STUDY

ON

EFFICIENT OPERATION AND MAINTENANCE EXPENSES

for

COCHIN INTERNATIONAL AIRPORT LIMITED (CIAL)

(Second Control Period: 2017-2021)

April 2021

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1. OBJECTIVE OF THIS STUDY

CIAL was the first airport in India to be built under Public Private Partnership (PPP), with equity participation from the Government of Kerala, financial institutions, and more than 16,000 individual investors (mostly non-resident Keralites (NRKs)). CIAL was incorporated on 30th March 1994 as a public limited company, with an Authorized Share Capital of INR 90 crore. The construction work commenced in August 1994. The airport was inaugurated by the President of India on 25th May 1999 with Air India operating the first flight to the Gulf region.

CIAL is one of the 'major airports' notified by Airports Economic Regulatory Authority of India under the provisions of the AERA Act 2008. Pursuant to AERA Act 2008, AERA issued guidelines for the purpose of determination of aeronautical tariffs for major airports. CIAL had submitted Multi Year Tariff Proposal (MYTP) for the second Control Period from FY 2017 to FY 2021. AERA issued the order for second Control Period on 13th July 2017.

AERA has adopted the 'Shared Till' approach for determination of tariff of CIAL. As per the 'Shared 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 'Shared Till' 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 expenses and their reasonableness is pivotal to 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 expanding, modernizing and improving operational efficiency of the airports.

Assessment of Operation and Maintenance expense requires examination of financial information submitted by the airport operator, and also independent examination of the baseline operating expense levels, expense reduction, efficiency initiatives and conduct of benchmarking exercises.

Additionally, there is a growing influence of technology in improving operational efficiency and service in almost all airport facilities and services. This has resulted in deployment of technology related products and/or services and various related tangible and intangible expenses with varying degrees of in-house and third-party involvement.

The objective of the study is to understand and analyse the historical trends of change in the O&M expenses and how CIAL has been performing in comparison to select peers in the industry. The detailed analysis of O&M expenses is expected to help in understanding the reasons behind the existing expense levels being over/under the efficient expense levels. Based on which, it would help in assisting the Authority in determining the efficient operation and maintenance expenses for CIAL. Further, the study also aims to assess the allocation of various O&M related expenses among the Aeronautical and Non-Aeronautical activities, as per the general principles followed by the Authority, so that the passengers / flyers are not over-burdened with resultant fees / charges.

Accordingly, AERA has decided to conduct a study on efficient O&M expenses for true-up of the Second Control Period and use the findings of this study for the tariff determination for the Third Control Period. Since audited financial statements were available for the years FY 17 to FY 20 for the 2nd Control Period, the analysis of the components of O&M till FY 20 has been done based on the audited accounts and trial balances. For FY 21, AERA examined the projections submitted by the airport operator and the reasonableness of the projections vis-à-vis the actual expenses incurred by CIAL from Apr 2020 to January 2021.

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. 14 / 2016-2017 dated 23 January 2017 [In the matter of aligning certain aspects of AERA's Regulatory Approach (Adoption of Regulatory Till) with the provisions of the National Civil Aviation Policy – 2016 (NCAP – 2016) approved by the Government of India

iv. AERA Order No. 07 / 2017-2018 dated 13 July 2017 [In the matter of Determination of tariffs for Aeronautical Services in respect of Cochin International Airport, Cochin, for the Second Control Period (01.04.2016 to 31.03.2021)]

v. Previous Tariff Orders of other airports

vi. Audited Annual Reports, Trial Balances, Clarification and details received from CIAL

2. TERMS OF REFERENCE AND OUR WORK PERFORMED

2.1. Terms of Reference

AERA has outlined the scope of work for OPEX segregation between Aero and Non-Aero and the study on efficient operations and maintenance expenses in clauses 3.1 (v) and 3.1 (vi) of Schedule 1 of its RFP No. 01 / 2020-2021 for engagement of consultants to assist AERA in determination of tariffs for aeronautical services at CIAL, which state:

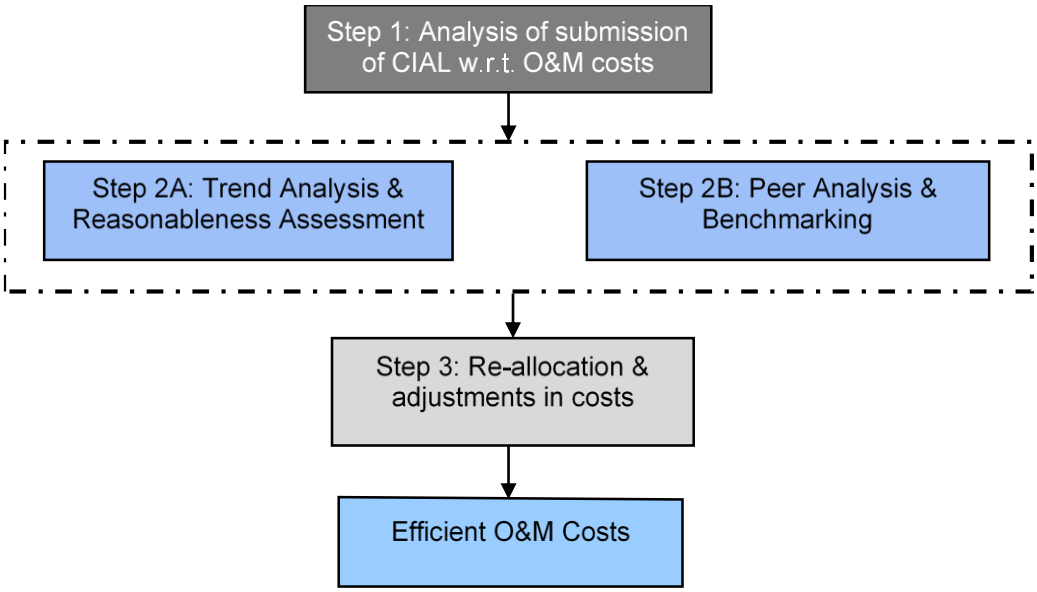
- "3.1 (v) – Asset / OPEX segregation between Aero and Non-Aero"
- "3.1 (vi) – Examine and recommend efficient costs for O&M as part of tariff determination process."

2.2. Work Performed

Methodology

The steps elaborated below have been followed for determining the efficient O&M expenses for CIAL in this study:

Figure 1: Approach for this study



Step 1: Analysis of submission of CIAL

As a first step, assessment of the Operation and Maintenance expenses based on the inputs shared by the airport operator has been done. The O&M Expenses, or any other underlying data submitted by CIAL have not been audited as part of this study. The study has relied on the audited financial statements of CIAL from FY 2017 to FY 2020 to verify the expenses incurred during the Second Control Period. The expenses for FY 2021 are as per the projections submitted by the airport operator, which are based on the actual data for the initial months of FY21. However, as part of this study, the reasonableness of the operational expense projections for FY21 has been assessed based on the actual expenses from Apr 2020 to Jan 2021. The operator has submitted the O&M expenses under following heads:

- **Manpower expenses** such as Salary, Wages & bonus, Contribution to provident fund, Staff welfare expenses etc.
- **Administration and General Expenses** such as Advertising, Rates and Taxes, Communication expenses, Consultancy, Office Maintenance, Rent, Traveling and Conveyance, Insurance Expenses, Bank Charges, Flood related expenses, Scrap of Assets etc.

