

Appendix - III

*Study of Operations and Maintenance
Expenses*

of

Chennai International Airport
(Second Control Period: 2016-21)

August 2021



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1. OBJECTIVE OF THIS STUDY

1.1. Introduction

Chennai International Airport is owned and operated by the Airports Authority of India (AAI), a *Miniratna* Category-1 Public Sector Enterprise. AAI was constituted by an Act of Parliament and was established in 1995 through the merger of erstwhile National Airports Authority and International Airports Authority of India. The merged entity—AAI was entrusted with the responsibility of creating, upgrading, maintaining and managing civil aviation infrastructure in India, both on ground and in air space.

Chennai International Airport is one of the ‘major airports’ notified by Airports Economic Regulatory Authority of India under the provisions of the AERA Act 2008. Pursuant to the AERA Act 2008, AERA issued guidelines for the purpose of determination of aeronautical tariffs for major airports. Chennai International Airport had submitted Multi Year Tariff Proposal (MYTP) for the Second Control Period from FY 2016-17 to FY 2020-21. AERA issued the order for the Second Control Period on 16th April 2018.

AERA has adopted the hybrid till approach for determination of tariff of Chennai International Airport. As per the hybrid till approach, 30% of the non-aeronautical revenues are to be used to cross-subsidize the aeronautical revenues, i.e., the Aggregate Revenue Requirement. Tariffs for aeronautical services under the hybrid till approach are based on the various building blocks, i.e. aeronautical Regulatory Asset Base (RAB), aeronautical depreciation, aeronautical operational expenses and aeronautical tax.

Establishing efficient Operation and Maintenance (O&M) expenses is important for the effective execution of tariff determination for aeronautical services. Across airports in India, the O&M expenditure has consistently been increasing, driven by investments in expansion and modernisation of the airports.

The objective of the study is to understand and analyse the O&M expenses of Chennai International Airport. The detailed analysis of O&M expenses is expected to help in establishing whether the existing expense levels are over or under the efficient expense levels. This will help in assisting the Authority in determining the efficient costs for O&M for the purpose of tariff determination at Chennai International Airport.

Accordingly, AERA decided to conduct a study on efficient O&M expenses for true-up of the Second Control Period. The analysis of various components of O&M expenses from FY 2016-17 to FY 2019-20 has been done based on the trial balances. For FY 2020-21, the projections submitted by AAI were examined.

As part of this study, the following have been examined/ referred:

- i. The AERA Act, 2008 with its amendment in 2019
- ii. Airports Economic Regulatory Authority of India (Terms and Conditions for Determination of Tariff for Airport Operators) Guidelines, 2011 dated 28 February 2011
- iii. AERA Order No. 03 / 2018-19 dated 16 April 2018 [In the matter of determination of

aeronautical tariffs in respect of Chennai International Airport, Chennai, for the Second Control Period (01.04.2016 to 31.03.2021)]

- iv. Previous tariff orders of other airports
- v. Trial Balances, clarifications, and details received from Chennai International Airport

2. WORK PERFORMED

2.1. Terms of Reference

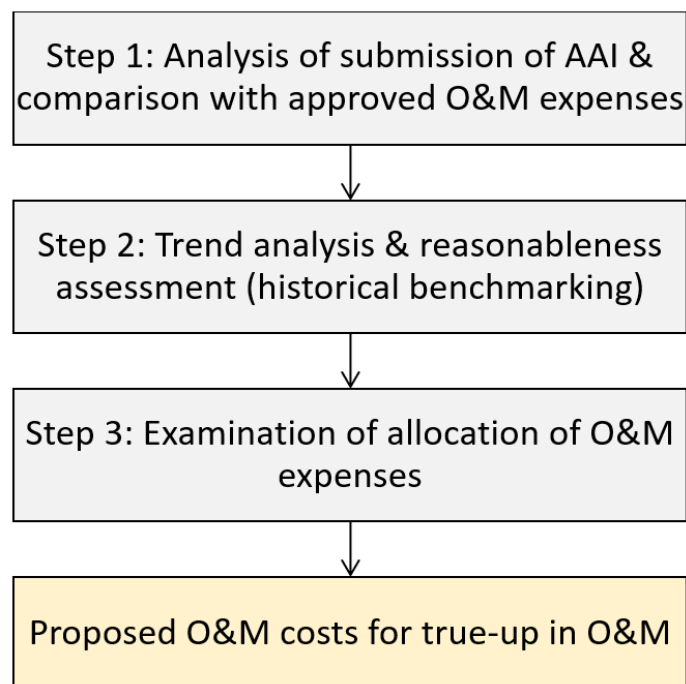
AERA has outlined the scope of work for a study on efficient O&M expenses and segregation of O&M expenses between aeronautical and non-aeronautical in clauses 3.1 (v) and 3.1 (vi) of Schedule 1 of its RFP No. 02/2020-21 for engagement of consultants to assist AERA in determination of tariffs for aeronautical services at Chennai International Airport, which state:

- “3.1 (v) – Asset / OPEX segregation between Aero and Non-Aero”
- “3.1 (vi) – Examine and recommend efficient costs for O&M as part of tariff determination process.”

2.2. Methodology

The steps elaborated below have been followed for determining the efficient O&M expenses at Chennai International Airport in this study.

Figure 1: Approach for this study



Step 1: Analysis of submission of Chennai International Airport

As a first step, assessment of the O&M expenses has been done based on the inputs shared by AAI. The trial balances of Chennai International Airport from FY 2016-17 to FY 2019-20 were examined to verify the expenses incurred during the Second Control Period. The expenses for FY

2020-21 are as per the projections submitted by the AAI. The reasonableness of the operational expense projections for FY 2020-21 has been assessed based on these projections itself. The operator has submitted O&M expenses under the following heads:

- **Payroll costs:** Includes the following expenses:
 - Salaries and wages (basic pay, dearness allowance, and house rent allowance)
 - Overtime expenses
 - Other staff benefits (employee perks, EL encashment etc.)
 - Medical expenditure
 - Provident fund contributions
 - Staff recoveries
 - Apportionment of CHQ/RHQ expenses
- **Administrative and general expenses:** Includes the following expenses:
 - Rent, rates, and taxes (rent on office building, import license, and taxes on vehicles)
 - Insurance (vehicle, and plant & machinery insurance)
 - Advertising and publicity
 - Office expenses
 - Telephone charges
 - Printing and stationery
 - Legal expenses
 - Travelling expenses
 - Financing charges (apportionment of interest on loan taken at CHQ level)
 - Project expenses
 - Consultancy charges
 - Apportionment of admin (non-employee related overhead expenses) for CHQ/RHQ
- **Repair and maintenance (R&M) expenses:** Includes the following expenses:
 - R&M for civil works
 - R&M for electrical works
 - R&M for vehicles
 - R&M for furniture and fixtures
 - R&M for computers, IT, and hardware
 - Annual maintenance contract (AMC) charges
- **Utilities and outsourcing expenses:** Include the following expenses:
 - Power charges (net of recovery)
 - Water charges
 - Upkeep expenses
 - Watch and ward expenses
- **Other outflows:** Includes the following expenses:
 - Collection charges on UDF and PSF
 - Municipal taxes
 - Consumption of stores and spares
 - Hire charges
 - POL expenses
 - Other miscellaneous expenses

Step 2: Trend analysis & reasonableness assessment (historical benchmarking)

In order to understand the change / variation of the various elements of the O&M expenses, a trend analysis has been done for the First Control Period as well as the Second Control Period for the

aeronautical portion of O&M expenses, as per AAI's submission.

The objective of the same is to understand the long term growth rates in these expenses and also the correlation between the year-on-year change in these expenses vis-à-vis the passenger traffic data. The study attempts to analyse the reasons for variance in the level and growth of O&M expenses as submitted by AAI for the Second Control Period in its MYTP vis-a-vis what was approved in the previous tariff orders for Chennai International Airport . The study attempts to understand whether AAI has been prudent in managing these expenses in line with the increase in passenger and ATM traffic. The major expenses submitted by AAI were studied in detail to assess the reasonableness of the same.

