



Airports Economic Regulatory Authority of India

**In the matter of Determination of Fair Rate of Return (FRoR) to be provided on
Cost of Land incurred by various Airport Operators of India**

08th May, 2018

**AERA Building
Administrative Complex
Safdarjung Airport
New Delhi – 110 003**

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1. LIST OF ABBREVIATIONS

AAI	Airport Authority of India
AERA Act	Airports Economic Regulatory Authority Act, 2008
AERA or the Authority	Airports Economic Regulatory Authority
BIAL	Bengaluru International Airport Limited
BPCL	Bharat Petroleum Corporation Limited
CCSIA	Chaudhary Charan Singh International Airport
CHIAL	Chandigarh International Airport Limited
CIAL	Cochin International Airport Limited
CPI	Consumer Price Index
DIAL	Delhi International Airport Limited
FRoR	Fair Rate of Return
GMADA	Greater Mohali Area Development Authority
HIAL	Hyderabad International Airport Limited
HUDA	Haryana Urban Development Authority
HUDCO	The Housing and Urban Development Corporation Limited
IGIA	Indira Gandhi International Airport
JVC	Joint Venture Company
KIA	Kempegowda International Airport
KIAL	Kannur International Airport Limited
MIAL	Mumbai International Airport Limited
NCAP	National Civil Aviation Policy, 2016
OMDA	Operations, Management and Development Agreement
PPP	Public Private Partnership
RAB	Regulatory Asset Base
RCS	Regional Connectivity Scheme

2. INTRODUCTION

2.1 Objective of the Consultation Paper

2.1.1 The primary function of Airports Economic Regulatory Authority (AERA or Authority) is to determine the tariff for the aeronautical services to be charged by the airport operators, having regard to Section 13 of Airports Economic Regulatory Authority of India Act (AERA Act), 2008.

2.1.2 The tariff determination methodology is based on an approach that provides a Fair Rate of Return (FRoR) to the airport's Regulatory Asset Base (RAB) which includes fixed depreciable assets of the airport. At present the premise is that the operator is handed over land free of cost and no depreciation is charged on the land. Thus, in the current practice for computing RAB, cost of land is not included.

2.1.3 The State Governments normally provide the land necessary for the development of the airport. The arrangements they make for such transfer are summarized below:

Table 1: Type of Land Arrangement for Airport Development

Type	Case	Return on Land
Transfer of land from the owner (state government)	i. Free of cost	No return on land
	ii. Lease basis	A lease arrangement is drawn between the land owner and airport operator; return in the form of lease is explicitly specified in such an agreement. Example: airport in Bengaluru, Hyderabad
Acquired land	iii. Acquired land provided to the airport operator against upfront payment	Land owner receives the upfront payment from the airport operator.
	iv. Acquired land provided to the airport operator through transfer in value against equity; (And not in exchange of an upfront payment.)	Example: Airports in Chandigarh, Cochin, Kannur. Return in such a case is yet to be determined.

2.1.4 In recent years, in airports such as Chandigarh, Cochin, Kannur, land has been introduced by the respective stakeholder State Governments against equity. The governments had previously incurred a considerable expense on land acquisition. This has led to a demand of return on land by the respective government stakeholders.

2.1.5 AERA has recognized this concern in the consultation paper issued for Chandigarh, Goa and Cochin airports, stating:

“In respect of cost of land, the Authority notes that land is not a depreciable asset and if taken into RAB, the return over it has to be paid perpetually. Besides, if the principle of FRoR based on cost of capital is applied on cost of land the aeronautical charges may have to be fixed at exorbitantly high rates. However, the Authority realizes that unless some kind of return is given on land, future land acquisitions for airport purposes could become a major hurdle for airport development. Therefore, it is proposed to conduct a study based on which the treatment to be given to cost of land can be determined.”

3. STUDY BY EY

3.1 Terms of Reference

3.1.1 The Authority appointed EY to perform the said study (“land study”) on 08 August 2017. EY Submitted the land study report on 23 April 2018.

3.1.2 Terms of Reference of the land study was:

“2.1. Reviewing and analyzing different modes of acquisition of land in case of existing major airports across India and internationally (2-3 Countries after consultation with the Authority) along with the policy of Govt. of India on this aspect and provisions of Land Acquisition Act.

2.2. Analyzing the FROR to be provided on Land cost in case of (a) Airports where cost was incurred to acquire land by Airport operator (b) AAI Airports where land cost is not available (c) Airports where equity is contributed by way of land by stakeholder.

2.3. Treatment of land cost and returns thereon along with supporting arguments, stakeholder comments as per erstwhile consultations.

2.4. The possible modes of providing FROR on land cost will be summarized and presents as a report to assist the Authority in finalizing the most appropriate method of providing FROR on land cost incurred by airport operators.

2.5. Practices followed by State Governments in allocating land for other development projects in the States whether any return on land is imputed

2.6. As land is an asset which is never depreciated, quantify the impact on RAB if return is provided infinitely

2.7. Once the airport is built, it may not be probable that the airport gets closed and land is sold. Thus, the increase in value of land may not be realized. However, when the value off land goes up, the valuation of the company owning / operating the airport may also go up. Hence, whether the return on investment in land could be different from that in other assets in an Airport Project.”

3.2 Report Submitted by EY

3.2.1 EY has submitted the land study report which is enclosed in **Annexure 1**.

3.3 Salient features of the report

3.3.1 The land study has summarized the existing land treatment in airports in India:

Table 2: Summary of Existing Land Treatment in Airports in India

Airport	Location	Shareholders	Operat or	Land Area	Mode of Acquisition	Return on land (if any)
Indira Gandhi International Airport	New Delhi	GMR Consortia – 74% AAI – 26%	DIAL (OMDA signed in the year 2006)	5106 Acres (245 acres can be monetized or economical	Lease	INR 100 paid per acre of land as lease rent annually to