- **Repairs and Maintenance (R&M) Expenses** for buildings, Plant & Machinery and Roads, Runways and culverts

- **Other Operating Expenses** such as Utilities, Consumables, Housekeeping, Insurance, Security, Landside expenses etc.

Step 2A: Trend analysis & reasonableness assessment (Internal 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 1st Control Period as well as the 2nd Control Period for the aeronautical portion of O&M expenses as per airport operator's submission.

The objective of the same is to understand the correlation between the year-on-year change in these expenses vis-à-vis the passenger traffic data. The study intends to analyse the reasons for variance in the growth of O&M expenses as per historical data and as submitted by the airport operator for the Second Control Period; and to understand whether the airport operator has been following the prudent approach in managing these expenses in line with the increase in passenger and ATM traffic.

The major expenses submitted by the airport operator were studied in detail to assess the reasonableness of the same.

Step 2B: Peer analysis and benchmarking (External benchmarking)

In this study, a peer analysis has also been done across the select airports. The airports for the peer analysis have been selected considering the parameters such as passenger traffic, terminal area, passenger mix, proximity to CIAL, ownership status etc.

The comparison matrices have been considered using an appropriate driver such as passenger traffic and terminal building area to compare per unit expenses across the select airports. The observations related to management of the O&M expenses of CIAL against those of selected peers have been presented in this study.

Step 3: Re-allocation and adjustments in proposed expenses

As the final step for establishment of the efficient O&M expenses for CIAL, the allocation of common expenses across Aeronautical and Non-Aeronautical by the airport operator has been analysed in detail. Subsequently, wherever necessary, an alternate allocation principle has been suggested. Under the principles discussed in this report, the allocation of common expenses has been considered as per the reasoning elaborated below:

- Common expenses have been segregated using an appropriate cost driver as described under the respective sections or as per actual expense incurrence.

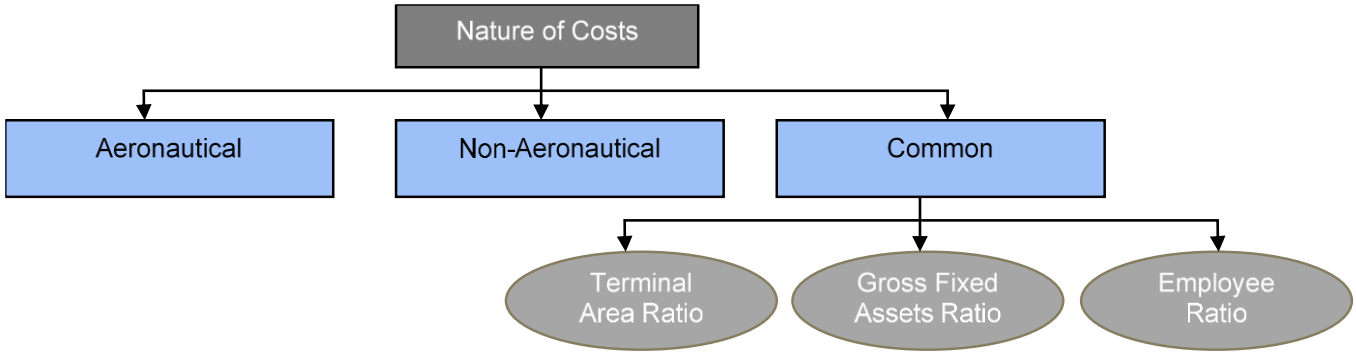
- In the absence of a more appropriate cost driver, common expenses related to Terminal Operations have been apportioned among Aeronautical and Non-aeronautical activities based on the terminal allocation ratio.

- Similarly, for common expenses related to Repair & Maintenance of assets, in the absence of a more appropriate cost driver, the same have been apportioned among Aeronautical and Non-aeronautical activities based on the adjusted Gross Fixed Assets (GFA) ratio.

- Common expenses related to employee related expenses have been apportioned among Aeronautical and Non-aeronautical activities based on the employee ratio.

The above have been discussed in detail in this report.

Figure 2: Allocation of O&M expenses



3. EXECUTIVE SUMMARY

The objective of the study is to understand and analyse the historical trends of change in the O&M expenses and how CIAL has been performing in comparison to select peers in the industry. The detailed analysis of O&M expenses is expected to help in understanding the reasons behind the existing expense levels being over/under the efficient expense levels. Based on which, it would help in assisting the Authority in determining the efficient operation and maintenance expenses for CIAL. Further, the study also aims to assess the allocation of various O&M related expenses among Aeronautical and Non-Aeronautical activities, as per the general principles followed by the Authority, so that the passengers / flyers are not over-burdened with resultant fees / charges.

3.1. Benchmarking of O&M Expenses

This section discusses the internal and external benchmarking of O&M expenses.

3.1.1. Internal benchmarking

3.1.1.1. For the purposes of Internal Benchmarking, an airport's operating metrics are evaluated over a time period. The Internal Benchmarking approach is relatively easier to analyse and comprehend compared to the external benchmarking because the variability in factors is limited for the same airport.

3.1.1.2. The growth in various components of O&M expenses for CIAL have been compared vis-à-vis the growth in passenger traffic and ATM growth for the 1st and the 2nd Control Periods. The key observations from the internal benchmarking are given below:

- In general, it has been observed that the various heads under O&M expenses have increased at a CAGR higher than that of PAX and ATM in both the 1st and 2nd Control Periods.

- For the following components of O&M expenses the CAGR are lower in 2nd Control Period when compared to the 1st Control Period:

    - Employee related expenses
    - Repair expenses
    - Consumables
    - Other OPEX
    - Housekeeping

- On the other hand, the CAGR growth rates of the following expense elements under O&M expenses are higher in 2nd Control Period vis-à-vis 1st Control Period:

    - Utility expenses
    - Safety and security related expenses
    - Vehicle Running and Maintenance
    - A&G expenses

- The expense heads mentioned above have increased at a higher CAGR primarily due to reasons like commissioning of the new International Terminal in the 2nd Control Period, conversion of T1 terminal into Domestic Terminal and expenses incurred towards flood mitigation.

3.1.1.3. At an aggregate level, the CAGR of O&M expenses during FY 2016-2020 has been observed to be lesser (~12%) compared to the CAGR during the period FY 2011-2016 (~18%).

3.1.1.4. O&M Expenses per PAX and per ATM

- The O&M expenses per passenger and per ATM are lower in both FY 17 and FY 18 vis-à-vis FY 16 i.e. end of the First Control Period.