Step 3: Examination of allocation of O&M expenses

As the final step for establishment of the efficient O&M expenses for Chennai International Airport, the allocation of common expenses across aeronautical and non-aeronautical components by AAI has been analysed. Subsequently, wherever necessary, an alternate allocation principle has been suggested.

3. OPERATION AND MAINTENANCE EXPENSES PROPOSED BY CHENNAI INTERNATIONAL AIRPORT FOR THE SECOND CONTROL PERIOD

3.1. Analysis of approved O&M expenses and O&M expenses submitted by AAI

3.1.1. The Authority had approved O&M expenses of Rs. 2,041.26 Cr for the Second Control Period as shown in the table below:

Table 1: O&M expenses approved by the Authority in the Second Control Period

FY ending March 31 (Rs. Cr)	2017	2018	2019	2020	2021	Total
Payroll costs - non CHQ/RHQ	127.50	153.70	161.40	169.50	178.00	790.10
Payroll costs - CHQ/RHQ	21.30	26.00	27.20	28.60	30.00	133.10
Admin and general expenses - non CHQ/RHQ	4.44	4.27	4.70	5.17	5.69	24.27
Admin and general expenses - CHQ/RHQ	26.26	21.68	22.76	23.90	25.09	119.69
R&M expenses	87.90	82.40	89.70	97.00	105.30	462.30
Utilities and outsourcing expenses	95.30	85.30	86.70	88.30	90.10	445.70
Other outflows	13.60	12.20	12.80	13.40	14.10	66.10
Total operating expenditure	376.29	385.55	405.26	425.87	448.28	2,041.26

3.1.2. Chennai International Airport submitted O&M expenses of Rs. 2,089.6 Cr for the Second Control Period as shown in the table below:

Table 2: O&M expenses submitted by AAI in the Second Control Period

FY ending March 31 (Rs. Cr)	2017	2018	2019	2020	2021	Total
Number of employees	778	758	739	665	659	
Payroll costs - non CHQ/RHQ	118.11	120.09	129.58	139.41	149.16	656.35
Payroll costs - CHQ/RHQ	4.13	18.67	34.07	27.39	29.32	113.59
Admin and general expenses - non CHQ/RHQ	25.27	10.29	10.26	15.90	17.31	79.04
Admin and general expenses - CHQ/RHQ	84.69	62.63	37.41	50.74	53.28	288.75
R&M expenses	92.81	101.10	73.14	73.54	81.00	421.59
Utilities and outsourcing expenses	88.49	89.27	84.93	82.58	86.03	431.30
Other outflows	21.17	18.34	21.50	19.74	18.23	98.97
Total operating expenditure	434.68	420.41	390.89	409.29	434.34	2,089.60

3.2. Analysis

- 3.2.1. It can be observed in Table 2 that the number of employees at Chennai International Airport in the Second Control Period has reduced from 778 in FY 2016-17 to 659 in FY 2020-21.
- 3.2.2. A comparison of actual O&M expenses in Table 2 and approved O&M expenses in Table 1 shows that actual expenses are Rs. 48 Cr more than what was approved.
- 3.2.3. Further review of expense sub-heads show that AAI's submission for pay roll costs, R&M expenses, utilities and outsourcing expenses was lower than what was approved by the Authority. AAI's submission on administrative and general expenses and other outflows is higher than what was approved by the Authority in the Second Control Period.
- 3.2.4. The biggest difference between approved and actual expenses can be attributed to administrative and general expenses – CHQ/RHQ. While Rs. 119.80 Cr was approved by the Authority in the Second Control Period Order, AAI submitted actuals of Rs. 288.75 Cr for the Second Control Period.
- 3.2.5. Further, it is noted that while number of PAX and ATM fell significantly during FY 2020-21, O&M expenses submitted by AAI are higher in FY 2020-21 compared to FY 2019-20. The projections for FY2020-21 are discussed separately.
- 3.2.6. It is also noted that, while approving O&M expenses in the Second Control Period, the Authority was cognizant of the projected capitalisation of NITB Part - 1 in FY 2020-21. The same has now been deferred to the Third Control Period.

4. HISTORICAL BENCHMARKING AND TREND ANALYSIS

4.1. Trend Analysis of O&M Expenses of First and Second Control Period

4.1.1. In order to understand the change in various O&M expense heads over a longer period of time, the trend of O&M expenses has been analysed over the First and Second Control Period up to FY 2019-20 (as FY 2020-21 was impacted by the Covid-19 pandemics) against the change in traffic.

4.1.2. The following table provides a detailed summary comparing the trends between the First Control Period and Second Control Period in O&M expenses and in air traffic:

Table 3: Comparison between CAGR of First and Second Control Period

FY ending March 31	First Control Period						Second Control Period					
	2012	2013	2014	2015	2016	CAGR	2017	2018	2019	2020	CAGR (FY16 to FY20)	2021
PAX traffic (MPPA)	12.90	12.80	12.90	14.30	15.20	4.19%	18.36	20.36	22.54	22.27	10.02%	4.74
ATM (000's)	120.13	117.42	121.82	122.38	125.12	1.02%	147.77	155.12	178.08	167.98	7.64%	60.30
Operation and Maintenance Expenses (Rs. Cr)												
Payroll costs - non CHQ/RHQ	112.90	105.60	117.90	127.40	124.60	2.50%	118.11	120.09	129.58	139.41	2.85%	149.16
Payroll costs - CHQ/RHQ	17.60	37.70	18.70	32.30	20.80	4.26%	4.13	18.67	34.07	27.39	7.12%	29.32
Admin and general expenses - non CHQ/RHQ	2.40	3.60	3.40	4.80	4.20	15.02%	25.27	10.29	10.26	15.90	39.48%	17.31
Admin and general expenses - CHQ/RHQ	32.50	27.10	18.80	26.80	27.20	(4.35%)	84.69	62.63	37.41	50.74	16.87%	53.28
R&M expenses	18.40	28.60	32.90	69.90	70.40	39.86%	92.81	101.10	73.14	73.54	1.10%	81.00
Utilities and outsourcing expenses	32.60	53.10	75.70	80.60	94.60	30.52%	88.49	89.27	84.93	82.58	-3.34%	86.03
Other outflows	40.10	29.70	14.90	8.60	17.60	(18.61%)	21.17	18.34	21.50	19.74	2.90%	18.23
Total operating expenditure	256.50	285.40	282.30	350.40	359.40	8.80%	434.68	420.41	390.89	409.29	3.30%	434.34

