-	-	-	-	-	9.54	
Car parking (including entry ticket and left luggage fee)	21.66	6.42	-	-	-	-	-	-	-	28.08	
Radio Taxi	2.82	3.34	4.59	4.66	5.91	5.65	5.05	4.60	4.43	41.05	
Advertisement	31.24	11.42	-	-	-	-	-	-	-	42.66	
Bank ATM	-	1.00	0.36	0.41	0.77	0.68	0.72	0.50	0.95	5.39	
Food & Beverages	19.42	7.57	2.31	2.11	2.66	3.07	3.11	2.81	5.19	48.25	
Forex	-	-	0.03	-	-	-	-	-	-	0.03	
Lounges	-	-	-	-	-	-	-	-	0.23	0.23	
Other travel services	-	0.04	0.65	0.95	1.14	0.68	0.68	1.04	1.06	6.24	
Retail - Duty Paid	2.89	1.59	0.12	0.70	4.50	1.33	1.02	2.49	5.00	19.64	
Telecom	14.16	5.53	0.38	0.18	1.70	0.61	0.62	0.53	-	23.71	
Misc. Others	9.49	3.01	-	-	-	-	-	-	-	12.50	
Total (A)	350.29	175.09	139.53	154.94	167.01	175.74	216.20	253.98	286.60	1,919.38	
Cargo Revenue (Self-handled) (B)	141.04	16.70	-	157.74							
Cargo Revenue (Brownfield)	33.16	118.72	108.32	94.20	94.07	111.61	109.40	116.86	147.25	933.59	
Cargo Handling Capacity	0.60	0.70	0.70	0.85	1.00	1.00	1.00	1.00	1.00	1.00	
Cargo Handling on hand-over date	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	
Cargo Revenue as demised premises (C)	33.16	101.76	92.85	66.49	56.44	66.97	65.64	70.12	88.35	641.78	
Reduction on T2 assets deployed by DIAL (D)									(0.75)	(0.75)	
Total Revenue from demised premises (A+B+C+D)	524.49	293.55	232.38	221.43	223.45	242.71	281.84	324.10	374.20	2,718.15	

* Hangar License fee for the period from April 01, 2009 to March 31, 2010 is included in the land License Fee

Letter No: DIAL/2019-20/Regulatory/408

Date: 7th Jun'2019

To,

The Secretary,
Airports Economic Regulatory Authority of India
AERA Building, Administrative Complex,
Safdarjung Airport,
New Delhi – 110 003

Subject: CP III MYTP: Response to clarification sought

Reference: Your email dtd. 7th May'2019

Dear Sir,

This is with reference to the clarification sought vide your email dtd 7th May'2019, please find below our point wise response:

Query 1: Provisional FY 2019 financials (audited if available) in IGAAP format along with detailed breakup of the traffic numbers and financials in line with the representation provided in the financial model.

Response: The audited accounts for Financial Year 18-19 is attached herewith as Annexure – 1. We are in the process to update the model with the financials of FY 2018-19 and will be submitted subsequently.

Query 2: Details of Professional and Consultancy Expenses from the beginning of the first control period i.e FY 2010 with split up among the various components including expenses incurred towards legal consultants and nature of each of the expense.

Response: Following are the details of legal and professional expense from FY'10 onwards. Further, please refer the Annexure-2 for the auditor certificate:



(Rs Cr)