- The O&M expenses per PAX and per ATM in FY 19 and FY 20 have increased vis-à-vis FY 16 due to increase in O&M expenses coupled with a decrease in traffic. The same shall be attributed to major events like pay revision, terminal expansion, disruptions caused due to floods and COVID-19 pandemic.

- The change in some of the key parameters in FY 20 (considered as the final year of 2nd Control Period for the sake of this study as FY 21 has been impacted significantly due to COVID-19) vis-à-vis FY 16 (final year of 1st Control Period) is summarised below:

Table 1: Comparison of parameters between FY 16 and FY 20

Parameter / Aspect	FY 16	FY 20	Increase
Traffic (MPPA)	7.77	9.70	24.8%
O&M expenses (INR Cr)	148.49	231.20	55.7%
O&M expenses per PAX (INR/PAX)	191	238	24.6%
ATM ('000)	57.77	67.73	17.2%
O&M expenses per ATM (INR/ATM)	25,705	34,136	32.8%

- From the above table, it has been observed that the O&M expenses had grown at a higher rate compared to traffic during the same period. The increase in O&M expenses in FY 2020 vis-à-vis FY 2016 shall be attributed to reasons like expenses towards the flood mitigation and increased expenses in light of employee pay revision and increased expenses due to terminal expansion. Traffic on the other hand had not grown so much due to reasons like COVID-19 pandemic, Middle East economic slowdown and closure of Jet Airways[1].

- Further, considering the impact of inflation into account, the inflation adjusted O&M expenses per PAX and per ATM in FY 2020 and FY 2016 (*i.e. final year of the First Control Period)* have also been compared. Inflation adjustment has been done by assuming an annual inflation of 5% and by considering FY 2016 as the base year. The inflation adjustment has been done by using the following ratio:

  Inflation adjustment ratio = (Price in FY 2015-16) / (Price in FY 2019-20) = (100.0 / 121.5) = 0.82

- Based on the above adjustment, the O&M expenses per PAX and per ATM for FY 16 and FY 20 are compared as shown in the table below:

Table 2: Expense comparison between FY 16 and FY 20

Parameter / Aspect	FY 16	FY 20 (inflation factor adjusted)
O&M expenses per PAX (INR/PAX)	191	196
O&M expenses per ATM (INR/ATM)	25,705	28,083

- From the above table, it can be seen that when adjusted for inflation, the O&M expenses per PAX is marginally higher, whereas, the O&M expenses per ATM have increased by about 9-10%.

- The projections for O&M expenses allowed by the Authority at the time of tariff determination for the Second Control Period and the actuals expenses claimed by CIAL for true-up are given in the table below. The expenses claimed by CIAL are lower than the expense approved by the Authority in the Tariff Order for the 2nd Control Period.

[1] Jet Airways had considerable operations at Cochin Airport. It accounted for more than ~10% of ATMs at CIAL during the initial years of the Second Control Period, as per the DGCA schedules

Table 3: O&M Expenses of CIAL - Projections vs. Actuals

Item	Projections for 2nd Control Period (As per Tariff Order of 2nd Control Period)	Actuals for 2nd control period (As per true-up submission for 2nd Control Period)
O&M expense considered Aeronautical (INR Cr)	1073.0	844.8

3.1.1.5. In order to examine the reasonableness of the O&M expenses submitted by the airport operator for true-up of the Second Control Period, the major expenses viz., employee expenses, R&M expenses, A&G expenses and utility expenses were assessed in detail. The following observations have been made from the assessment:

- Among the major expense items only A&G expenses were found to be higher than the expenses approved by the Authority in the previous order. However, this is due to the consideration of certain non-recurring and uncontrollable expenses namely, bad debt written off, flood related losses and flood mitigation expenses.
- The remaining expenses submitted by the airport operator were found to be within the figures approved by the Authority in the tariff order for the Second Control Period, except in the case of Vehicle Running & Maintenance, Safety & Security and CUTE expenses. However, the deviation is immaterial.
- Therefore, based on the assessment of the major expenses it can be concluded that the O&M expenses claimed by CIAL for true up seem to be reasonable.

3.1.1.6. Conclusion:

- It is observed that at an aggregate level the CAGR of O&M expenses during FY 2016-2020 was lesser (~12%) compared to the CAGR during the period FY 2011-2016 (~18%). However, few expenses like Admin and General, Safety and Security and Utilities had a higher CAGR during FY 16 to FY 20 vis-à-vis FY 11 to FY 16 and the same shall be attributed to terminal expansion and expenses incurred towards flood mitigation etc.
- O&M expenses per PAX in FY 19 and FY 20 has been observed to higher when compared to the same in FY 16. The reason for such an increase shall be attributed to increased expenses (due to employee pay revision and flood mitigation etc.) along with traffic disruptions due to COVID-19 pandemic. Keeping the impact due to such events aside, the O&M expenses per PAX in the Second Control Period is justifiable.
- It is to be noted that the inflation adjusted O&M expenses per PAX is only marginally higher than the same in FY 16.
- It is also observed that the O&M expenses claimed by CIAL for truing up in the 2nd Control Period are lower than the expenses which were allowed by the Authority in the last Tariff Order, i.e., for the 2nd Control Period. Also, based on the assessment of the major expenses, the expenses claimed by CIAL seem to be acceptable.
- Therefore, based on the internal benchmarking, the O&M expenses of CIAL seem to be reasonable.

3.1.2. External benchmarking

3.1.2.1. An external benchmarking exercise has also been carried out as part of this study between CIAL and select airports in India. The exercise covers eight airports including the ones in Cochin, Mumbai, Patna, Goa, Kolkata, Pune, Ahmedabad and Bhubaneswar.

3.1.2.2. The following observations have been made based on the external benchmarking exercise for CIAL:

- The comparable airports in terms of average PAX are Ahmedabad, Goa and Pune.

- It is observed that based on per pax basis benchmarking, CIAL seems to have higher operational expenses with respect to its select comparable peers. However, benchmarking solely based on passenger base may not be appropriate as several expenses such as utility expenses, admin & general expenses, among others are a function of the terminal area of an airport. Hence, when benchmarked on per terminal area basis, it's found that CIAL has lower O&M expenses in comparison to most of the airports. Therefore, it is observed that because CIAL is much larger in terms of terminal area compared to the other airports discussed above, the costs appear to be higher on per pax basis. The new international terminal at CIAL that was commissioned in 2017 was planned to handle the future growth in traffic and is designed to handle the projected traffic till 2028. Therefore, CIAL is yet to achieve significant economies of scale and optimum utilisation levels.