Airport	Location	Shareholders	Operator	Land Area	Mode of Acquisition	Return on land (if any)
				ly exploited by DIAL)		AAI. ¹
Chhatrapati Shivaji International Airport	Mumbai	GVK Consortia – 74% AAI – 26%	MIAL (OMDA signed in the year 2006)	1,450 Acres	Lease	INR 100 paid annually to AAI. ²
Kempegowda International Airport	Bengaluru	GVK Group – 43% Siemens - 26% Flughafen Zurich AG Ltd. - 5% AAI – 13% Government of Karnataka – 13%	BIAL	4,008 Acres	Lease	3% of 175 Crores for first 7 years. 6% for the 8th year and previous year lease rent plus 3% from the 9th year onwards.
Chandigarh International Airport	Chandigarh	AAI – 51% GMADA – 24.5% HUDA – 24.5%	CHIAL	305 Acres	Equity	To be determined
Cochin International Airport	Kochi	Directors, Relatives & Associates - 37.24% HUDCO - 3.3% National Aviation Company Limited - 3.3% State Bank of Travancore - 3.35% Others - 22.60% BPCL - 3.4% Government of Kerala - 32.24%	CIAL	1,275 Acres	Equity	To be determined

¹ Order No. 40/2015-16, Chapter 3 – Principles for Determination of Aeronautical Tariff, Clause 3.30, Sub-Clause 3.2 (page no. 32)

² Lease deed between AAI and Mumbai Airport , Page No. 6, Clause 4.1

Airport	Location	Shareholders	Operator	Land Area	Mode of Acquisition	Return on land (if any)
Kannur International Airport	Kannur	Government of Kerala (35.0%), qualified institutional investors, cooperative banks/societies/commercial banks and other legal entities (31.0%), BPCL (24.0%) and AAI (10.0%)	KIAL	1,192 acres	Equity	To be determined
Rajiv Gandhi International Airport	Hyderabad	GMR Infrastructure Limited - 63% AAI - 13% Transport Roads & Buildings (Ports) Department (GoAP) - 13% Malaysia Airports Holdings Berhad - 11%	HIAL	5,000 Acres	Lease	2% of land cost (155 crores) to be paid after 8 th year. Base value of land to be compounded at 5% p.a. after 8 th year.
Chaudhary Charan Singh International Airport	Lucknow	AAI – 100%	CCSIA	Not available	Land Provided for free by the state government of UP.	Not applicable

- 3.3.2 The land study analyzed various regulatory bodies in India and other countries.
- 3.3.3 As a part of the study, EY reviewed tariff determination methodology of CERC and NHAI in India, which do not include land in their tariff and toll determination respectively. Outside India, Department of Transport of South Africa along with airports of Auckland and Hong Kong were studied.
- 3.3.4 The study suggests that a nominal amortization of land could be provided to recover the cost incurred for its acquisition.
- 3.3.5 Analysis of the Land Study**
- 3.3.5.a. The study analyses the case when the agreement regarding return on land is silent. This case is considered when land is acquired by the government and infused as equity to the airport operator, or when land is privately purchased by the airport operator from the government.
- 3.3.5.b. Since the acquiring stakeholder spends a large sum of money in land acquisition and a return is not explicitly stated, the concerned stakeholder would demand a return on it. This can be observed in the airports of Chandigarh, Cochin, Goa and Kannur.
- 3.3.5.c. Given that the airport development brings economic benefits to the region it is located in, it is proposed that any return on land, if and when the government entity introduces land against equity or is silent on the agreement pertaining to return on land, or when the operator purchases land from the government, should be minimal in nature that compensates for the cost incurred by the government to acquire the land.

4. AUTHORITY'S VIEWS ON LAND COST

- 4.1 Historically, the Airports were developed and operated by Governments or PSUs on the land acquired/transferred by State Government or Central Government free of cost. However, it is noted that presently, most of the Airports are being developed on land which are acquired by the operators themselves by paying market price or acquired by State Government and transferred to the operator through equity route. The details of land arrangement for Airport development is given in at Table – 1.
- 4.2 Previously, as the land was acquired by the Government agencies and transferred to the operator free of cost or at nominal value, the regulator did not include the cost of the land in the RAB and did not feel any requirement to pay any return on the cost of the land. However presently, the land is either acquired by the operator themselves and the cost of the land are funded by equity contribution of the shareholders, or acquired by the State Government and transferred to the operator as a part of the equity contribution. In this case, the investors desired that a return should be paid on the cost of the land. Refusal to provide such a return could disincentivize acquisition of land which is a primary requirement for airport development. During the consultation process for fixing tariff in case of Chandigarh Airport, the Governments of Haryana and Punjab stated that they have spent a huge amount in acquiring the land for the Airport and they desired to have a return on the investment made by them. It was pointed out to them that the development of the airport land acquired by them indirectly benefits the State Government due to economic development of the area around Airport generation of employment etc. The State Government pointed out that it takes a long gestation period for areas around the Airport to develop specially for Airports developed at a distance from the city and no immediate benefits are derived by the Government or local population. They felt that in case no return are given on the cost of the land acquired, it might be beneficial for the State Government to spend the fund on development of other infrastructure which will immediately benefit the Government and local population.
- 4.3 The Authority feels that the land is a scarce resource and in future land might not be available for Airport development unless it is acquired by paying the market price. The land cost might be a major component of the total project cost and in case no return is given on the land, the stakeholders might not be interested in investment on the land which may hamper airport development in future.

4.4 Option

Based on the study conducted by EY, the Authority is of the view that primarily there are two options to provide return on cost of the land:

- (i). The land cost will not be included in the RAB. However, the FROR on the cost of the land will be included in the ARR. No depreciation will be allowed on the cost of land.

(ii). Amortizing the historical cost of the land over the concession period, in this case also, the cost of the land will not be included in the RAB. The amortization will be taken as an operational expenditure on notional basis for determination of tariff.

4.4.1 Scenario Analysis

4.4.1.a. To gain a better understanding of the various forms of return that can be earned on the cost of land, two scenarios were analyzed by the consultant with respect to airports of Cochin, Chandigarh, and Kannur.

4.4.1.b. **Scenario 1:** Providing a FRoR on the Cost of Land incurred. The land cost does not flow into the RAB since land is a non-depreciable asset. Therefore, the return is provided at the historical cost for a period equivalent to the concession agreement, or until the cost of land is recovered by the acquirer, whichever occurs first.

4.4.1.c. **Scenario 2:** Amortizing the historical land cost at a fixed rate of 3% per annum until the time the cost of land is realized. This amortization will be treated as an expense notionally and recorded under the Operational Expenses of the concerned Airport Operator.