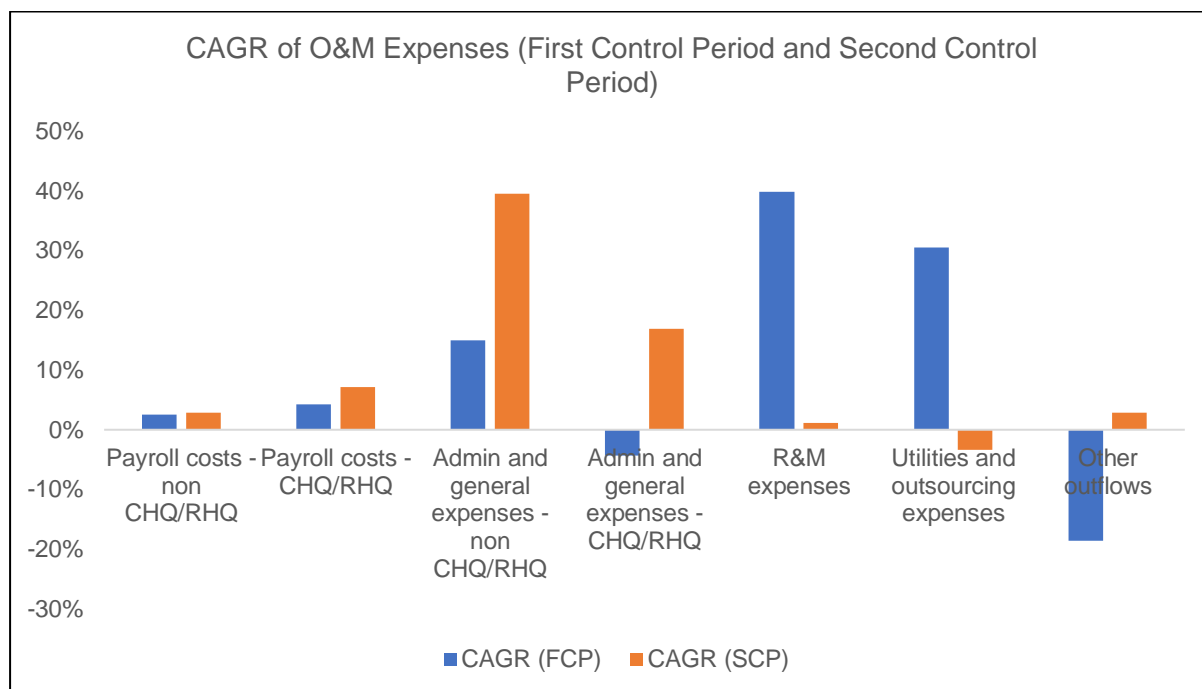
4.2. Summary

4.2.1. The CAGR of total operating expenses in the First Control Period and the Second Control Period is 8.80% and 3.30% respectively. Thus, there was a sharp deceleration in O&M expenses growth in the Second Control Period.

4.2.2. In the First Control Period, CAGR of total O&M expenses has been higher than the CAGR in passenger and ATM traffic. However, in the Second Control Period, the O&M expense CAGR has been lower than CAGR of PAX and ATM traffic.

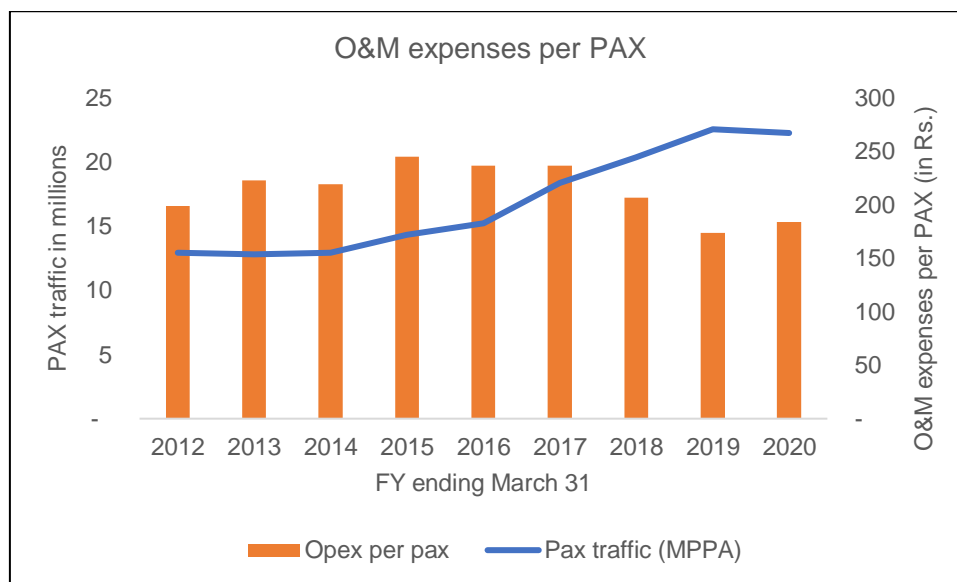
4.2.3. The following graph illustrates the difference between the CAGR during both these periods across various expense heads:

Figure 2: CAGR of O&M expenses (FCP and SCP)



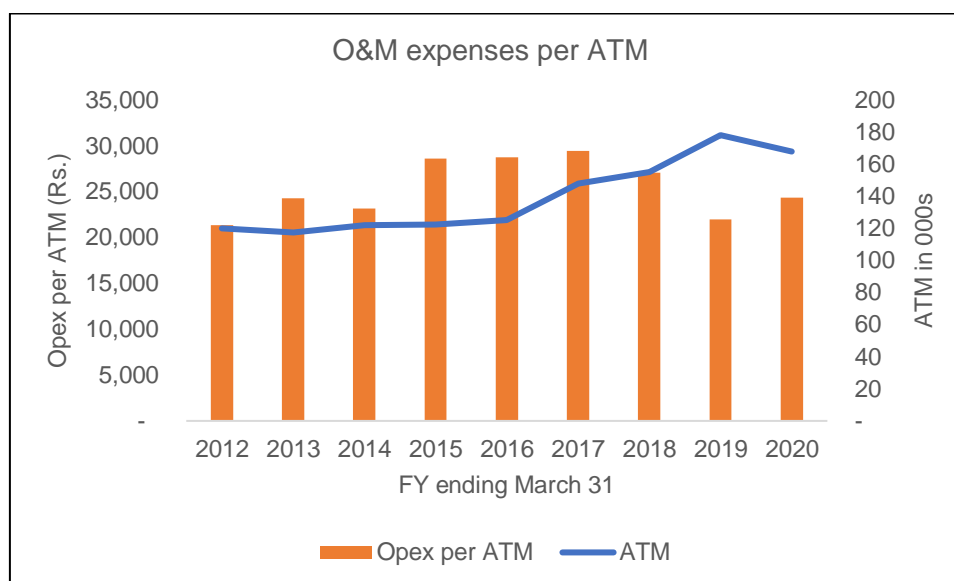
4.2.4. The following graph compares the O&M expenses per PAX in the First Control Period and the Second Control Period with the passenger traffic:

Figure 3: O&M expenses per PAX



4.2.5. It can be seen from the figure that the O&M per PAX is consistently decreasing in the Second Control Period, except in FY 2019-20, when it marginally increased due to the fall in PAX numbers due to the Covid-19 impact towards the end of the year.

4.2.6. The following graph compares the O&M expenses per ATM in the First Control Period and Second Control Period with the passenger traffic:

Figure 4: O&M expenses per ATM

4.2.7. It can be seen from the figure that the O&M expenses per ATM is decreasing in the Second Control Period, except in FY 2019-20 where the O&M expenses per ATM increased due to a fall in ATM traffic.

4.3. Analysis of O&M expenses in the Second Control Period

4.3.1. All O&M expenses other than utility and outsourcing expenses have seen a positive growth in the Second Control Period. Administrative and general expenses – CHQ/RHQ and administrative and general expenses – non CHQ/RHQ saw CAGR growth of 16.87% and 39.48% respectively

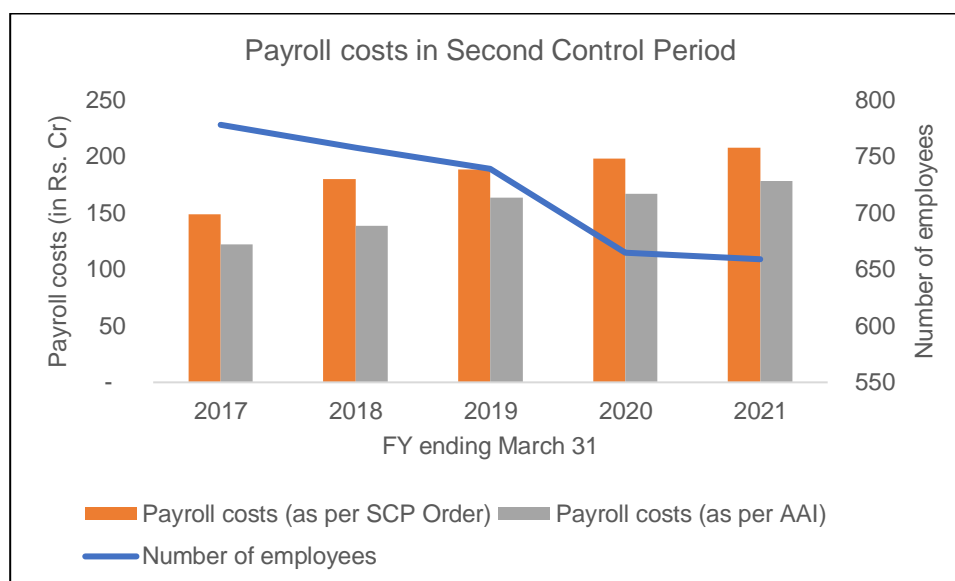
4.3.2. The following table compares the per PAX and per ATM O&M expenses in FY 2016-17 to those in FY 2019-20. Both the O&M expenses per PAX and O&M expenses per ATM have reduced between FY 2016-17 and FY 2019-20.