- When compared with the airports (which have the traffic in comparable range) – Ahmedabad, Goa and Pune on per sqm terminal area basis, it is observed that on an overall cost basis only Goa airport has expenses (on terminal area basis) lower than CIAL, whereas, CIAL is performing better than the other two Airports. When compared with all the remaining airports on per sqm terminal area basis, it is observed that CIAL seems to have the lowest expenses for all heads with respect to the expenses of remaining airports. Only Bhubaneswar airport has lower utilities expense per sqm, and Kolkata airport has lower A&G expenses per sqm when compared with Cochin airport. However, on an overall basis CIAL airport is seen to have lowest O&M expenses per sqm of terminal area when compared with remaining airports.

3.1.2.3. Benchmarking the expenses of CIAL with expenses of above airports suggests that the operational expenses for CIAL are reasonable, given the design capacity of the airport and the current utilisation levels. With growth in traffic, CIAL can be expected to further improve its cost efficiencies in future.

3.1.2.4. Herein, it is important to note that there is a huge variability in the expense numbers for each airport which signals that all these operational expenses at the airport are a function of various factors such as the size of the airport infrastructure, profile of passengers, existing capacity and traffic, weather conditions, age of the airport assets, etc. Hence, comparison of O&M expenses between distinct airports may not be suitable to regulate the expenses.

3.1.3. Summary of internal and external benchmarking

3.1.3.1. On considering the observations/ findings of internal and external benchmarking together, it has been observed that the O&M expenses of CIAL are reasonable. Further, CIAL's claim for O&M expenses in the 2nd Control Period is lower than the O&M expenses approved by the Authority in the Tariff Order for the Second Control Period.

3.1.3.2. Due to the variability in factors between different airports, regulation of expenses based on external benchmarking does not seem appropriate.

3.2. Allocation of O&M expenses

3.2.1. Principle for allocation of expenses

3.2.1.1. As part of this study, principles for segregation of various expenses have been reviewed and a basis has been developed for the segregation of expenses into aeronautical and non-aeronautical activities.

3.2.1.2. The expenses which are incurred for operation and maintenance of aeronautical assets have been categorised as aeronautical expenses.

3.2.1.3. While the expenses which are incurred for operation and maintenance of non-aeronautical assets have been categorized as non-aeronautical expenses.

3.2.1.4. Expenses for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical have been segregated as Common Expenses.

- Expenses primarily incurred for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are segregated as Common Expenses. Examples are expenses for Civil and Electrical Maintenance for Terminal Building.

- Expenses which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Expenses. Examples are Transit House and Corporate Headquarters.

- Common expenses have been apportioned to Aeronautical activity based on an appropriate ratio. This ratio has been determined to ensure that it is fair with respect to the actual nature of the services for which these expenses will be incurred. However, in the absence of any specific information regarding the purpose of incurring the expense, a reasonable ratio is determined based on discussions with management and our review of other records of the Airport

3.2.2. Allocation ratios for allocation of Common expenses

3.2.2.1. The airport operator had proposed 6.28% and 9.00% of terminal area for the provision of Non-Aeronautical services / activities in International and Domestic terminals respectively. However, based on the assessment of actual area allocated towards the Non-Aeronautical activities, as per the Study on Allocation of Assets Between Aeronautical and Non-Aeronautical for CIAL, it is found that with the re-classification of areas, especially the ones which are recognized as 'Common' by AERA and were considered as Aeronautical by the airport operator, the actual area allocation percentage has changed and lies in the optimum range recommended by IATA and IMG norms for airport terminals. Accordingly, the actual allocation of area (in %) towards Non-Aeronautical activities, viz. **8.47% and 9.88%** for the International and Domestic terminals respectively, has been proposed for the purposes of the tariff determination. This changes the percentage of area allocated for Non-Aeronautical activities to **8.94%** from 7.19% for the entire terminal area.

3.2.2.2. The following employee ratio was considered by the airport operator for the Second Control Period:

Table 4: Employee ratio considered by CIAL for the Second Control Period

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021
Employee Ratio	95.32%	95.36%	95.70%	96.01%	96.13%

3.2.2.3. The submission made by the airport operator has been analysed in detail covering the department-wise employee allocation and bifurcation to Aeronautical and Non-Aeronautical activities. CIAL has classified employees in to direct Aeronautical, direct Non-Aeronautical (Commercial and Golf Course) and Common. As per the stance taken by the Authority in the Tariff Order for the Second Control Period, CIAL has apportioned employees in Common departments like MD's Office, HR and Finance into Aeronautical

and Non-Aeronautical. It was observed that the employees of CIAL Duty Free were excluded from the calculation of employee ratio, CIAL has stated that the wages of these employees are paid by the subsidiary (CDRSL) that operates the Duty Free shop and that their wages are not part of the employee expense of CIAL. The basis for computing the employee ratio as considered by the airport operator was found to be appropriate and in line with the approach of the Authority. Accordingly, the same ratio has been considered for the allocation of certain Common O&M expenses between the Aeronautical and Non-Aeronautical.

3.2.2.4. Based on the outcome of the study on allocation of assets between aeronautical and non-aeronautical services, the ratio of average aeronautical assets to total assets was updated.

3.2.3. Summary of reallocation of Common expenses

3.2.3.1. Safety & Security Expenses

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio
- **Issue** - The security personnel are being deployed for the security of the whole terminal building and airport. Therefore, the logic for segregating the safety & security expenses on the basis of employee ratio may not be appropriate.
- Allocation proposed by the Authority - Weighted average terminal allocation ratio
- **Impact** – Reallocation of these expenses reduces the aeronautical portion of safety & security expenses by INR 1.64 crore for the 2nd Control Period.

3.2.3.2. Housekeeping Expenses

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio
- **Issue** - The housekeeping expenses are expensed majorly for the upkeep and cleanliness of the terminal building and areas surrounding the terminal building. Therefore, allocating these expenses considering the employee ratio may not be appropriate.
- Allocation proposed by the Authority - Weighted average terminal allocation ratio
- **Impact** – Reallocation of these expenses reduces the aeronautical portion of housekeeping expenses by INR 2.32 crore for the 2nd Control Period.

3.2.3.3. Consumables

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio
- **Issue** - The consumables are used across the terminal building and airport and allocating it on basis of employee expenses means they primarily pertains only to the office expenses. However, these consumables are used across the terminal building by the passengers as well. Therefore, it will not be appropriate to allocate the same on the basis of employee ratio.
- Allocation proposed by the Authority - Weighted average terminal allocation ratio

- **Impact** – Reallocation of these expenses reduces the aeronautical portion of consumables by INR 0.77 crore for the 2nd Control Period.

3.2.3.4. Other Operational Expenses

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio
- **Issue** - The nature of other operational expenses was not provided, however, allocating the other operational expenses based on employee expenses implies that these expenses only pertain to the employee. Therefore, it will not be appropriate to allocate the same in the proportion of the employee ratio.
- Allocation proposed by the Authority - Weighted average terminal allocation ratio
- **Impact** – Reallocation of these expenses reduces the aeronautical portion of other operational expenses by INR 1.77 crore for the 2nd Control Period.