Particular	Nature of expenses	2010	2011	2012	2013	2014	2015	2016	2017	2018
Legal Services	Legal advisory service for various contractual issues, regulatory, stakeholder issues, funding agreements, revenues, etc.	5.27	5.29	7.58	5.96	9.44	5.02	11.86	14.90	15.05
Retainers and HR Consultancy	Consultancy service taken from industry experts for talent acquisition, competency development, job evaluation, labour laws, retainer consultants etc. Advisory services over social media, ground operation and placement consultancy expenditure etc.	12.29	24.76*	10.73	10.81	14.48	14.91	14.98	18.00	20.91
Financial and Accounts	Advisory services for refinancing, credit rating, VAT, GST and Service tax matters etc.	0.53	0.65	1.02	0.84	0.92	2.51	1.13	2.34	1.46
Technical Services	Various advisory services for MYTP filing, MYTP review, lender engineer, cost audit, energy management, economic impact study etc.	14.04	8.02	15.56	16.70	4.71	5.41	11.40	9.60	21.52
Management Service Fee	Retainer fee paid to ICICI	6.82	2.17	5.42	14.46	17.39	16.07	0.72	0.64	0.94
Outsourcing Expenses	Support staff cost, Agency hired for call centre, and other administration works/processes outsourced for the respective period.	0.13	0.13	(0.02)	0.63	0.93	2.43	2.25	2.16	5.12
Taxation	Advisory services for income tax matters etc.	0.44	0.43	0.06	0.08	0.22	0.54	0.06	0.21	2.32
Secretarial	Advisory services for secretarial matters etc.	-	0.02	0.03	-	-	0.02	0.03	-	-
Others	Majority of the expenditure is one-time consultancy for benchmarking of various processes relating to operations at the Airport and administration of the Company and its strategic business	2.67	24.94	17.39	3.07	13.63	3.36	6.33	(0.66)	5.74

Particular	Nature of expenses	2010	2011	2012	2013	2014	2015	2016	2017	2018
	planning including the services for enhancement of the efficiency at the airport.									
Total		42.19	66.41*	57.77	52.55	61.72	50.27	48.76	47.19	73.06

* An amount of Rs 13.74 Cr has been regrouped to Manpower Hire charges in the subsequent financial year for the period FY 2011-12 and accordingly the resultant consultancy fee shown in the model submitted amounts to Rs 52.67 Cr for FY 2010-11.

Query 3: Revenues from rents and land leases to be segregated from the beginning of the first control period i.e FY 2010 among land leased for aeronautical activities and land leased for non-aeronautical activities.

Response: In above clarification we understand that AERA has sought bifurcation of land license fee of DIAL into aeronautical and non-aeronautical. In this regard we would like to submit that land license fee or rentals are commercial considerations and are not aeronautical revenue. AAI has been collecting land license fee prior to handing over of the Delhi Airport to DIAL, wherein these revenues are not considered as part of Aeronautical Services (Traffic Revenues). This exemplifies the industry practice of considering such revenues. It is further submitted that rents and land license fee are not Aeronautical Services as per Schedule 5 of OMDA. Hence these revenues are considered as revenues pertaining to Revenue Share Assets since the beginning of the concession.

Accordingly there is no requirement of segregation of land leased for aeronautical activities and land leased for non-aeronautical activities. An audit certificate for overall land license fee has already been submitted to AERA vide our MYTP filing as revenue from Revenue Share Assets.

Further, upon careful consideration of the above facts AERA also has all along considered revenues from land license fee as revenues from Revenue Share Assets in it's order for Delhi Airport for first and second control period vide order no 3/2012-13 and order no 40/2015-16 respectively.

The relevant extract of table 18 of the order no 3/2012-13 i.e. first control period is reproduced below:

Table 18 Scenario -3 - Non Aeronautical Revenues: As per Authority's basis of projection (Base year 2008-09 actuals, further projections as per Authority's forecast)

Non Aeronautical Revenues	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Flight Kitchen Royalty	12.62	14.43	28.87	33.34	38.53	44.57
Duty Free	88.11	120.03	133.92	155.66	180.93	210.30
Advertisement	47.61	54.45	61.84	74.99	91.00	110.51
Public Admission Fee	0.00	0.00	0.00	0.00	0.00	0.00
F & B Income and Lounges	23.45	31.19	41.16	49.91	60.57	73.55
Bridge Mounted Equipment	0.00	0.00	1.60	1.81	2.04	2.30
Retail	0.00	9.55	27.99	33.94	41.19	50.02
Foreign Exchange	0.00	0.00	29.94	34.80	40.45	47.02
Telecom	14.76	18.96	21.53	26.11	31.69	38.48
Land, Space and Hangar	56.35	132.14	123.27	161.47	197.73	223.05

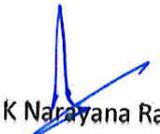
The relevant extract of table 63 of the order no 40/2015-16 i.e. second control period is reproduced below:

Non-Aeronautical Revenues, Rs. Crores	2014-15	2015-16	2016-17	2017-18	2018-19
Air traffic related revenues					
Bridge-mounted equipment revenues	5.24	5.55	5.88	6.23	6.61
Ground handling revenues	66.84	81.89	86.80	92.00	112.72
Subtotal Air traffic related revenues	72.07	87.44	92.68	98.23	119.33
Contract linked revenues					
Advertisement	98.71	108.64	119.55	131.57	144.79
Forex	52.80	58.11	63.95	70.38	77.45
Land license fee	133.50	143.52	154.28	165.85	178.29
Land license Fee (Area surrendered)	20.19	16.99	13.94	0.00	0.00
Hangar	18.71	20.11	21.62	23.24	24.98
Common area management	5.62	6.04	6.50	6.98	7.51

From above it is clear that the AERA after careful examination has considered land license fee as revenue from Revenue Share Assets for tariff purpose for past two control periods. We submit that land license fee is not Aeronautical Service as per Schedule 5 of OMDA, hence bifurcation of land license fee between aeronautical activities and non-aeronautical activities does not arise.

Should you need any further clarification, we will be glad to provide the same.

For Delhi International Airport Ltd


K Narayana Rao
Director

Letter No. DIAL/2019-20/Regulatory/1050

Date: 1st Oct'2019

To,

The Chairman
Airport Economic Regulatory Authority of India,
AERA Building, Administrative complex,
Safdarjung Airport,
New Delhi- 110003

Subject: MYTP for the third control period (FY 2019-2024) of IGI Airport New Delhi

Reference: DIAL MYTP submission vide letter no 1601 dtd. 27th Nov'2018

Dear Sir,

This is with reference to above subject matter, Delhi International Airport Ltd. (DIAL) had submitted Multi Year Tariff Proposal (MYTP) for 3rd control period on 27th November'2018. As directed by the Authority, DIAL is hereby submitting updated MYTP filing with audited financial numbers of FY'19 and other items as explained below:

- 1. Audited financial for FY19** – In the original filing DIAL had considered FY'19 on projection basis as the financial for FY'19 were not concluded. Since FY'19 financials have been audited now, accordingly DIAL has updated its financial model with the audited number for FY'19. A copy of audited financial for FY'19 is attached herewith as **Annexure-1**. Relevant auditor's certificates for FY'19 also attached as **Annexure -1A**.

DIAL has considered the aeronautical revenue for FY 2018-19 as per order no 40 of 2015/16 upto 30th November 2019, for calculation of true up for second control period in terms of Schedule 1 of SSA.

- 2. Revision in Project cost** – DIAL had floated tenders for award of EPC contract for Phase 3A expansion works which has now been awarded post competitive bidding process. Following are the details of award of contract and procedure followed:
 - a. DIAL had floated the tender for award of EPC project in India as well as in international market for phase 3A expansion.

- b. DIAL had received expression of interest from five qualified bidders of international repute out of which three tenderers had submitted their final bid.
- c. Post technical and financial evaluation of the tenders, L&T came out as a L1 bidder and accordingly L&T had been awarded the EPC contract.
- d. The project cost arrived on above market discovery basis is Rs 10,244.13 Crore and after factoring input GST credit the landed cost works out to be Rs 9794.13 Crore.
- e. The project start date has been considered as 7th March'2019 being the date of notice to proceed given to L&T for phase 3a project.
- f. The cash flow and the capitalization schedule has been accordingly updated in the MYTP model.

The revised cost of the project, basis the works awarded till date is Rs 9794 Cr. DIAL as on 31st March'2019 had capitalized Rs. 12 Crore and Rs 63 Crore accounted as capital work in progress in relation to preliminary and relocation work. Accordingly, for the purpose of forecast we have considered the balance Rs. 9719 Crore to be spent during CP3 period.

3. Refundable Security Deposit

DIAL in FY'19 had monetized commercial land. In terms of the transaction DIAL is estimated to receive Rs 1437 Cr as refundable security deposit (RSD) along with annual lease rentals (ALR) for the land monetized. DIAL has already received Rs 359 Crore being 25% of refundable security deposit as on 31st March'2019 and is expected to receive balance 75% of Rs 1078 Crore in FY'20. Further as a part of consideration DIAL will also receive Rs 363 Cr as annual lease rentals. DIAL has therefore considered revised RSD as means of finance for the expansion capex and also updated the lease rentals based on the above understanding.