4.4.1.d. It is found that the impact of return on land is very high when the value of land in proportion to total value of RAB is high, and when the traffic projections of the airport is relatively low. Given this, Chandigarh and Cochin can be seen on two ends of the spectrum, where Chandigarh has low traffic and high cost of land in proportion to RAB, and Cochin has high traffic projections compared to a relatively low land cost in proportion to RAB.

4.4.2 Results of Scenario Analysis

4.4.2.a Using the figures stated in Order No. 06/2017-18 titled, "In the matter of Determination of tariffs for Aeronautical Services in respect of Cochin International Airport for the Second Control Period", it was found that providing a maximum ceiling of FRoR on the cost of land at the rate of 14% for a particular control period will cause the base case tariff to increase by as much as 2.86%. On the other hand, amortizing the land cost at a rate of 3% per annum shows that during a control period, the base case tariff increases by 1.13%.

4.4.2.b Using the figures stated in Order No.17/2016-17 titled, "In the matter of Determination of Aeronautical Tariffs in respect of Chandigarh International Airport Limited for the First Control Period", it was found that providing a maximum ceiling of FRoR on the cost of land at the rate of 14% for a particular control period will cause the base case tariff to increase by as much as 62.09%. The reason for such a high change is due to the high land cost incurred vis-à-vis the passenger traffic projections, which are not high enough to compensate for the return required on land. On the other hand, amortizing the land cost at a rate of 3% per annum shows that during a control period, the base case tariff increases by 13.30%.

4.4.2.c Using the figures as per the presentation shared by Kannur International Airport Limited on 18 April 2017 for the first control period, it was found that providing a maximum ceiling of FRoR on the cost of land at the rate of 13.33% for a particular control period will cause the base case tariff to increase by 13.91%. On the other hand, amortizing the land cost at a rate of 3% per annum shows that during a control period, the base case tariff increases by 2.51%.

4.4.3 Table 3 below provides a summary of the analysis for the respective airports in Cochin, Chandigarh, and Kannur:

Table 3: Summary of Scenario Analysis

Airport	Percentage increase in tariff in case of FRoR provided on land cost	Percentage increase in tariff increase in case of amortization of cost of land
Cochin	2.86%	1.13%
Chandigarh	62.09%	13.30%
Kannur	13.91%	2.51%

It is noted that the tariff will rise sharply in case of FRoR is provided on land cost depending on the proportion of the cost of land to total RAB and passenger traffic. In case of amortization of land cost over concession period the increase in tariff will be moderate in comparison to providing return on FRoR basis.

5. PROPOSAL

5.1 Judging the scenario analysis has stated above the Authority is of the view:

- 5.1.1 The cost of land in case of airports tends to be high because the land is located in or in the vicinity of urban area.
- 5.1.2 The percentage increase in tariff in case the cost of the land is amortized over 30 years concession period will be lower.
- 5.1.3 It will also be fair on the investor who exits in between the concession period since the valuation of the business/ share price will be based on the then land price and valuation and income potential.
- 5.1.4 The Authority intends to take the value of land being utilized for aeronautical purpose only providing a return on land cost.
- 5.1.5 With the development of an airport, the state government also benefits in the form of increased value of land and increased economic benefit from Airport related activity.
- 5.1.6 In public interest, the return on cost of land should be such that its impact on tariff is minimum.

5.2 In view of the approaches suggested to provide return on land of cost, the Authority proposes to conduct stakeholders' consultation and obtain view regarding rate of return to be provided on cost of land in the following situations:

- 5.2.1 Where airport operator is required to bear the cost of acquisition of land
- 5.2.2 Where land has been provided to the airport operator by way of equity contribution by the equity shareholders

5.3 The Authority proposes that the land development cost should be added to cost of asset depending on the area of land attributable to the asset. As a result there will be some assets which will be purely land, for example, taxiway, runway, etc. Going forward, the airport operator should include the land development cost of an asset in their proposals.

5.4 The Authority suggests that the concerned state governments should provide the land to the airport operator on a lease rental system.

6. **STAKEHOLDERS' CONSULTATION TIMELINE**

- 6.1. In accordance with the provision of Section 13(4) of the AERA Act, 2008, the proposal mentioned in Para 5 above) read with the relevant discussion in the other sections of the paper is hereby put forth for Stakeholders' Consultation. For removal of Doubts, it is clarified that the contents of this consultation paper may not be construed as any order or Direction of this Authority. The Authority shall pass an order, in the matter, only after considering the submissions of the Stakeholder's in response hereto and by making such decisions fully documented and explained in terms of the provisions of the Act.
- 6.2. The Authority welcomes written evidence- based feedback, comments and suggestions from Stakeholder's on the proposal made in (Para 5 above), latest by **05.06.2018** at the following address.

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Study on Determination of Fair Rate of Return (FRoR) to be provided on Cost of Land incurred by various Airport Operators in India

23 April 2018

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1. LIST OF ABBREVIATIONS

AAI	Airport Authority of India
AERA Act	Airports Economic Regulatory Authority Act, 2008
AERA or the Authority	Airports Economic Regulatory Authority
BIAL	Bengaluru International Airport Limited
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KIAL	Kannur International Airport Limited
MIAL	Mumbai International Airport Limited
NCAP	National Civil Aviation Policy, 2016
OMDA	Operations, Management and Development Agreement
PPP	Public Private Partnership
RAB	Regulatory Asset Base
RCS	Regional Connectivity Scheme

2. INTRODUCTION

2.1 Objective of the study

2.1.1 The primary function of Airports Economic Regulatory Authority (AERA or Authority) is to determine the tariff for the aeronautical services to be charged by the airport operators, according to the Section 13 of Airports Economic Regulatory Authority of India Act (AERA Act), 2008. Further, the AERA Act also specifies the methodology of calculating such a tariff rate.

2.1.2 The tariff determination methodology is based on an approach that provides a Fair Rate of Return (FRoR) to the airport's Regulatory Asset Base (RAB) which includes fixed depreciable assets of the airport. At present the premise is that the operator has to acquire land free of cost and no depreciation is charged on the land. Thus, in the current practice for computing RAB, cost of land is not included.