3.2.3.5. Administrative & General Expenses (except Flood Mitigation expenses)

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio
- **Issue** – The administrative & general expenses suggests part of the expenses such as rent, rates & taxes, insurance costs, bank charges etc. pertain to the airport premises; some of these expenses such as consultancy fees, travelling & conveyance, communication expenses etc. relates to employees; and remaining part of these expenses pertaining to advertisements, general charges etc. relates to the airport terminal building, therefore, it will not be appropriate to allocate the entire administrative & general expenses in the proportion of the employee ratio. Further, corrections have been made in the numbers of Provision for Doubtful Debts/Advances (this line item is excluded from aeronautical expenses, however, the numbers excluded by the airport operator were for a different year), while computing the aeronautical component of Administrative & General expenses in any given year.
- Allocation proposed by the Authority - The components of the administrative & general expenses related to the terminal building is proposed to be allocated using the terminal allocation ratio; components related to employee is proposed to be allocated in the employee ratio and the remaining components are proposed to be allocated in the ratio of average aeronautical assets to the total assets.
- **Impact** – Reallocation of these expenses reduces the aeronautical portion of Administrative & General expenses by INR 7.77 crore (The total difference is INR 31.31 crore which when subtracted by INR 23.54 crore of flood mitigation expenses outside airport is INR 7.77 crore) for the 2nd Control Period.
- The flood mitigation expenses, which were found to be carried out outside the Airport premises have been excluded.

3.3. Assessment of O&M expenses projected by CIAL for FY 21

3.3.1. While the O&M expenses for FY 2017 to FY 2020 have been vetted with the audited financial statements of the airport operator, the O&M expenses for FY 2021 are based on the projections given by the airport operator.

3.3.2. In order to assess the reasonableness of the projections for FY 2021, actual O&M expenses data was obtained from the airport operator for the period from Apr 2020 to Jan 2021. The actual data has been analysed to understand the suitability of O&M expenses projections for FY 2021.

3.3.3. As per the assessment (Refer Section 9), it has been found that the actual expenses incurred by the airport operator till a particular month are in line with the projections pro-rated for the same period. Hence, it is believed that the projections still hold true vis-à-vis the manner in which the actual expenses have been incurred by the airport operator.

3.4. Summary

3.4.1. Based on the observations from the internal and external benchmarking exercises, it can be concluded that the O&M expenses for CIAL for the Second Control Period seem reasonable. Also, the expenses claimed by CIAL (refer section 4.2) for true-up of the Second Control Period are lower than the expenses approved by the Authority (refer section 4.1) in the Tariff Order for the Second Control Period.

3.4.2. Considering the revised basis for segregation of expenses, change in terminal allocation ratio and Gross Fixed Assets ratio, adjustments have been made to the allocation of Common expenses wherever applicable.

3.4.3. In view of the above adjustments and reclassification (including the impact of change in terminal allocation ratio, Gross Block, etc.), the study has proposed the revised O&M expenses considered as efficient for Second Control Period as can be seen in the table below:

Table 5: O&M expenses proposed by the Authority in the true-up of 2nd Control Period

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
Payment to employees	50.44	54.92	76.70	75.13	79.31	336.50
Admin Expenses	19.36	12.98	25.53	20.01	15.75	93.62
Repairs Costs	14.87	18.89	20.55	24.99	20.35	99.65
Safety & Security expenses	3.59	6.13	7.81	8.02	6.41	31.96
Power, water & fuel Charges	17.03	26.31	27.78	31.25	23.45	125.82
Vehicle Running & Maintenance expenses	0.85	0.87	1.38	0.94	0.57	4.61
House Keeping expenses	6.64	9.09	9.35	10.56	9.50	45.14
Consumables	1.87	3.01	3.03	3.46	3.46	14.83
Other operational expenses	6.58	7.57	6.73	6.92	6.92	34.72
CUTE operational expenditure	1.03	2.07	4.48	5.30	6.15	19.03
Total	**122.24**	**141.84**	**183.35**	**186.58**	**171.86**	**805.87**

3.4.4. Accordingly, the Aeronautical and Non-Aeronautical components of operational expenses for the 2nd Control Period are provided below:

Table 6: O&M expenses (Aero and Non-Aero) based on the study for the true-up of 2nd Control Period

Second Control Period (INR crore)	Aeronautical	Non-Aeronautical	Total	Aeronautical (%)
Payment to employees	336.49	14.91	351.40	95.8%
Admin Expenses	93.62	88.80*	182.42	51.3%
Repairs Costs	99.64	18.35	117.99	84.4%
Safety & Security expenses	31.96	3.13	35.09	91.1%
Power, water & fuel Charges	125.83	-	125.83**	100.0%
Vehicle Running & Maintenance expenses	4.61	0.21	4.82	95.6%
House Keeping expenses	45.13	4.43	49.56	91.1%
Consumables	14.83	1.46	16.29	91.0%
Other operational expenses	34.72	35.85***	70.57	49.2%
CUTE operational expenditure	19.03	-	19.03	100.0%
Total	**805.87**	**167.14**	**973.00**	82.8%

**includes flood mitigation expenses undertaken outside the airport premises*
*** net of revenues from utility service charges*
****includes CSR expenses and Duty-Free management fee and discounts*

3.4.5. The airport operator had proposed a total operational expenditure (aeronautical) of INR 844.76 Crore for the 2nd Control Period. Based on this study, the proposed operational expenditure is INR 805.87 for the 2nd Control Period, thus, resulting a reduction of **INR 38.9 Crore** for the 2nd Control Period.

3.4.6. When internal and external benchmarking are considered in tandem, it is observed that the O&M expenses of CIAL are reasonable. Further, CIAL's claim for O&M expenses in the 2nd Control Period is lower than the O&M expenses approved by the Authority in its earlier order.

4. OPERATION & MAINTENANCE EXPENSES PROPOSED BY CIAL FOR 2ND CONTROL PERIOD

4.1. O&M Expenses as per the tariff order of 2nd Control Period

4.1.1. Before beginning the assessment as explained in the previous section, it would be pertinent to take a look at the relevant submissions made by CIAL.