4. USD 350 Million Bond for project expansion

In the MYTP filing dtd 27th Nov'2018, DIAL had envisaged the funding of expansion capex debt requirement through RTL. However, DIAL has raised USD 350 Mn bond in the international market with maturity period of 10 years on 4th Jun'2019 at the drawdown rate of INR 69.27 per USD. The effective interest rate is 6.82% including 0.37% of withholding tax. Further, we have also completed the hedging of principal payment of this loan and the effective hedge cost is 3.10%. Accordingly the effective cost of loan translates into 9.92% (base rate 6.45%+ withholding tax 0.37%+ hedge cost 3.10%). DIAL accordingly has now considered the bond issued as part of financing the expansion capex in the MYTP.

5. Exchange rate

The exchange rate which was earlier considered basis the Sept'2019 financial has been updated to INR 69.16 per USD in accordance with the FY'19 audited financials.

6. Hedging of interest portion for USD 288.75 bond

In order to cover the forex variation toward interest cost of USD 288.75 Mn bond, DIAL has entered into a hedge facility from HSBC bank in Aug'2019. The forex variation is being hedge for various range depending on the time. Broadly the range is between Rs 70/USD to Rs 79/USD. The premium payable for the hedge has been considered as part of interest cost for USD 288.75 mn bond. Following are the premium in absolute terms which DIAL needs to pay for this hedge facility over the balance three year period of the said loan:

Year		2020	2021	2022
Premium	in	4.35	6.87	5.69
	Rs/Crore			

7. Tendering of IT Services at DIAL

The current IT service arrangement at Delhi Airport is due to expire in July'2020. Also, there is a dire need of IT refresh. Accordingly DIAL had issued RFP on 19th Jun'2019 to select a concessionaire for undertaking finance, operation, management, maintenance, upgradation and modernization of IT system works and facilities; and for providing IT related services at IGI Airport.

The bids were invited through newspaper advertisement in national as well as in international newspapers. DIAL has received Expression of Interest from WAISL Ltd., TAV technologies (TAV) and Cognizant. Finally the bid was submitted by WAISL Ltd and TAV. Both parties were technically qualified and accordingly the financial bids were opened. According to the terms of RFP the bidder who quotes the highest revenue share would be awarded the contract. WAISL Ltd quoted 9% revenue share whereas TAV quoted 3% revenue share. Accordingly, the letter of award has been issued to WAISL Ltd on 19th Aug'2019.

The actual revenue share for the purpose of projection was earlier estimated at 20% which is now updated to the actual revenue share of 9% revenue share as part of revenue from IT JV from FY'21 onwards.

8. Operation capex addition

DIAL had estimated operation capex in the filing dated 27th November 2018. The following recent development would require DIAL to invest additional amount for general capex. Accordingly DIAL has additionally provisioned for the following capital expenditure:

1. BCAS has directed to install body scanner at all civil airports in India. In compliance to this directive DIAL would be required to procure body Scanner for T1, T2 & T3. The estimated numbers of body scanners as per the requirement for all three terminal at IGI Airport would be around 123 nos. Accordingly DIAL has provisioned for the capital expenditure relating to

body scanners at Rs 154 Crore. The relevant BCAS directive is attached as **Annexure-02 for your reference please.**

2. DGCA on 15th July'2019 directed DIAL to procure aircraft recovery kit to meet the exigencies at the Airport. The expected cost of aircraft recovery kit is Rs. 19 Crore. Relevant letter of DGCA attached herewith as **Annexure -03.**
3. In order to improve connectivity to IGI Airport, NHAI has proposed the underpass at Shiv Murthy NH-8. In order to enable the work MoCA has advised DIAL to contribute 50% of the total costs of this project. Accordingly, DIAL may require to share the cost of project to the tune of Rs 150 Crore for the connectivity which is considered as a part of operation capex in this updation.

Since the above capital expenditure are mandatory in nature same has been considered as additional capex for third control period over and above the operational already considered in the MYTP filed on 27th Nov'2018.