Table 4: Comparison of O&M per PAX and per ATM between FY 2016-17 and FY 2019-20

Parameter	2016-17	2019-20	Increase %
O&M expenses (Rs. Cr)	434.68	409.29	(5.84%)
PAX traffic MPPA	18.36	22.27	21.29%
O&M expenses per PAX (Rs/PAX)	236.72	183.81	(22.35%)
ATM ('000s)	147.77	167.98	13.68%
O&M expenses per ATM (Rs/ATM)	29,416.53	24,364.86	(17.17%)

Payroll Costs

4.3.3. The following figure compares the approved payroll costs as per the Second Control Period Order and the payroll costs submitted by AAI. Payroll expenses have increased since the beginning of the Second Control Period, while the number of employees decreased. However, the payroll costs submitted by AAI are lower than what was approved by the Authority throughout the Second Control Period.

Figure 5: Payroll costs in the Second Control Period

4.3.4. Payroll costs consist of the following sub-expenses:

- i. Salaries and wages
- ii. PF expenses
- iii. Medical expenses
- iv. Overtime
- v. Other staff benefits

4.3.5. The following table examines the break-up of payroll costs approved by the Authority, and those submitted by AAI:

Table 5: Comparison between payroll costs approved by the Authority and submitted by AAI

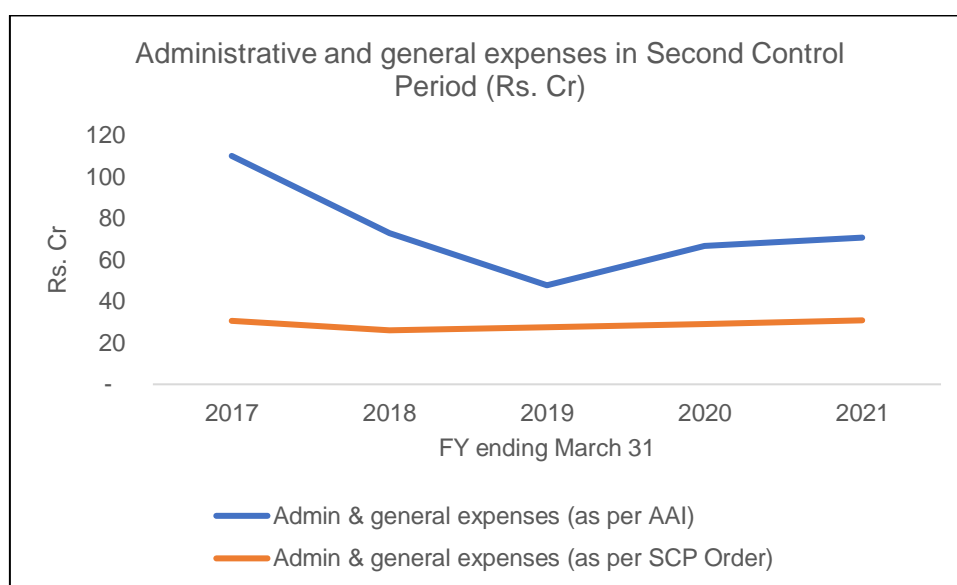
FY ending March 31	Approved in SCP Order						Submission by AAI					
	2017	2018	2019	2020	2021	Total	2017	2018	2019	2020	2021	Total
Salaries and wages	102.42	122.50	128.62	135.05	141.81	630.40	70.59	65.95	74.61	75.55	80.84	367.54
PF expenses	4.39	5.14	5.39	5.66	5.94	26.52	7.51	7.25	8.94	8.25	8.83	40.77
Medical expenses	10.31	13.34	14.01	14.71	15.45	67.83	11.26	11.86	11.89	12.47	13.34	60.82
Overtime	6.83	8.61	9.04	9.49	9.97	43.94	6.11	5.65	4.62	7.48	8.00	31.86
Other staff benefits (net of staff recoveries)	3.58	4.43	4.65	4.89	5.13	22.69	22.85	29.62	29.79	35.95	38.46	156.67
Less: Common expenses for Cargo and ANS employees	-	(0.28)	(0.30)	(0.31)	(0.33)	(1.22)	(0.21)	(0.24)	(0.28)	(0.28)	(0.30)	(1.31)
Payroll costs - non CHQ/RHQ	127.50	153.70	161.40	169.50	178.00	790.10	118.11	120.09	129.58	139.41	149.16	656.35
Payroll costs - CHQ/RHQ	21.30	26.00	27.20	28.60	30.00	133.10	4.13	18.67	34.07	27.39	29.32	113.59
Total payroll costs	148.80	179.70	188.60	198.10	208.00	923.20	122.24	138.77	163.64	166.80	178.49	769.94

- 4.3.6. AAI's submission of payroll costs – non-CHQ/RHQ and payroll costs – CHQ/RHQ are lower than what was approved by the Authority. This is primarily because of the difference between approved salaries and wages and that submitted by AAI. AAI has submitted that the number of employees reduced from 778 in FY 2016-17 to 659 in FY 2020-21. Payroll costs – CHQ/RHQ has been discussed later in the study.

Administrative and General Expenses

- 4.3.7. Figure 2 compares the approved administrative and general expenses as per the Second Control Period Order and that submitted by AAI. The expenses submitted by AAI are higher than the approved amounts for all tariff years. It may be noted that the actual expenses submitted by AAI reduced year by year till FY 2018-19, after which they increased. The difference between actuals and approved can largely be attributed to admin and general expenses – CHQ/RHQ, which is discussed later.

Figure 6: Administrative and general expenses in the Second Control Period



- 4.3.8. Administrative and general expenses comprise the following sub-expenses:
- i. Rent and taxes
 - ii. Communication expenses
 - iii. Travelling and conveyance expenses
 - iv. Advertisement
 - v. Office maintenance
 - vi. Printing and stationery
 - vii. Legal expenses
 - viii. Other professional charges
 - ix. Insurance
 - x. Recruitment
 - xi. Financing charges

- 4.3.9. The following table examines the break-up of administrative and general expenses approved by the Authority, and those submitted by AAI:

Table 6: Comparison between administrative and general expenses approved by the Authority and submitted by AAI