4.1.2. The Authority had approved the O&M expenses of INR 1073.04 crore for the 2nd Control Period based on its analysis of the submissions made by CIAL as shown in table below:

Table 7: O&M expenses proposed by CIAL for 2nd Control Period in the tariff order

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
Payment to employees	58.79	70.96	75.93	81.25	86.93	373.86
Admin Expenses	12.46	15.11	16.52	17.92	19.88	81.89
Repairs Costs	17.89	21.97	27.23	33.32	37.54	137.95
Safety & Security expenses	4.04	6.44	6.84	7.26	7.70	32.28
Power, water & fuel Charges	26.05	39.35	43.83	48.25	53.14	210.62
Vehicle Running & Maintenance expenses	0.71	0.81	0.81	0.82	0.82	3.97
House Keeping expenses	9.86	17.83	19.39	21.10	22.96	91.14
Consumables	2.71	5.22	5.47	5.73	6.00	25.13
Other operational expenses	12.06	16.17	19.22	22.85	27.16	97.46
CUTE operational expenditure	3.75	3.75	3.75	3.75	3.75	18.75
Total	**148.32**	**197.60**	**218.99**	**242.24**	**265.89**	**1073.04**

4.2. O&M Expenses as per the true up submission by CIAL for 2nd Control Period

4.2.1. In the true-up proposal, CIAL has proposed the following O&M expenses for the 2nd Control Period:

Table 8: O&M expenses proposed by CIAL for true-up for 2nd Control Period

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021*	Total
Number of Employees at the end of Financial Year	*477*	*482*	*494*	*482*	*496*	
Payment to employees	50.44	54.92	76.70	75.13	79.31	336.49
Admin Expenses	22.17	13.09	25.96	35.22	28.50	124.93
Repairs Costs	15.18	19.35	20.81	25.22	20.18	100.73
Safety & Security expenses	3.76	6.42	8.21	8.45	6.77	33.6
Power, water & fuel Charges	17.03	26.31	27.78	31.25	23.45	125.83
Vehicle Running & Maintenance expenses	0.85	0.87	1.38	0.94	0.57	4.61
House Keeping expenses	6.95	9.52	9.82	11.13	10.03	47.45
Consumables	1.95	3.16	3.19	3.65	3.65	15.60
Other operational expenses	6.88	7.93	7.07	7.30	7.31	36.49

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021*	Total
CUTE operational expenditure	1.03	2.07	4.48	5.30	6.15	19.03
Total	**126.24**	**143.63**	**185.41**	**203.58**	**185.91**	**844.76**

**Projected*

4.2.2. The Aeronautical and Non-Aeronautical split of operational expenses (based on the submission given by CIAL) for the 2nd Control Period is provided below:

Table 9: O&M expenses (Aero and Non-Aero) proposed by CIAL for the 2nd Control Period

Second Control Period (INR crore)	Aeronautical	Non-Aeronautical	Total	Aeronautical (%)
Payment to employees	336.49	14.91	351.40	95.8%
Admin Expenses	124.93	57.47	182.42*	68.5%
Repairs Costs	100.73	17.26	117.99	85.4%
Safety & Security expenses	33.60	1.49	35.09	95.8%
Power, water & fuel Charges	125.83	-	125.83**	100.0%
Vehicle Running & Maintenance expenses	4.61	0.21	4.82	95.6%
House Keeping expenses	47.45	2.11	49.56	95.7%
Consumables	15.60	0.69	16.29	95.8%
Other operational expenses	36.49	34.08***	70.57	51.7%
CUTE operational expenditure	19.03	-	19.03	100.0%
Total	**844.76**	**128.22**	**973.00**	**86.8%**

**includes flood mitigation expenses undertaken outside the airport premises*
*** net of revenues from utility service charges*
****includes CSR expenses and Duty-Free management fee and discounts*

4.3. Summary

4.3.1. It can be observed that the number of employees in the 2nd Control Period is projected to increase marginally i.e., from 477 employees in FY 2017 to 496 employees in FY 2021.

4.3.2. It can also be observed from the Table 7 and Table 8 that, in general, the O&M expenses proposed by CIAL for true-up are lower than those approved by the Authority in its previous order i.e., for the Second Control Period. Among the major expense heads under O&M expenditure, only the submissions for 'Admin related expenses' indicate an increase vis-à-vis those approved by the Authority in the previous order. This has been analysed in detail in the subsequent sections.

5. RECONCILIATION OF TOTAL O&M EXPENSES WITH AUDITED FINANCIALS

5.1. Assessment of total O&M expenses for CIAL

5.1.1. The table below provides a reconciliation of the expense items as per the MYTP submission of CIAL for the Third Control Period with the audited financial statements from FY 2017 to FY 2020.

Table 10: Reconciliation of MYTP and audited financial statements of CIAL

Particulars	FY 17	FY 18	FY 19	FY 20	Total
Operational Expenses as per Audited Financial Statements					
Employee Benefits (INR Lakhs)	5291.2	5758.5	8015.2	7825.3	26890.2
Other Expenses (INR Lakhs)	9150.6	10790.7	17155.4	15294.8	52391.4
Operational Expenses Considered (INR Cr)	**144.4**	**165.5**	**251.7**	**231.2**	**792.8**
Total Operational Expenses as per MYTP (INR Cr)	**144.4**	**165.5**	**251.7**	**231.2**	**792.8**
Difference	-	-	-	-	-

5.1.2. Depreciation and Amortization expenses were excluded from O&M expenses since depreciation is a separate building block.

5.1.3. Finance charges on long term borrowing were not considered as part of O&M expenses as the same would be factored in the computation of FRoR.

5.1.4. As can be seen above, the total O&M expenses submitted by the airport operator as part of the MYTP were verified against the audited financial statements of CIAL during the period from FY 2017 to FY 2020 and were found to be matching with the same. The audited figures for FY 2021 were not available at the time of conducting this study. However, AERA examined the projections submitted by the airport operator for FY 21 and the reasonableness of the projections vis-à-vis the actual expenses by CIAL from April 2020 to January 2021, given in section 9 of this study.

6. INTERNAL BENCHMARKING

6.1. Introduction

6.1.1. In order to understand the change in various O&M expense heads, the reasons for such change and the effectiveness of the airport operator in managing expenses and the trend of O&M expenses has been analysed over the first and Second Control Period against the change in traffic.

6.2. Trend analysis of O&M expenses

6.2.1. The following table elaborates the change in O&M expenses in the 1st and 2nd Control Periods vis-à-vis Traffic growth and ATM growth:

Table 11: O&M expenses growth vs Traffic and ATM growth

	1st Control Period							***2nd Control Period[2]***					
	FY11 *Actual*	**FY12** *Actual*	**FY13** *Actual*	**FY14** *Actual*	**FY15** *Actual*	**FY16** *Actual*	***CAGR** (5-year) **	**FY17** *Actual*	**FY18** *Actual*	**FY19** *Actual*	**FY20** *Actual*	***CAGR** (4-year) ***	**FY21** *Projected*
Traffic (MPPA)	4.3	4.7	4.9	5.4	6.4	7.8	*13%*	8.9	10.1	10.2	9.70	*6%*	1.9
ATM ('000)	41.1	41.1	41.5	47.2	52.8	57.8	*7%*	62.8	69.7	71.9	67.7	*4%*	22.3
	OPEX in INR crore												
Employee expenses	28.4	30.2	38.2	42.1	54.7	53.7	*14%*	52.9	57.6	80.2	78.3	*10%*	82.5
Repair expenses	6.0	9.3	9.1	14.3	11.4	19.9	*27%*	17.8	22.7	24.4	29.5	*10%*	23.6
Utility expenses	8.8	9.4	10.9	15.4	16.6	18.1	*16%*	21.8	32.4	33.7	37.8	*20%*	26.1
Safety & security	3.3	2.4	2.6	2.6	3.0	3.1	*<0%*	3.9	6.7	8.6	8.8	*30%*	7.0
Vehicle R&M	0.8	0.7	0.7	0.9	1.3	0.9	*1%*	0.9	0.9	1.4	1.0	*3%*	0.6
Housekeeping	2.6	3.0	3.9	4.1	5.2	6.7	*20%*	7.3	10.0	10.3	11.6	*15%*	10.4
Consumables	0.5	1.3	1.3	2.4	2.8	1.7	*28%*	2.0	3.3	3.3	3.8	*22%*	3.8
CUTE Charges								1.03	2.07	4.48	5.3	*73%*	6.1
Other Opex***	8.2	8.6	10.2	11.7	15.4	33.8	*33%*	13.5	14.2	17.4	13.0	*<0%*	12.5
Admin & General	7.5	8.2	9.1	13.0	8.2	10.6	*7%*	23.3	15.6	68.0	42.1	*41.2%*	33.4
Total	66.3	73.1	86.2	106.5	118.6	148.5	***18%***	144.4	165.5	251.7	231.2	***12%***	206.1

Note: The percentage numbers have been rounded off to the nearest integer percentage

** From FY11 to FY16*
*** From FY16 to FY20*
**** Includes Duty Free shop management fees, CSR expenses and Duty-Free discounts*

6.2.2. From the above table, the following observations can be made:

6.2.2.1. Period from FY 11 to FY 16

- In general, the actual operational expenses form FY 11[3] to FY 16, as submitted by the airport operator, have been observed to be growing at a higher rate compared to the growth in traffic and ATM.

[2] FY 2020-21 has not been considered for computing the CAGR on account of the same being a COVID-19 impacted year
[3] FY 2011 has been considered as the base year for computation of CAGR for the First Control Period

- Only the expense elements under 'safety & security expenses', 'vehicle running and maintenance' and 'admin and general expenses' have grown at a CAGR lesser than that of ATM and PAX in the First Control Period.

- The total operational expenses grew at a CAGR of about 17.5% from FY 11 to FY 16.

6.2.2.2. Second Control Period

- Some of the heads under O&M expenses have seen a higher growth in the Second Control Period when compared to the First Control Period; which can be attributed to the commissioning of the new International terminal building in the Second Control Period. It is to be noted that in the 2nd Control Period due to an investment in new international terminal T3, there is an increase in terminal size by 3 times for international terminal as well as in conversion of T1 to domestic terminal resulting in increase in domestic terminal size as well.

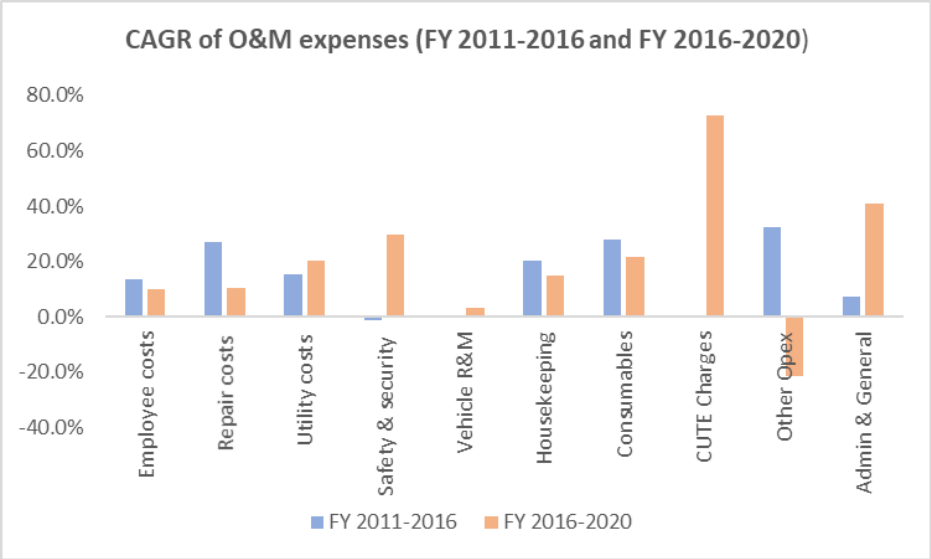
- In general, the actual operational expenses from FY 17 to FY 20 have been observed to be growing at a higher rate compared to the growth in traffic and ATM. As per CIAL, the above is partly attributable to the following reasons:

  - Pay revision in 2nd Control Period,
  - Commissioning of the new international terminal T3 due to which the size of the terminal increased by 3 times and
  - Increase in domestic terminal size due to conversion of T1 to domestic terminal
  - Flood related expenses

- However, it is to be noted that the total operational expenses during the period FY16[4] to FY 20 have grown at a lower CAGR (11.7%) as compared to that during the period FY 2011 to 2016 (17.5%)

- It is to be further noted that except for Utility Expenses, Safety and Security, Vehicle running and maintenance expense and Admin and General expenses, all other expenses have grown at a lower rate during FY 2016-2020 vis-à-vis the FY 2011-2016. The following graph illustrates the difference between the CAGR during both these periods across various expense heads;

Figure 3: CAGR of O&M expenses during FY 2011-2016 and FY 2016-2020



- The new International Terminal at Cochin International Airport was commissioned in March 2017 while the old International Terminal was dedicated for Domestic Operations. Due to which, there has

[4] CAGR for the Second Control Period is computed with FY 16 as the base year

been a significant increase in the terminal area. Some of the expense items such as 'safety and security expenses', and 'utility expenses' are a function of the total area of the terminal. Hence, a higher CAGR for these expense items could be attributed to the commissioning of the new international terminal T3 and conversion of T1 to domestic terminal.

- The Admin and General expenses during the period FY 2011-2016 had a CAGR of 7.2% while that during the period FY 2016-2020 was 41.2%. A closer look at the Admin and General expenses during the period FY 2017-2020 presents the following;
  - CIAL had incurred flood related expenses including flood related loss during FY 2019 at the time of severe monsoon induced flood. In addition to such expenses, CIAL also incurred flood mitigation expenses in FY 2020.
  - The total flood related expenses during the period FY 2016-2020 was INR 61.61 crores.
  - Some of the other expenses like telephone, postage and communication, repairs to office equipment and rates and taxes etc. that were categorized under Admin and General expenses have also increased significantly in FY 2018 and continued at almost similar levels in FY 19 and FY 20. This can be attributed to terminal expansion.
  - The remaining expenses under the A&G expenses have grown at a rate similar to the CAGR during the period FY 2016-2020.