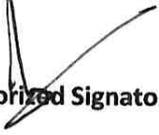
9. Update towards utility assumption

DIAL has witnessed that the electricity demand in FY'19 is lower than what had been expected accordingly the projection towards electricity expense has been updated in current tariff filing. The reduction in electricity consumption is mainly due to the installation of solar plants by the cargo service provider and energy saving initiative undertaken by DIAL through implementation of LED lights phase wise. Further the estimates of project phase have been also firmed up. Accordingly, the projections have been updated with the firmed up demand for the next four years.

10. PSF be determined under section 13(1)(c) of AERA Act, 2008 read with Rule 88 of Aircraft Rules, 1937 with specific Building Blocks of Depreciation and return on investment of target revenue. The calculation of PSF would be submitted once the Authority confirms the final target revenue for CP III.

The changes indicated above results into revised X-Factor of 424.21%. We request Authority to consider above submission.

For Delhi International Airport Ltd


Authorized Signatory

Delhi International Airport Limited
(Formerly known as Delhi International Airport (P) Limited)

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Letter No.: DIAL/2018-19/Regulatory/1252
Dated: 18th November'2019

To,

The Chairman,
Airport Economic Regulatory Authority of India
AERA Building, Administrative Complex
Safdarjung Airport,
New Delhi – 110 003

Subject: Response to the clarification sought by SBI CAP for DIAL CP III MYTP

Dear Sir,

This is with reference to our discussion with SBI CAP on 31st Oct'2019, please find attached our point wise response to the clarification sought by SBI CAP.

We will be glad to provide any further clarification if required.

For Delhi International Airport Ltd



K Narayana Rao
Director

Encl: Exhibit 1

Letter No.-DIAL/2019-20/Regulatory/1407

Date-24th Dec'2019

To,

The Chairman
Airport Economic Regulatory Authority
Safdarjung Airport,
New Delhi

Reference: Email from SBI Caps dtd. 4th Dec'2019
Subject: Clarification to DIAL MYTP for third control period

Dear Sir,

This is with reference to above referred email dtd 4th Dec'2019, please find below our point wise response:

1. Please provide justifiable reasons for the delay in commissioning of the ATC tower when the Development Fee towards the same has been collected in FY'14 itself.

Ministry of Civil Aviation (MoCA) at the request of Airports Authority of India (AAI), vide its letter no. F.No.A V.20036/O 1712008-AD dated January 19, 2010 had approved the proposal to construct a new Air Traffic Control (ATC) Tower along with associated facilities at Indira Gandhi International (IGI) Airport, New Delhi, in order to improve the operational efficiency of the Airport and the same was communicated to AAI and the Company.

The ATC tower and associated buildings had been handed over to AAI in FY'15 for installation of equipment at their end and further no obligation is pending at DIAL end towards ATC tower. At this juncture though the asset was handed over to AAI however the final settlement with L&T was under discussion and also the asset was not put to use as due to pending installation of equipment. Accordingly, it could not be capitalized at that time.

Further, the total Project Cost of the ATC considered in the project cost approved by the regulator (AERA) was INR 350 crores, which was a part of Development Fee and was collected by DIAL from Passengers. However, the total project cost has been increased by INR. 49 crores to INR. 399

due to changes suggested during work and stoppage of work due to VVIP movement during the course of construction.

As per DIAL the additional cost of INR. 49 Crores was expected to be part of DIAL Regulatory Asset Base (RAB) and DIAL was to capitalize ATC asset in its book however in one of the board meeting dtd 11th May'2017 AAI suggested that the ATC is AAI asset and should be capitalized in AAI books. In this regard DIAL asked reimbursement of additional cost incurred on ATC from AAI. However, AAI vide its letter dated Nov'29, 2018 mentioned that there was no approval of additional cost incurred by DIAL on ATC and therefore the additional cost cannot be met out of DF and AAI will not make good this cost to DIAL. Finally in FY'19 DIAL had capitalized the ATC tower at net cost of INR. 48.69 Crore after adjusting DF of INR. 350 Crore in its financials.