2.1.3 Integral to development of an airport, land is provided through the concerned state government to the airport operator in multiple arrangements, which are summarized as follows:

Table 1: Type of Land Arrangement for Airport Development

Type	Case	Return on Land
Transfer of land from the owner (state government)	i. Free of cost	No return on land
	ii. Lease basis	A lease arrangement is drawn between the land owner and airport operator; return in the form of lease is explicitly specified in such an agreement. Example: airport in Bengaluru, Hyderabad
Acquired land	iii. Acquired land provided to the airport operator against upfront payment	Land owner receives the upfront payment from the airport operator.
	iv. Acquired land provided to the airport operator through transfer in value against equity; (And not in exchange of an upfront payment.)	Example: Airports in Chandigarh, Cochin, Kannur. Return in such a case is yet to be determined.

2.1.4 In recent years, in airports such as Chandigarh, Cochin, Kannur, land has been introduced by the respective stakeholder State Governments against equity. The governments had previously incurred a considerable expense on land acquisition. This has led to a demand of return on land by the respective government stakeholders.

2.1.5 AERA has recognized this concern in the consultation paper issued for Chandigarh, Goa and Cochin airports, stating:

2.1.6 *“In respect of cost of land, the Authority notes that land is not a depreciable asset and if taken into RAB, the return over it has to be paid perpetually. Besides, if the principle of FRoR based on cost of capital is applied on cost of land the aeronautical charges may have to be fixed at exorbitantly high rates. However, the Authority realizes that unless some kind of return is given on land, future land acquisitions for airport purposes could become a major hurdle for airport development. Therefore, it is proposed to conduct a study based on which the treatment to be given to cost of land can be determined.”*

2.1.7 Thus, this study explores what should be the return on cost of land in a situation where the land is brought against equity for airport development, and the agreement between the concerned stakeholder government and the airport operator is silent about return on such a land. Moreover, it is imperative that the principles of public values and public interest continue to be maintained during such an instance.

2.2 **How land is included in other existing airports in India**

2.2.1 **Indira Gandhi International Airport (Refer Order No. 40/2015-16):** The Indira Gandhi International Airport (IGIA) is in Delhi and has two major functioning terminals, Terminal 1 and Terminal 3. In 2016, it was declared as the 21st busiest airport in the world and the 10th busiest in Asia. The Airport was initially operated by the Indian Air Force but was later given to Airport Authority of India (AAI). The owner of the Airport is Airport Authority of India (AAI) and the GMR Consortium and the operator is Delhi International Airport Limited (DIAL).

2.2.2 A total of 5,106 acres of land was leased to DIAL by the AAI out of which it was allowed to monetize and economically exploit 245 acres of. As per the Operations, Management and Development Agreement (OMDA), the Joint Venture Company (JVC) has paid AAI an upfront fee of INR 150 crores and will also pay the AAI an annual fee equivalent to 45.99% of the projected revenue for the said year. Additionally, DIAL also pays INR 100 per acre of land leased as lease rent. Land has not been included as part of the RAB as per the DIAL order issued by the Authority.

2.2.3 **Chhatrapati Shivaji International Airport (Refer Order No. 13/2016 -17):** The Chhatrapati Shivaji International Airport, which is operated by Mumbai International Airport Limited (MIAL), Mumbai. It has two terminals, Terminal 1 and Terminal 2. It is the second busiest airport of India, preceded by IGIA. The owner of the Airport is Airport Authority of India (AAI).

2.2.4 The airport is a joint venture between the GVK Consortia and the AAI, where they both have an equity stake of 74% and 26% respectively. As per the OMDA, the JVC has paid the AAI an upfront fee of INR 150 crores and will also pay the AAI an annual fee

equivalent to 38.7% of the projected revenue for the said year. The airport has a total land of 1,405 acres. The land has been given out on lease by AAI to the JVC at a nominal lease rent. MIAL does not include land in its RAB calculation.

2.2.5 Kempegowda International Airport (Refer Order No. 08/2014-15): The Kempegowda International Airport (KIA) is in the capital of Karnataka, Bengaluru. It has only one terminal, Terminal 1. It was opened initially to decongest the airport of Hindustan Aeronautics Limited (HAL) which was the only primary airport in Karnataka then. KIA is the third busiest airport in India. The owner of the airport is Bengaluru International Airport Limited (BIAL).

2.2.6 A total of 4,008 acres of land was transferred by the State government of Karnataka for the construction of this airport. The cost of the land is 175 crores. As per the order, the land has been given on lease on the condition that BIAL will pay 3% of 175 crores acquisition cost in the first 7 years, followed by 6% for the eighth year along with the previous lease rent, and a further addition of 3% on it from the ninth year onwards to AAI. As mentioned in the order, the land lease deed was executed on April 30th of 2005.

2.2.7 Chandigarh International Airport (Refer Order No. 17/2016-17): Chandigarh is an international airport which is meant to serve Punjab, Haryana and Himachal Pradesh. It is the only international airport accessible by those states. It has only one Terminal.

2.2.8 CHIAL was incorporated in 2010 to build and operate a new terminal of international standards at the Chandigarh Airport. It is a joint venture of the AAI, Greater Mohali Area Development Authority (GMADA) and Haryana Urban Development Authority (HUDA). The equity share allotted to GMADA and HUDA is in accordance with the cost of land transferred to CHIAL. AAI holds 51.0% of the equity shares and the rest of the equity share capital is held equally by GMADA (24.5%) and HUDA (24.5%). CHIAL had included land as a part of its RAB but the Authority did not approve of the decision.

2.2.9 Cochin International Airport (Refer Consultation Paper No. 06 / 2017-18): The Cochin International Airport Limited (CIAL), Kochi, Kerala. It is the world's first fully solar powered airport and the seventh busiest airport of the country. The airport has three terminals. It is also the first airport to be built under Public Private Partnership (PPP).

2.2.10 1,275 acres of land was acquired by CIAL in the period of 1993-1999 in multiple phases. The land was purchased at the market rate of INR 124 crores then by the state government of Kerala. Therefore, the 32.24% equity stake of the Government of Kerala is by way of contribution of land. CIAL in its proposal had included land as a part of RAB but the Authority removed it as a part of RAB deferring the final decision based on the outcome of the Consultation Paper on the matter.