	Approved in SCP Order						Submission by AAI					
FY ending March 31	2017	2018	2019	2020	2021	Total	2017	2018	2019	2020	2021	Total
Rent and taxes	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.01	0.09	0.01	0.01	0.15
Communication	0.52	0.50	0.56	0.61	0.67	2.86	0.43	0.46	0.42	0.35	0.38	2.03
Travelling and conveyance	1.97	1.92	2.11	2.32	2.55	10.86	1.46	1.51	2.15	1.22	1.34	7.68
Advertisement	0.87	0.79	0.87	0.96	1.05	4.54	1.57	0.50	1.60	0.89	0.98	5.55
Office maintenance	0.11	0.12	0.13	0.14	0.16	0.66	0.52	0.35	0.45	0.53	0.59	2.44
Printing and stationery	0.44	0.43	0.47	0.52	0.57	2.44	0.41	0.43	0.53	0.33	0.36	2.06
Legal charges	0.13	0.15	0.16	0.18	0.19	0.81	0.20	0.05	0.27	0.23	0.25	1.00
Other professional charges	0.29	0.29	0.32	0.36	0.39	1.65	0.00	0.42	0.00	0.00	0.00	0.42
Insurance	0.06	0.02	0.02	0.02	0.03	0.15	0.12	0.08	0.11	0.09	0.10	0.50
Recruitment	0.05	0.05	0.05	0.05	0.06	0.26	0.00	0.00	0.00	0.00	0.00	0.00
Finance charges	0.01	0.01	0.01	0.01	0.01	0.03	20.75	4.58	0.00	0.75	0.82	26.91
CSR expenses	-	-	-	-	-	-	-	1.90	4.63	11.35	12.48	30.36
Project expenses (net)	-	-	-	-	-	-	(0.23)	-	-	0.16	-	(0.07)
Administrative and general expenses – non CHQ/RHQ	4.44	4.27	4.70	5.17	5.69	24.27	25.27	10.29	10.26	15.90	17.31	79.04
Administrative and general expenses – CHQ/RHQ	26.26	21.68	22.76	23.90	25.09	119.69	84.69	62.63	37.41	50.74	53.28	288.75
Total Administrative and general expenses	30.69	25.95	27.46	29.07	30.78	143.96	109.97	72.93	47.67	66.64	70.59	367.79

4.3.10. While AAI's submission of administrative and general expenses – non CHQ/RHQ are higher than what was approved by the Authority, the key differences are on account of inclusion of financing charges and CSR expenses by AAI. Financing charges comprise of interest on loans that AAI has taken, which has been discussed in the next paragraph. CSR expenses, though not approved by the Authority in the Second Control Period Order, is now allowed after the Hon'ble TDSAT Order on BIAL that allowed airport operators to include CSR expenses for tariff determination. Administrative and general expenses – CHQ/RHQ has been discussed later in the study.

4.3.11. Para 14.16 of the Second Control Period tariff order proposed not to include financing charges in administration and general expenses as the expense consists of interest payments on long term debt. Therefore, the Authority may decide to exclude these expenses from O&M expenses for the Second Control Period.

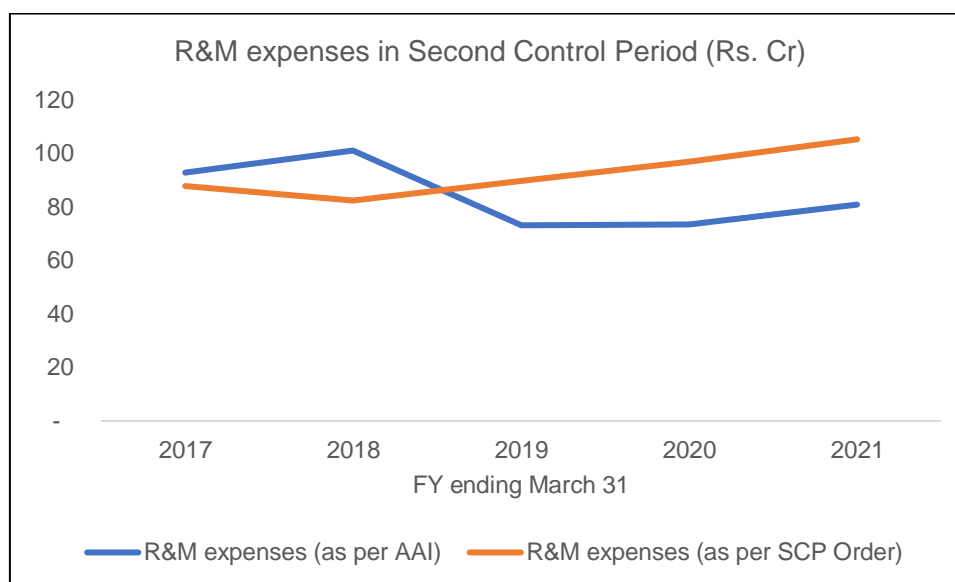
Repair and maintenance expenses

4.3.12. Repair and maintenance expenses consists of the following sub-expenses:

- i. Repair and maintenance – civil works
- ii. Repair and maintenance – plant and machinery
- iii. Repair and maintenance – electrical installations
- iv. Repair and maintenance – furniture and fittings
- v. Repair and maintenance – computers, IT, and hardware
- vi. AMC documents

4.3.13. The following figure compares the approved R&M expenses as per the Second Control Period Order and the R&M expenses submitted by AAI. The figure shows that the actual expenses submitted by AAI are higher than the approved amounts for FY 2016-17 and FY 2017-18 but are lower than the approved amounts from FY 2018-19 to FY2020-21.

Figure 7: R&M expenses in the Second Control Period



4.3.14. The following table examines the break-up of R&M expenses approved by the Authority and those submitted by AAI:

Table 7: Comparison between repair and maintenance expenses approved by the Authority and submitted by AAI

FY ending March 31	Approved in SCP Order						Submission by AAI					
	2017	2018	2019	2020	2021	Total	2017	2018	2019	2020	2021	Total
Civil works	25.26	25.16	27.68	30.45	33.49	142.04	31.50	14.94	16.83	13.63	14.99	91.88
Plant and Machinery / Vehicle	0.86	0.83	0.91	1.00	1.10	4.70	1.47	0.87	0.56	1.80	1.98	6.69
Electrical Installations	32.43	32.65	35.91	39.50	43.45	183.94	41.70	64.57	37.96	38.33	42.16	224.72
Furniture & fittings	0.23	0.25	0.27	0.30	0.33	1.37	0.40	0.18	0.51	2.27	2.49	5.86
Computers, IT, hardware	29.17	23.53	24.97	25.78	26.91	130.35	17.75	20.54	17.28	17.52	19.27	92.35

FY ending March 31	Approved in SCP Order						Submission by AAI						
	2017	2018	2019	2020	2021	Total	2017	2018	2019	2020	2021	Total	
AMC for digital signages (T1 and T4)	-	-	-	-	-	-	-	-	-	-	-	0.02	0.02
AMC for Automatic Electronic Access Retrieval System	-	-	-	-	-	-	-	-	-	-	-	0.08	0.08
Total R&M Expenses	87.94	82.41	89.74	97.03	105.28	462.40	92.81	101.10	73.14	73.54	81.00	421.59	

4.3.15. The overall level of R&M expenses was analysed vis-à-vis the opening gross block of Chennai International Airport. The following table summarises R&M expenses as a percentage of the opening gross block in the Second Control Period:

Table 8: R&M analysis vis-à-vis opening gross block

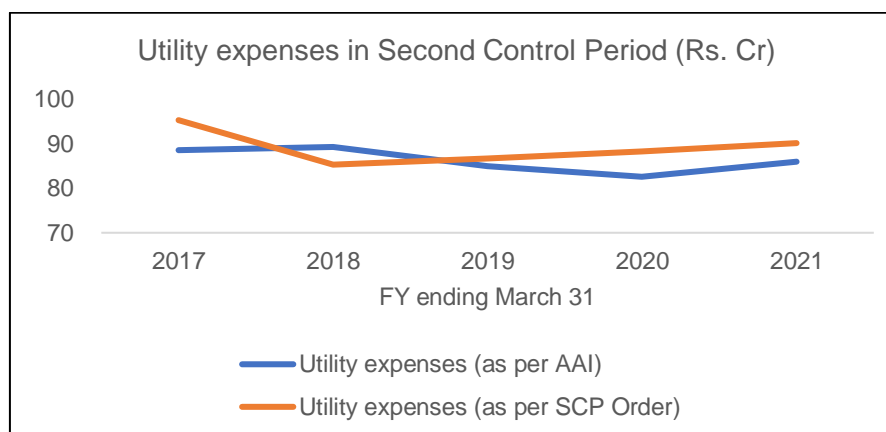
Parameter (Rs. Cr)	2016-17	2017-18	2018-19	2019-20	2020-21
R&M expenses	92.81	101.10	73.14	73.54	81.00
Opening gross block	1,875.25	2,307.41	2,366.59	2,536.05	2,716.91
R&AM expenses (% of opening gross block)	4.95%	4.38%	3.09%	2.90%	2.98%

4.3.16. R&M expenses of Chennai Airport range from 2.90% to 4.95% of the opening gross block. This is broadly in line with other airports and seems to be reasonable.