- 2. Request you to provide possible justification for the escalation in cost vis a vis the cost estimated by KITCO for a similar scope of work. Request you to also share the copy of all the contracts entered into with L&T for carrying out these works along with the reserve price indicated at the time of bidding out these contracts.**

The original estimates submitted to AERA/KITCO were based on preliminary BoQ and estimated per unit cost. The contract for Phase 3A expansion work was awarded on lump sum EPC (Engineering, Procurement and Construction) contract basis post international competitive bidding. The successful EPC bidder i.e. L&T had estimated package wise payment mechanism for the decided lump sum cost.

The revised cost of the project, basis the works awarded till date is INR 9,794 Cr with an assumption of GST credit of Rs 450 Cr. The revised project cost include INR 9821 Cr EPC contract awarded to L&T which if we consider the expected GST credit of INR 450 Cr then it comes to INR 9371 Cr. In addition to which INR 423 Cr work awarded to others like design, PMC, preliminaries and insurance.

The Phase 3a project has been awarded after following detailed tendering process which involved following:

- For pre-qualification of vendor, advertisements were placed in International and National Newspapers (listed below) on April 2, 2018.
 - Economic Times (India All editions)
 - Times of India (India All editions)
 - Financial Times (United Kingdom)
 - Engineering News- Record (Global)
- Based on technical and financial requirements listed in the Expression of Interest (EOI) response was received from following five parties:
 - M/s Larsen and Toubro, India
 - M/s Limak Holding, Turkey
 - M/s ICTAS Insaat, Turkey

- M/s China Construction First Group, China
- M/s TAV Construction, Turkey/Dubai
- Except M/s China Construction First Group, all other parties were qualified. Accordingly, the Request For Proposal (RFP) was shared with the qualifying parties.
- Bids from the three parties were received on December 06, 2018 with one party (M/s Limak) withdrawing from the tender.
- Technical and commercial evaluation committee were formed by DIAL for carrying out detailed evaluation of the bids.
- L&T emerged as the lowest bidder L1 by submitting bid of INR 10510 Cr (including GST) which was further negotiated by DIAL to INR. 9821 Cr (including GST).

Accordingly we hereby submit that the project cost now arrived is a result of price discovery done through international tendering process:

- DIAL has followed an exhaustive International tendering process wherein reputed International Contractors with experience in similar projects had been shortlisted for tendering.
- The exhaustive process of tendering, evaluation, discussion and negotiations followed by DIAL has resulted in the discovery of the EPC cost for the Phase 3A works. The final prices were arrived after rigorous negotiations with the lowest bidder i.e. L&T which had almost 6% lower quoted price than the highest bidder initially.

The estimates submitted by DIAL or as approved by KITCO for the costing cannot be compared to the final outcome of the bidding process. However, in order to understand the variation between the estimates submitted earlier and the actual amount the following points could have formed the reason for variation:

1. **Shift in the start date of construction:** The construction work could be commenced only in March 2019 (with certain preliminary works starting immediately after the award of works on February 07, 2019) instead of January 2018 leading to an additional probable inflation of one year on the estimates submitted to KITCO. The inflation impact was calculated on the basis of CPWD building cost index considered at the time of KITCO estimates versus April'2019. The impact of inflation in percentage terms comes to 6.31% which translates into INR. 586 Crores.
2. **Impact of GST:** In DIAL submission to AERA in Sept'2017 impact of GST on civil works was around 5% to 7% and on some of the items we had not considered GST. Accordingly, if we consider additional 7% on the items which were based on Delhi Schedule Rate (DSR) as the VAT was already included in DSR and 18% GST for the items on which GST was not considered then the total additional impact estimated to be INR 1062 Crore out of which the expected GST credit is INR 407 Crore The net impact on account of GST estimated to be INR 655 Cr.

3. **Construction risk factors:** The remaining difference is largely due to construction risks perceived by the tenderers which were not envisaged in the submission made to KITCO. Some of the factors can be summarized as under:
- Evolving NGT guidelines and the restriction on construction activities in Delhi NCR.
 - Availability of construction material like aggregate and sand as far as 350 KMs
 - Requirement of Minimum impact on airport operations and maintenance of service levels during construction
 - Security restrictions leading to stoppage and delays due to various VIP movements.

We will be glad to provide any further clarification if required.

For Delhi International Airport Ltd.



K Narayana Rao
Director