2.3. Kannur International Airport: Kannur International Airport Limited (KIAL) was incorporated as a Public Limited Company on 3 December 2009 with the objective of building, owning and operating the Kannur International Airport. It is the second Greenfield Airport in Kerala set up

under the Public Private Partnership (PPP) model, located close to Mattannur in the Kannur district of Kerala.

- 2.4. Government of Kerala has 35% equity shareholding in KIAL by way of contributing 1,192 acres of land and cash.
- 2.5. **Rajiv Gandhi International Airport (Refer Consultation Paper No.9/2013-14):** Begumpet Airport operated by Hyderabad International Airport Limited (HIAL) needed expansion of airside as well as landside facilities. In order to cater to the increasing demand of the passenger and the cargo traffic, a new international airport in Hyderabad was planned. The Government of Andhra Pradesh, in association with AAI, took initiatives in 1998 to develop a Greenfield international airport through PPP at Shamshabad near Hyderabad.
- 2.6. The land for this airport was leased by the Government of Andhra Pradesh. The total cost of the land was 155 crores. Land has not been taken as a part of RAB. As per the Land Lease Agreement the rent payable is 2% on the cost of land i.e. INR 155 crores. The cost of land is compounded at 5% p.a. after the 8th year.
- 2.7. **Chaudhary Charan Singh International Airport (Refer Order No. 09/2014-15):** Chaudhary Charan Singh International Airport (CCSIA) is the second biggest airport in North India, located in Lucknow. It has two terminals. Land is not included as part of RAB and it was provided free of cost by the state government of Uttar Pradesh.

Table 2: Summary of Existing Land Treatment in Airports in India

Airport	Location	Shareholders	Operator	Land Area	Mode of Acquisition	Return on land (if any)
Indira Gandhi International Airport	New Delhi	GMR Consortia – 74% AAI – 26%	DIAL (OMDA signed in the year 2006)	5106 Acres (245 acres can be monetized or economically exploited by DIAL)	Lease	INR 100 paid per acre of land as lease rent annually to AAI. ¹
Chhatrapati Shivaji International Airport	Mumbai	GVK Consortia – 74% AAI – 26%	MIAL (OMDA signed in the year 2006)	1,450 Acres	Lease	INR 100 paid annually to AAI. ²
Kempegowda International Airport	Bengaluru	GVK Group – 43% Siemens - 26% Flughafen Zurich AG Ltd. - 5% AAI – 13% Government of Karnataka – 13%	BIAL	4,008 Acres	Lease	3% of 175 Crores for first 7 years. 6% for the 8th year and previous year lease rent plus 3% from the 9th year onwards.

¹ Order No. 40/2015-16, Chapter 3 – Principles for Determination of Aeronautical Tariff, Clause 3.30, Sub-Clause 3.2 (page no. 32)

² Lease deed between AAI and Mumbai Airport , Page No. 6, Clause 4.1

Airport	Location	Shareholders	Operator	Land Area	Mode of Acquisition	Return on land (if any)
Chandigarh International Airport	Chandigarh	AAI – 51% GMADA – 24.5% HUDA – 24.5%	CHIAL	305 Acres	Equity	To be determined
Cochin International Airport	Kochi	Directors, Relatives & Associates - 37.24% HUDCO - 3.3% National Aviation Company Limited - 3.3% State Bank of Travancore - 3.35% Others - 22.60% BPCL - 3.4% Government of Kerala - 32.24%	CIAL	1,275 Acres	Equity	To be determined

Airport	Location	Shareholders	Operator	Land Area	Mode of Acquisition	Return on land (if any)
Kannur International Airport	Kannur	Government of Kerala (35.0%), qualified institutional investors, cooperative banks/societies /commercial banks and other legal entities (31.0%), BPCL (24.0%) and AAI (10.0%)	KIAL	1,192 acres	Equity	To be determined
Rajiv Gandhi International Airport	Hyderabad	GMR Infrastructure Limited - 63% AAI - 13% Transport Roads & Buildings (Ports) Department (GoAP) - 13% Malaysia Airports Holdings Berhad - 11%	HIAL	5,000 Acres	Lease	2% of land cost (155 crores) to be paid after 8 th year. Base value of land to be compounded at 5% p.a. after 8 th year.
Chaudhary Charan Singh International Airport	Lucknow	AAI – 100%	CCSIA	Not available	Land Provided for free by the state government of UP.	Not applicable

3. REGULATORY PRACTICES

3.1 Regulatory Practices in India

3.1.1 Central Electricity Regulatory Commission (CERC)

- 3.1.1.a. For renewable energy (RE), Regulation 12 of the RE Tariff Regulations stipulates that the norms for the capital cost, as stated in the technology-specific chapter, shall be inclusive of all capital works. Such capital works include plant and machinery, civil works, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to inter-connection point.
- 3.1.1.b. Regulation 24 of the CERC's order on Renewable Energy Tariff Determination provides that the capital cost for Wind Energy should include land cost. However it is not conclusive if land cost is included to compute tariff in other renewable energy technologies.
- 3.1.1.c. CERC has specified the normative capital cost applicable for the first year of control period i.e. FY 2012-13, for various RE technologies. For the remaining years of the control period, the normative capital cost is determined by indexation mechanism for Wind Energy, Small Hydro Power, Biomass Power, Non-Fossil Fuel based Cogeneration, Biomass Gasifier and Biogas based power projects. This indexation mechanism shall consider adjustments in capital cost with the changes in Wholesale Price Index of Steel and Wholesale Price Index of Electrical Machinery as per the formula stipulated under the RE Tariff Regulations.

3.1.2 National Highways Authority of India

- 3.1.2.a. NHAI specifies tariff/ toll computation using base year rates of 2007-08; the base rate differs for various types of vehicles and the amount of money spent on building the infrastructure.
- 3.1.2.b. NHAI guidelines for the determination of tariff states that the formula for calculating the Applicable Rate of fee is:

$$\text{Applicable Rate of Fee} = \text{Base rate} + \left\{ \text{Base Rate} \times \left(\frac{\text{WPI}_A - \text{WPI}_B}{\text{WPI}_B} \right) \times 0.4 \right\}$$

Where, base rates are given by NHAI. WPI_A is Wholesale Price Index of the week ending on 1st January in a given year or subsequent to it. WPI_B is Wholesale Price Index of the week ending on 6th January in a given year.