Utility and Outsourcing Expenses:

4.3.17. The following figure compares the approved utility expenses as per the Second Control Period Order and the utility expenses submitted by AAI. The actual expenses submitted by AAI are lower than the approved amounts for all tariff years of the Second Control Period other than FY 2017-18.

Figure 8: Utility expenses in the Second Control Period



4.3.18. The following table examines the break-up of utilities and outsourcing expenses approved by the Authority, and those submitted by AAI:

Table 9: Comparison between utilities and outsourcing expenses approved by the Authority and submitted by AAI

FY ending March 31	Approved in SCP Order						Submission by AAI					
	2017	2018	2019	2020	2021	Total	2017	2018	2019	2020	2021	Total
Power charges	77.71	69.08	69.08	69.08	69.08	354.03	67.29	62.07	54.14	48.04	48.04	279.58
Water charges	1.73	1.73	1.73	1.73	1.73	8.67	3.04	1.73	1.16	1.19	1.31	8.44
Upkeep expenses	10.14	10.96	12.05	13.26	14.59	60.99	11.82	21.84	24.87	28.90	31.79	119.21
Watch and ward expenses	5.69	3.51	3.86	4.24	4.67	21.97	6.34	3.63	4.77	4.45	4.89	24.08
Total Utilities and Outsourcing	95.27	85.28	86.73	88.32	90.07	445.66	88.49	89.27	84.93	82.58	86.03	431.30

4.3.19. It is noted that power recoveries are less than 12% of the total power charges at Chennai International Airport during the Second Control Period. This is significantly lower than other airports.

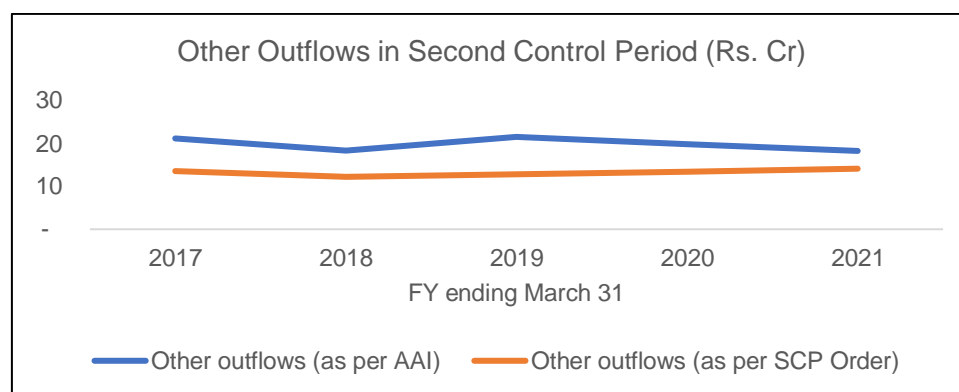
4.3.20. Within utilities and outsourcing expenses, there are significant differences between the approved and actuals for power charges and upkeep expenses. The fall in power expenses is because T-2 was demolished to start NITB Part – 1 construction. Further, upon analysis, it was found that the upkeep expenses increased because of the Environmental Support Services (ESS) and Mechanised Environmental Support Services (MESS) at Chennai International Airport.

Other Outflows:

4.3.21. Other outflows have further been examined. The expense consists of the following sub-expenses:

- i. Municipal taxes
- ii. UDF and PSF collection charges
- iii. Miscellaneous expenses

4.3.22. The following figure compares the approved other outflows as per the Second Control Period Order and the other outflows submitted by AAI. The figure shows that the actual expenses submitted by AAI are higher than the approved amounts for all tariff years of the Second Control Period.

Figure 9: Other Outflows in the Second Control Period

4.3.23. The following table examines the break-up of utilities and outsourcing expenses approved by the Authority, and those submitted by AAI:

Table 10: Comparison between other outflows approved by the Authority and submitted by AAI

FY ending March 31	Approved in SCP Order						Submission by AAI					
	2017	2018	2019	2020	2021	Total	2017	2018	2019	2020	2021	Total
Municipal taxes	5.13	5.13	5.13	5.13	5.13	25.65	4.60	5.26	4.71	4.50	4.95	24.02
UDF and PSF collection charges	2.79	2.96	3.13	3.32	3.52	15.73	1.89	5.75	5.90	3.86	0.77	18.16
Miscellaneous expenses*	5.63	4.13	4.54	4.99	5.49	24.79	14.68	7.33	10.89	11.37	12.51	56.79
Total other outflows	13.55	12.22	12.81	13.45	14.15	66.17	21.17	18.34	21.50	19.73	18.23	98.97

4.3.24. The primary difference between the approved outflows and outflows submitted by AAI is in miscellaneous expenses. Miscellaneous expenses include hire charges, consumption of stores and spares, POL charges, and other miscellaneous expenses.

4.4. AAI's estimation of O&M expenses for FY 2020-21

4.4.1. AAI has estimated FY 2020-21 expenses by applying a growth rate over the FY 2019-20 expenses. In the case of payroll costs, AAI applied a growth rate of 7% over FY 2019-20 levels to estimate FY 2020-21 payroll costs. For other O&M expenses, AAI applied a growth rate of 10% on FY 2019-20 levels to estimate FY 2020-21 expenses.

4.4.2. FY 2020-21 was severely impacted by Covid-19 pandemic. The PAX numbers declined by 75% in FY 2020-21, from 22.3 million PAX in FY2019-20 to 5.5 million PAX in FY 2020-21. The ATM numbers declined by 37.5% in that year, from 1,67,982 in FY 2019-20 to 64,590 in FY 2020-21. This would imply that for a major part of this year, the airport facilities would have been shut or have remained under-utilized. While it is understood that fixed overheads, like manpower costs, would not have been impacted, there would be savings in other overheads like power costs, water charges, overtime, repairs & maintenance.

4.4.3. Further, it is also noted that the overall O&M expenses growth in the Second Control Period (up to FY2019-20) is at a CAGR of 3.30%. Of these, payroll costs increase at a CAGR of 3.49% as against 7% growth assumed by AAI for FY 2020-21 and all other O&M expenses increased at a CAGR of 3.17% as against 10% growth assumed by AAI.

4.4.4. Considering the above factors, the growth rate used by AAI to estimate FY 2020-21 expenses may be reconsidered by the Authority.

4.5. Analysis of apportionment of AAI's CHQ/RHQ expenses to Chennai International Airport

4.5.1. AAI manages 137 airports, of which 24 are international airports, 10 are Custom airport, and 103 are domestic airports.¹ AAI apportions its CHQ/RHQ expenses to the various

¹ As per AAI website, accessed on 31 August 2021

airports managed by it. However, AAI has not provided the methodology/formula by which the apportionment of CHQ/RHQ expenses is carried out.

4.5.2. Chennai and Kolkata airports are two of AAI's largest airports. The following table compares the two airports' approved payroll costs - CHQ/RHQ and admin and general expenses – CHQ/RHQ. On a combined basis, the Authority has approved similar apportionment expenses for both airports.