- 3.1.2.c. The cost of land is not included in either the Project Cost or in the formula used for calculating tariff.

3.2 International Regulatory Practices

3.2.1 Upon study of international infrastructure sectors such as road and air transportation where land forms a substantial part of the capital cost incurred, the following results were obtained:

3.2.2 Department of Transport, South Africa

- 3.2.2.a. The Department of Transport of South Africa has used the Modelling and Macro Economic Analysis Directorate to develop a Road Tariff Determination Framework (RTDF) for setting road tolls.
- 3.2.2.b. A key part of setting the toll road tariff is that costs are classified into various heads, whereby land acquisition and development is considered as a substantial percentage of the Initial Construction costs.
- 3.2.2.c. It is recognized by the RTDF that a rate of return has to be paid on the capital expenditure incurred by the toll road operator. The fixed assets created are recorded as a part of the RAB and the land acquired for the development of each toll road is recorded as a part of the RAB.
- 3.2.2.d. In order to promote objectivity in road toll determinations, the Indexed Historical Cost (IHC) approach has been evaluated to be the soundest basis for valuing road operator fixed assets.
- 3.2.2.e. This approach starts with the original cost of assets, and appreciate this value each year according to an indexation factor. The rate of return is then provided on these indexed capital costs. The rate of return is determined as per the Capital Asset Pricing Model.
- 3.2.2.f. The indexation factor should be the annual CPI as published by Statistics South Africa. The benefit of the IHC approach is that tariffs follow a smoothed profile over the age of the assets and lumpy increases are avoided when assets are replaced.

3.2.3 Auckland International Airport Limited (“Auckland Airport”)

- 3.2.3.a. Auckland Airport was set-up in 1988 by the New Zealand government in JV with other local entities, whereby the land was brought in by the New Zealand government. In 1995, Auckland Airport was publicly listed and in 1998 the New Zealand government sold more than 50% of its stake, rendering Auckland airport to be majorly privatized.
- 3.2.3.b. While Auckland Airport is not price controlled, it is regulated to set reasonable Standard Charges pertaining to Aeronautical Pricing Activities by the Commerce Commission of New Zealand.

- 3.2.3.c. In its Price Setting Disclosure dated 01 August 2017, Auckland Airport has calculated for Standard Aeronautical Charges (“Standard Charges”) for airfield activities and certain specified passenger terminal activities called Aeronautical Pricing Activities that will apply from 1 July 2017 to 30 June 2022.
- 3.2.3.d. Auckland Airport also follows a hybrid till model for determining tariff.
- 3.2.3.e. Auckland Airport includes land in its pricing asset base, whereby the airport chooses to either continue to record the land at market value alternate use (“MVAU”) as determined in 2010 or to appreciate the 2010 MVAU at the concerned year’s CPI rate.

3.2.4 Hong Kong International Airport (“Hong Kong Airport”)

- 3.2.4.a. On 01 December 1995, Hong Kong Airport was granted legal rights by the government of Hong Kong to the entire airport site located at the island of Chek Lap Kok together with the rights necessary to develop such site for the purpose of its businesses (“The Land Grant”), as per the annual reports published by Hong Kong Airport 2012-13.
- 3.2.4.b. This Land Grant was given to Hong Kong Airport at a nominal land premium of HKD2000 under a private treaty land grant, issued by the Government for the period 1 December 1995 to 30 June 2047. The land formed is considered to have all the characteristics of land in Hong Kong and will return to the lessor at the end of the Land Grant.
- 3.2.4.c. The net land formation cost was borne by the Hong Kong Airport amounting to HKD11,571 million. This net land formation cost along with the land premium of HKD2000 have been classified as interest in leasehold land under fixed assets in the financial statements of the airport.
- 3.2.4.d. Correspondingly, the Hong Kong Airport amortizes the interest on leasehold land and presents it as accumulated amortization in their financial statements. This land formation cost and premium is not being revalued or annually appreciated and therefore, no fair rate of return is pre-empted on it.

3.2.5 Inference

- 3.2.5.a. Out of the cases presented above, the methodology followed by the Chek Lap Kok Airport at Hong Kong of amortizing the interest on leasehold land seems to be most prudent, since it does not pre-empt a market rate of return on the land cost, thereby causing the least distortionary effect on the tariffs charged. However, if a system of valuing the land at Market Value of Alternative Use as is followed in Auckland Airport-- or recording land as part of the RAB and providing FRoR on indexed cost of land per year as is followed in the Land Transport Department of South Africa--- is applied at the Indian airports, it may lead to a

steep increase in tariff. This would adversely affect both passenger and cargo traffic, as they would ultimately bear the burden of increased tariff.

4. **CASES OF RETURN ON LAND BASED ON HOW LAND HAS BEEN INTRODUCED IN THE AIRPORT**

4.1 **Airports under Regional Connectivity Scheme, and Airport Authority of India**

4.1.1 When an airport is operated under Regional Connectivity Scheme (RCS), the National Civil Aviation Policy (NCAP), 2016 specifies in sub clause f) of clause 4), that the State Government will provide land free of cost and free from all encumbrances and also provide multi-modal hinterland connectivity (road, rail, metro, waterways, etc.) as required. Thus, land for airport under RCS will not earn any return.

4.1.2 Guidelines on airport development by AAI is also specified in NCAP, 2016. In clause 13, sub-clause a), point iii), NCAP states that AAI will take up new greenfield or brownfield airports subject to condition that land will be provided free of cost and from all encumbrances by state government without treating it as equity. Thus, land in an airport which is under the development of AAI, will not garner any returns.

4.2 **Where the agreement expressly requires the operator to pay for land**

4.2.1 In case the agreement between the airport operator and the government stakeholder clearly states that the operator has to pay for the use of land along with the quantum of such payment, then the Authority will not intrude in such a situation. In India, the most common practice is seen to be a lease agreement between the operator and the concerned government. In such an agreement, the operator either pays only a lease amount calculated as per specified in the agreement or in some cases pays a nominal lease rent in addition to revenue sharing with the government concerned.