Table 11: Comparison of approved payroll costs - CHQ/RHQ of Chennai and Kolkata Airports

FY ending March 31 (Rs. Cr)	2017	2018	2019	2020	2021	Total
Chennai						
Payroll costs - CHQ/RHQ	21.30	26.00	27.20	28.60	30.00	133.10
Admin and general expenses - CHQ/RHQ	26.26	21.68	22.76	23.90	25.09	119.69
Total	47.56	47.68	49.96	52.50	55.09	252.79
Kolkata						
Payroll costs - CHQ/RHQ	23.00	26.50	28.40	30.30	32.50	140.70
Admin and general expenses - CHQ/RHQ	18.80	18.50	19.50	20.40	21.40	98.60
Total	41.80	45.00	47.90	50.70	53.90	239.30

4.5.3. The following table compares the approved payroll costs – CHQ/RHQ for Chennai International Airport with the submitted amounts:

Table 12: Analysis of payroll costs - CHQ/RHQ

FY ending March 31 (Rs. Cr)	2017	2018	2019	2020	2021	Total
Payroll costs - CHQ/RHQ submitted by AAI	4.13	18.67	34.07	27.39	29.32	113.59
Payroll costs - CHQ/RHQ approved in SCP	21.30	26.00	27.20	28.60	30.00	133.10
Payroll costs – CHQ/RHQ submitted by AAI (as % of approved)	19%	72%	125%	96%	98%	85%

Table 13: Analysis of admin and general expenses - CHQ/RHQ

FY ending March 31 (Rs. Cr)	2017	2018	2019	2020	2021	Total
Admin and general costs - CHQ/RHQ submitted by AAI	84.69	62.63	37.41	50.74	53.28	288.75
Admin and general - CHQ/RHQ approved in SCP	26.26	21.68	22.76	23.90	25.09	119.69
Admin and general – CHQ/RHQ submitted by AAI (as % of approved)	323%	289%	164%	212%	212%	241%

4.5.4. While payroll costs – CHQ/RHQ submitted by AAI are 85% of what was approved in the Second Control Period, admin and general expenses – CHQ/RHQ submitted by AAI are 241% of what was approved in the Second Control Period, with a significant year on year

variation.

- 4.5.5. Payroll costs – CHQ/RHQ, and admin and general expenses – CHQ/RHQ need to be further analysed, and the basis/formula for allocation followed by AAI needs to be better understood. Given lack of this information at the current stage, the Authority may choose to consider the lower of actual or approved apportionment of CHQ/RHQ expenses in the Second Control Period.

4.6. Summary of conclusions

- 4.6.1. The overall O&M expenses submitted by AAI are higher than those approved by Authority in the Second Control Period order. The key reasons for these are (a) growth rates applied by AAI in projecting O&M expenses for FY2020-21 (b) apportionment of CHQ/RHQ expenses of AAI to Chennai airport. However, O&M expenses per PAX and per ATM are lower in FY2019-20 than in FY2016-17.
- 4.6.2. R&M expenses of Chennai Airport range from 2.90% to 4.95% of the opening gross block. This is broadly in line with other airports and seems to be reasonable.
- 4.6.3. It is noted that power recoveries are less than 12% of the total power charges at Chennai International Airport during the Second Control Period. This is significantly lower than other airports.
- 4.6.4. Estimating O&M expenses for FY2020-21 by taking a 7% growth rate for payroll costs and a 10% growth rate for other O&M expenses over the actuals of FY 2019-20 is not appropriate, considering that traffic in FY 2020-21 was significantly lower due to the pandemic, and considering the actual growth in O&M expenses between FY 2016-17 and FY 2017-20 is negative. The Authority may consider a 0% growth over FY 2019-20 expenses to estimate expenses of FY 2020-21.
- 4.6.5. Apportionment expenses to CHQ/RHQ requires further analysis of AAI's methodology/formula. In the absence of data on the methodology/formula used by AAI to compute, apportionment expenses, the Authority may choose to consider the lower of actual/approved apportionment expenses as per the Second Control Period Order.

5. ALLOCATION OF O&M EXPENSES ACROSS AERO AND NON-AERO

5.1. Introduction to segregation of expenses

5.1.1. The following table summarizes the general principles for O&M expense categorization:

Table 14: General principles of O&M expense categorization

Expense Category	Expense Sub-Category / Description	Expense Classification
Manpower expenses	Salary, wages & bonus; Contribution to provident fund; Staff welfare expenses; New employee expenses	Common
A&G Expenses	Flood related expenses; Flood mitigation expenses	Aeronautical
	Rent; Rates and Taxes; Communication Expense; Travelling and Conveyance; Advertisement; Office Maintenance; Printing and Stationary	Common
	Auditor's Fees; Professional Charges	
	Insurance Costs; Bank Charges; Miscellaneous Expenses Scrap of assets; Foreign exchange loss; General charges Directors Sitting Fees; Rights Issue Expenses	
R&M Expenses	R&M costs for buildings, Plant & Machinery and Roads, Runways and culverts	Common
Other Expenses	Safety & Security expenses	Common
	Vehicle Running & Maintenance expenses	
	House Keeping expenses	

5.2. Examination of segregation and allocation by AAI

1.1.1. The classification of O&M expenses by AAI was found to be in line with the general principles discussed above. However, the basis for allocation of certain common costs needs to be analysed. The principles of classification followed by the airport operator are provided in the table below.

Table 15: Principles of classification and allocation used by AAI

Expense Category	Expense Sub-Category / Description	Expense Classification
Payroll costs	<ul style="list-style-type: none"> - Salaries and wages (basic pay, dearness allowance, and house rent allowance) - Overtime expenses - Other staff benefits (employee perks, EL encashment etc.) - Medical expenditure - Provident fund contributions - Staff recoveries - Apportionment of CHQ/RHQ expenses 	Common. Employee head count ratio was used to allocate between aeronautical and non-aeronautical

Expense Category	Expense Sub-Category / Description	Expense Classification
Admin & General Expenses	<ul style="list-style-type: none"> - Rent, rates, and taxes (rent on office building, import license, and taxes on vehicles) - Insurance (vehicle, and plant & machinery insurance) - Advertising and publicity - Office expenses - Telephone charges - Printing and stationery - Travelling expenses - Financing charges (apportionment of interest on loan taken at central level) - Consultancy charges - Apportionment of admin (non-employee related overhead expenses) for CHQ/RHQ 	<p>Common:</p> <ul style="list-style-type: none"> - TBLR was used for advertising - VEHR was used for insurance - EHCR was used for other expenses - 95% of CHQ/RHQ expenses was deemed aeronautical
	<ul style="list-style-type: none"> - Legal expenses 	Aeronautical
R&M Expenses	<ul style="list-style-type: none"> - R&M for civil works - R&M for electrical works - R&M for vehicles - R&M for furniture and fixtures - R&M for computers, IT, and hardware 	<p>Common:</p> <ul style="list-style-type: none"> - TBLR was used for electrical works - VEHR was used for R&M for vehicles - EHCR and EQTR was used for other R&M expenses
Utilities and outsourcing expenses	<ul style="list-style-type: none"> - Power charges - Water charges - Upkeep expenses 	<p>Common:</p> <ul style="list-style-type: none"> - TBLR was used for upkeep expenses - Electricity ratio was used for power and water charges
	<ul style="list-style-type: none"> - Watch and ward expenses 	Aeronautical
Other Outflows	<ul style="list-style-type: none"> - Consumption of stores and spares - POL expenses - Other miscellaneous expenses 	<p>Common:</p> <ul style="list-style-type: none"> - EHCR, and TBLR were used to allocate common expenses
	<ul style="list-style-type: none"> - Collection charges on UDF and PSF - Municipal taxes - Hire charges 	Aeronautical

5.2.1. The segregation of expenses carried out by AAI seems reasonable and is in line with the principles of segregation used by other AAI airports.