4.2.2 Where the method of return on land is explicitly stated, the Authority does not contest that.

4.3 **Where the agreement is silent on matter related to land**

4.3.1 **Land acquired by the government- infusion as equity or land purchased by the operator from the government / through the government**

4.3.1.a. Since, the government stakeholders spend large sum of money to acquire the land in the first place, they have suggested for a return while they contribute the land in lieu of equity.

4.3.1.b. In the upcoming major airports under consideration for tariff determination by AERA, such as in Chandigarh, Cochin, Goa, Kannur, land has been brought in by the respective State Government against equity. This practice is unlike other major airports of India, where a lease-based system exists.

4.3.1.c. However, it remains a fact that land is a scarce, non-depreciable resource. Moreover, once an airport begins to operate, or expands its existing operations in a location, it generates multiple economic benefits in the form of increased employment, commerce, trade and tax revenues to the government.

4.3.1.d. Thus, it is proposed that any return on land, if and when the government entity introduces land against equity or is silent on the agreement pertaining to return on land, or when the operator purchases land from or through the government, should be minimal in nature that compensates for the cost incurred by the government to acquire the land.

4.3.1.e. As a result, the land should earn a return in the form of lease at a rate that covers its cost over a period of concession, say 30 years; which implies that this lease return on land will be treated as part of operational expense, whereby the land will not incur any revision or indextion over and above its cost of acquisition.

4.3.2 Land owned by government provided for free—no return, no lease

4.3.2.a. A case when the government provides the land for free, and it is expressly mentions in the agreement between the airport operator and the concerned government, there is no lease rent required to be paid on the land and thus the land in such a situation does not earn any return.

5. SCENARIO ANALYSIS

- 5.1 To gain a better understanding of the various forms of return that can be earned on the cost of land, two scenarios were analyzed with respect to airports of Cochin, Chandigarh, and Kannur.
- 5.2 **Scenario 1:** Providing a FRoR on the Cost of Land incurred. The land cost does not flow into the RAB since land is a non-depreciable asset. Therefore, the return is provided at the historical cost for a period equivalent to the concession agreement, or until the cost of land is recovered by the acquirer, whichever occurs first.
- 5.3 **Scenario 2:** Amortizing the historical land cost at a fixed rate of 3% per annum until the time the cost of land is realized. This amortization will be incurred as an expense and recorded under the Operational Expenses of the concerned Airport Operator.
- 5.4 It is found that the impact of return on land depends on two factors- land cost and airport traffic projections. These two factors have opposite impacts, namely—higher the land cost higher the distortion on the tariff, whereas higher the traffic projections, lower is the distortion on tariff. Given this, Chandigarh and Cochin can be seen on two ends of the spectrum, where Chandigarh has low traffic and high cost of land, and Cochin has high traffic projections compared to a relatively low land cost.

5.5 Results of Scenario Analysis

- 5.5.1 Using the figures stated in Order No. 06/2017-18 titled, “In the matter of Determination of tariffs for Aeronautical Services in respect of Cochin International Airport for the Second Control Period”, it was found that providing a maximum ceiling of FRoR on the cost of land at the rate of 14% for a particular control period will cause the base case tariff to increase by as much as 2.86%. On the other hand, amortizing the land cost at a rate of 3% per annum shows that during a control period, the base case tariff increases by 1.13%.
- 5.5.2 Using the figures stated in Order No.17/2016-17 titled, “In the matter of Determination of Aeronautical Tariffs in respect of Chandigarh International Airport Limited for the First Control Period”, it was found that providing a maximum ceiling of FRoR on the cost of land at the rate of 14% for a particular control period will cause the base case tariff to increase by as much as 62.09%. The reason for such a high change is due to the high land cost incurred vis-à-vis the passenger traffic projections, which are not high enough to compensate for the return required on land. On the other hand, amortizing the land cost at a rate of 3% per annum shows that during a control period, the base case tariff increases by 13.30%.
- 5.5.3 Using the figures as per the presentation shared by Kannur International Airport Limited on 18 April 2017 for the first control period, it was found that providing a maximum ceiling of FRoR on the cost of land at the rate of 13.33% for a particular control period will cause the base case tariff to increase by 13.91%. On the other hand, amortizing the

land cost at a rate of 3% per annum shows that during a control period, the base case tariff increases by 2.51%.

5.5.4 Table 3 below provides a summary of the analysis for the respective airports in Cochin, Chandigarh, and Kannur:

Table 3: Summary of Scenario Analysis

Airport	Tariff increase in case of Fair Rate of Return is provided on land cost	Tariff increase in case of amortization of cost of land
Cochin	2.86%	1.13%
Chandigarh	62.09%	13.30%
Kannur	13.91%	2.51%

6. CONCLUSION

- 6.1 Based on discussions with the Authority, the plausible methodology consists of the following two options. The below two options can be considered based on certain criteria, which involve setting benchmarks for cost of land as well as traffic flowing through the concerned airport:
- 6.1.1 In the case when land is introduced against equity for airport development, it may be prudent to amortize the cost of land for a reasonable time period at a rate of 3% of the cost of land for the first 10 years. To account for the time value of money, index the rate of amortization from 11th year onward, until the historical land cost diminishes to zero. The rate of amortization can be indexed at Consumer Price Index (CPI), a common indicator for inflation.
- 6.1.2 Alternatively, an independent assessment can be performed to select airports which will receive a Fair Rate of Return on the cost of land based on criteria such as impact on tariffs, cost of land incurred, and passenger traffic forecast for the airport.
- 6.1.3 In both cases, however, the tariff should not be so high that it affects passengers adversely and impact on tariff should be reviewed thoroughly.

7. ANNEXURE

7.1 Cochin Airport

7.1.1 Base Tariff for calculation purpose: **INR 554.4**

7.1.2 Tariff date for calculation purpose: **1-April-2016**

Table 4: FRoR on Cost of Land of INR 109.32 crores (Amt. in INR crores)

Particulars	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	Total
Average RAB [1]	815.8	1382.6	1486.5	1642.7	1856.2	7183.85
FROR [2]	11.2%	11.2%	11.2%	11.2%	11.2%	
Return on RAB [3]=[2]*[1]	91.13	154.44	166.05	183.49	207.35	802.46
Add: Depreciation [4]	55.41	83.27	91.5	99.54	107.88	437.6
Add: Operating expenses [5]	148.32	197.60	218.99	242.24	256.89	1073.04
Add: Taxation [6]	16.08	2.6	4.88	8.04	13	44.6
Add: Return on land [7]	11.5	11.5	11.5	11.5	11.5	57.5
Less: Non-aero revenue[8]	46.65	57.22	69.12	82.52	93.53	349.04
ARR [9] = [3] + [4] + [5] + [6]+[7]-[8]	275.79	392.19	423.8	462.29	503.09	2057.16
Present value of ARR						1596.17
Tariff calculated						570.28

Table 5: Amortizing land cost of INR 109.32 crores at 3% (Amt. in INR crores)

Particulars	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	Total
Average RAB [1]	815.8	1382.6	1486.5	1642.7	1856.2	7183.85
FROR [2]	11.2%	11.2%	11.2%	11.2%	11.2%	
Return on RAB [3]=[2]*[1]	91.13	154.44	166.05	183.49	207.35	802.46
Add: Depreciation [4]	55.41	83.27	91.5	99.54	107.88	437.6
Add: Operating expenses [5]	148.32	197.60	218.99	242.24	256.89	1073.04
Add: Taxation [6]	16.08	2.6	4.88	8.04	13	44.6
Add: Amortization expense on land [7]	3.1	3.1	3.1	3.1	3.1	15.5
Less: Non-aero revenue[8]	46.65	57.22	69.12	82.52	93.53	349.04
ARR [9] = [3] + [4] + [5] + [6]+[7]-[8]	267.39	383.79	415.4	453.89	494.69	2015.16
Present value of ARR						1596.17
Tariff calculated						560.65

7.2 Chandigarh Airport

7.2.1 Base tariff for calculation purpose: **INR 708.08**

7.2.2 Tariff date for calculation purpose: **1-April-2016**

Table 6: Providing FRoR on land cost of INR 450 crores (Amt. in INR crores)

Particulars	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	Total
Average RAB [1]	434.8	435.5	427.5	403.2	377	2078
FROR [2]	14%	14%	14%	14%	14%	
Return on RAB [3]=[2]*[1]	60.9	61.0	59.9	56.4	52.8	290
Add: Depreciation [4]	23.6	25.9	27.04	26.18	23.83	126.6
Add: Operating expenses [5]	19.05	20.82	22.38	24.05	25.85	112.2
Add: Taxation [6]	0	2.5	4.5	6.1	8.9	22.1
Add: Return on land [7]	63	63	63	63	63	315
Less: Non-aero revenue[8]	5	7.5	8.7	10.5	12.6	44.4
ARR [9] = [3] + [4] + [5] + [6]+[7]-[8]	161.5	165.7	168.1	165.3	161.8	822.4
Present value of ARR						593.5
Tariff calculated						1147.7

Table 7: Amortizing land cost of INR 450 crores at a rate of 3% (Amt. in INR crores)

Particulars	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	Total
Average RAB [1]	434.8	435.5	427.5	403.2	377	2078
FROR [2]	14%	14%	14%	14%	14%	
Return on RAB [3]=[2]*[1]	60.9	61.0	59.9	56.4	52.8	290
Add: Depreciation [4]	23.6	25.9	27.04	26.18	23.83	126.6
Add: Operating expenses [5]	19.05	20.82	22.38	24.05	25.85	112.2
Add: Taxation [6]	0	2.5	4.5	6.1	8.9	22.1
Add: Amortization expense on land [7]	13.5	13.5	13.5	13.5	13.5	67.5
Less: Non-aero revenue[8]	5	7.5	8.7	10.5	12.6	44.4
ARR [9] = [3] + [4] + [5] + [6]+[7]-[8]	112.05	116.22	118.62	115.73	112.28	574.9
Present value of ARR						423.5
Tariff calculated						802.28

7.1 Kannur Airport (submissions made in April 2017)

7.1.1 Base tariff for calculation purpose: **INR 2736.62**

7.1.2 Tariff date for calculation purpose: **1-April-2018**

Table 8: Providing FRoR on land cost of INR 315.93 crores (Amt. in INR crores)

Particulars	FY 18-19	FY 19-20	FY 20-21	FY 21-22	Total
Average RAB [1]	1808.62	1725.83	1643.06	1560.28	6737.8
FROR [2]	13.33%	13.33%	13.33%	13.33%	
Return on RAB [3]=[2]*[1]	241.2	230.1	219.1	208.1	898.5
Add: Depreciation [4]	82.77	82.77	82.77	82.77	331.1
Add: Operating expenses [5]	37.46	42.17	49.04	56.91	185.6
Add: Taxation [6]	34.46	31.51	29.6	28.71	124.3
Add: Return on land [7]	42.0	42.0	42.0	42.0	168
Less: Non-aero revenue[8]	5.36	6.41	7.67	9.14	28.6
ARR [9] = [3] + [4] + [5] + [6]+[7]-[8]	432.5	422.2	414.9	409.3	1679
Present value of ARR					1264
Tariff calculated					3117.25

Table 9: Amortizing land cost of INR 315.93 crores at a rate of 3% (Amt. in INR crores)

Particulars	FY 18-19	FY 19-20	FY 20-21	FY 21-22	Total
Average RAB [1]	1808.62	1725.83	1643.06	1560.28	6737.8
FROR [2]	13.33%	13.33%	13.33%	13.33%	
Return on RAB [3]=[2]*[1]	241.2	230.1	219.1	208.1	898.5
Add: Depreciation [4]	82.77	82.77	82.77	82.77	331.1
Add: Operating expenses [5]	37.46	42.17	49.04	56.91	185.6
Add: Taxation [6]	34.46	31.51	29.6	28.71	124.3
Add: Amortization expense on land [7]	9.5	9.5	9.5	9.5	37.9
Less: Non-aero revenue[8]	5.36	6.41	7.67	9.14	28.6
ARR [9] = [3] + [4] + [5] + [6]+[7]-[8]	400.0	389.7	382.3	376.8	1548.8
Present value of ARR					1167.9
Tariff calculated					2805.31