5.2.2. It may be noted that AAI has allocated various sub-expenses within O&M expenses based on the following ratios:

Table 16: Allocation ratios of common expenses as submitted by AAI

Particular	Ratios
Payroll Expenses	EHCR, 1EHCR (P&A)
Admin. And General Expenses	EHCR, TBLR, VEHR
Repair and Maintenance	EQTR, TBLR, VEHR, EHCR
Utilities and Outsourcing Expenses	Electricity
Other Outflows	EHCR and TBLR

Where:

- EHCR – Employee Head Count Ratio
- 1EHCR (P&A) – Employee Headcount Ratio excl. the security department
- TBLR – Terminal Building Ratio
- VEHR – Vehicle Ratio
- Electricity - Electricity ratio is based on the no. of units consumed by aero and non-aero departments.

5.2.3. A summary of the allocation ratios considered to be aeronautical based on the aforementioned ratios in AAI's submission is given below:

Table 17: Summary of allocation ratios submitted by AAI for the Second Control Period

Ratio (in %)	2017	2018	2019	2020	2021
TBLR	92.47	92.59	94.47	94.34	94.35
EHCR	98.18	98.18	98.18	98.18	97.77
1EHCR (P&A)	98.17	98.17	98.17	98.17	97.77
EQTR	99.73	99.73	99.73	99.73	99.55
VEHR	97.30	97.30	97.30	97.30	97.30
Electricity	99.99	99.99	99.99	99.99	99.99

5.2.4. A summary of the allocation ratios considered to be aeronautical based on the aforementioned ratios in AAI's submission is given below:

Table 18: Allocation ratios approved by the Authority for the Second Control Period

Particulars	% Aeronautical Expense (excl. Cargo)
Payroll Expenses	95
Apportionment of Admin CHQ/RHQ expenses	90
Retirement benefits provided at CHQ in respect of employees at Chennai International Airport	95
VEHR	98.19
TBLR	92.5
EQTR	88.14

5.3. Conclusion

5.3.1. It may be noted that the TBLR as per AAI submission is changing on an annual basis. The allocation ratios may not change on a year-on-year basis since they are determined on a design layout that is considered at the beginning of the concerned control period. This is the case in the DIAL Order (Order No. 57/2020-21 dated 30th December 2020), as also the MIAL Order (Order No. 64/2020-21 dated 27th February 2020). Thus, the Authority may consider using the approved allocation ratios to segregate common expenses.

6. OVERALL SUMMARY OF THE STUDY

6.1. Operation and Maintenance Expenses proposed by Chennai International Airport for the Second Control Period

- 6.1.1. It can be observed in Table 2 that the number of employees at Chennai International Airport in the Second Control Period has reduced from 778 in FY 2016-17 to 659 in FY 2020-21.
- 6.1.2. A comparison of actual O&M expenses in Table 2 and approved O&M expenses in Table 1 shows that actual expenses are Rs. 48 Cr more than what was approved.
- 6.1.3. Further review of expense sub-heads show that AAI's submission for pay roll costs, R&M expenses, utilities and outsourcing expenses was lower than what was approved by the Authority. AAI's submission on administrative and general expenses and other outflows is higher than what was approved by the Authority in the Second Control Period.
- 6.1.4. The study observed a significantly high difference between approved and actual O&M expenses attributable to administrative and general expenses – CHQ/RHQ of Rs. 169.06 Cr. While Rs. 119.80 Cr was approved by the Authority in the Second Control Period Order, AAI submitted actuals of Rs. 288.75 Cr for the Second Control Period. It is also observed that the allocation of such expenses does not seem to be transparent and needs to be examined in detail.
- 6.1.5. Further, it is noted that while number of PAX and ATM fell significantly during FY 2020-21, O&M expenses submitted by AAI are higher in FY 2020-21 compared to FY 2019-20. The projections for FY2020-21 are discussed separately.
- 6.1.6. It is also noted that, while approving O&M expenses in the Second Control Period, the Authority was cognizant of the projected capitalisation of NITB Part - 1 in FY 2020-21. The same has now been deferred to the Third Control Period.

6.2. Historical benchmarking and trend analysis

- 6.2.1. The overall O&M expenses submitted by AAI are higher than those approved by Authority in the Second Control Period order. The key reasons for these are (a) growth rates applied by AAI in projecting O&M expenses for FY 2020-21 (b) apportionment of CHQ/RHQ expenses of AAI to Chennai airport. However, O&M expenses per PAX and per ATM are lower in FY 2019-20 than in FY 2016-17.
- 6.2.2. Estimating O&M expenses for FY 2020-21 by taking a 7% growth rate for payroll costs and a 10% growth rate for other O&M expenses over the actuals of FY 2019-20 is not appropriate, considering that traffic in FY 2020-21 was significantly lower due to the pandemic, and considering the actual growth in O&M expenses between FY 2016-17 and FY 2017-20 is negative. The Authority may consider a 0% growth over FY 2019-20 expenses to estimate expenses of FY 2020-21.
- 6.2.3. R&M expenses of Chennai Airport range from 2.90% to 4.95% of the opening gross block. This is broadly in line with other airports and seems to be reasonable.

6.2.4. It is noted that power recoveries are less than 12% of the total power charges at Chennai International Airport during the Second Control Period. This is significantly lower than other airports.

6.2.5. Apportionment expenses to CHQ/RHQ requires further analysis of AAI's methodology/formula. In the absence of data on the methodology/formula used by AAI to compute, apportionment expenses, the Authority may choose to consider the lower of actual/approved apportionment expenses as per the Second Control Period Order.

6.3. Allocation of O&M expenses across aero and non-aero

6.3.1. It may be noted that the TBLR as per AAI submission is changing on an annual basis. The allocation ratios may not change on a year-on-year basis since they are determined on a design layout that is considered at the beginning of the concerned control period. This is the case in the DIAL Order (Order No. 57/2020-21 dated 30th December 2020), as also the MIAL Order (Order No. 64/2020-21 dated 27th February 2020). Thus, the Authority may consider using the approved allocation ratios to segregate common expenses.

6.4. Conclusion

6.4.1. After the above adjustments and reallocations discussed in the previous sections, the efficient O&M expenses for the Second Control Period have been considered as per the table below:

Table 19: Efficient O&M expenses for the Second Control Period as per the study

FY ending March 31 (in Rs. Cr.)	2017	2018	2019	2020	2021	Total
Payroll costs – CHQ/RHQ	4.13	18.67	34.07	27.39	27.41	111.67
Payroll costs – non CHQ/RHQ	118.12	120.12	129.60	139.42	139.42	646.68
Payroll costs (A)	122.25	138.79	163.67	166.81	166.83	758.35
Repair and maintenance (B)	92.49	101.02	72.44	72.66	72.76	411.36
Utilities & outsourcing expenses (C)	88.49	89.25	84.51	82.15	82.15	426.54
Admin and general expenses – non CHQ/RHQ	4.52	5.71	10.23	15.13	14.97	50.56
Apportionment of Admin Expenses for CHQ/RHQ	26.30	21.70	22.80	23.90	25.10	119.80
Admin & Other expenses (D)	30.82	27.41	33.03	39.03	40.07	170.36
Other Outflows (E)	12.12	15.13	15.04	13.26	10.80	66.36
Working capital loan interest	-	-	-	-	0.30	0.30
Total O&M Expenses	346.17	371.60	368.68	373.91	372.61	1,832.98

6.4.2. AAI had proposed a total O&M expenditure (aeronautical) of Rs. 2,089.60 Cr. for the Second Control Period. Based on this study, the proposed O&M expenditure is Rs. 1,832.98 Cr. for the Second Control Period, thus resulting in a reduction of **Rs. 256.62 Cr.** for the Second Control Period.