6.2.3. Further, in order to understand whether CIAL has been able to achieve efficiency in the O&M expenses over the First and the Second Control Periods, the O&M expenses per passenger and per ATM have been analysed for the respective Control Periods. The graphs below depict the trend of O&M expenses per passenger and per ATM:

Figure 4: Trend of O&M Expenses per PAX

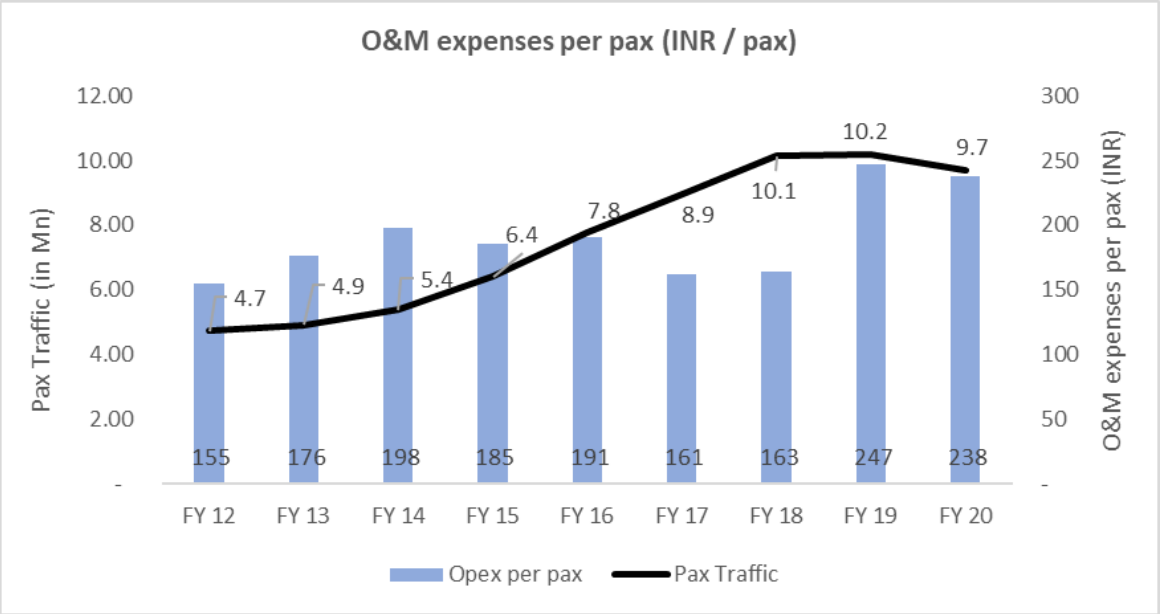
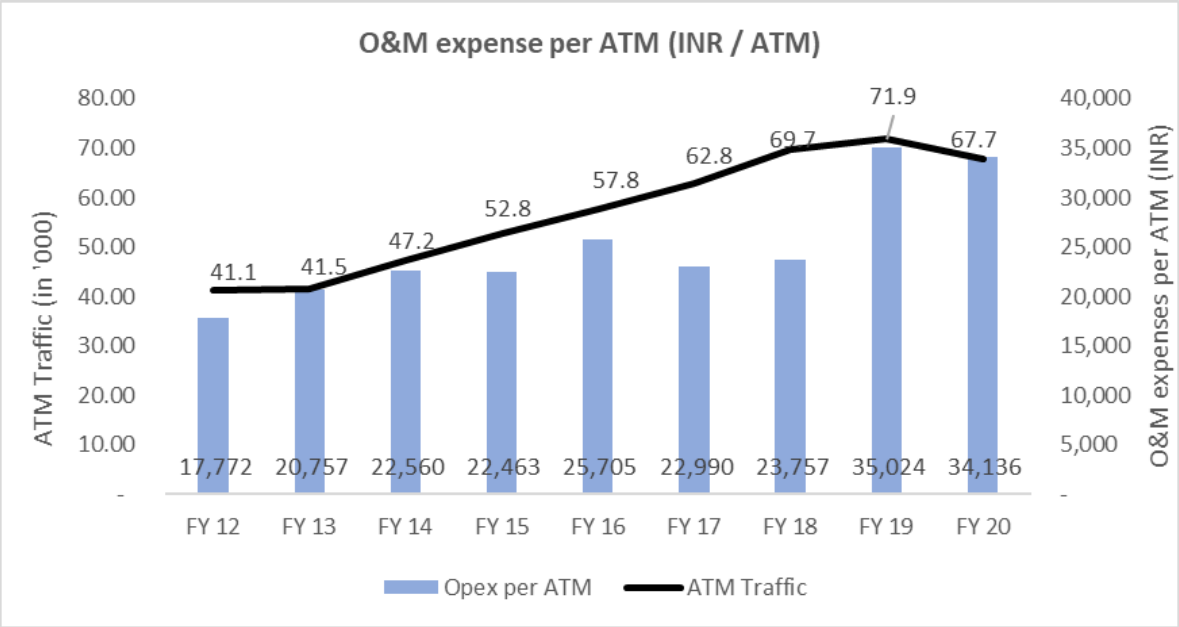


Figure 5: Trend of O&M Expenses per ATM



6.2.4. From the above graphs, the following can be observed:

6.2.4.1. The O&M expenses per passenger and per ATM are lower in the Second Control Period till FY 18 vis-à-vis FY 16 i.e. end of the First Control Period.

6.2.4.2. In FY 19 and FY 20, the O&M expenses per PAX and per ATM were higher than that of FY 16 (i.e. final year of the First Control Period).

6.2.4.3. The O&M expenses per PAX and ATM in FY 2019 vis-à-vis FY 2018 had shown significant growth. The following observations have been made with regards to O&M expenses per PAX in FY 2019;

- O&M expense per PAX in FY 2019 was INR 247 while that in FY 2018 was INR 163 (difference of ~ INR 83).
- Employee expenses per PAX in FY 2019 have increased by ~ INR 22 vis-à-vis FY 2018 due to pay revision.
- Similarly, admin and general expenses in FY 2019 have increased by ~ INR 51 vis-à-vis FY 2018 and the same is due to flood related expenses and loss on assets due to flood.
- So, about 90% of the increase in the O&M expense per PAX is attributed to increase in employee expense and A&G expenses. Such an increase in employee expense and A&G expenses is a not recurring event, and hence the increase in O&M expense per PAX in FY19 and FY 20 can be considered justifiable.

6.2.4.4. The change in some of the key parameters in FY 20 (considered for comparison as FY 21 has been impacted due to COVID-19 induced lockdowns and general slowdown) vis-à-vis FY 16 (final year of 1st Control Period) is summarised below:

Table 12: Comparison of O&M expenses per PAX and per ATM between FY 16 and FY 20

Parameter / Aspect	FY 16	FY 20	Increase
Traffic (MPPA)	7.77	9.70	24.8%
O&M expenses (INR Cr)	148.49	231.20	55.7%
O&M expenses per PAX (INR/PAX)	191	238	24.6%
ATM ('000)	57.77	67.73	17.2%
O&M expenses per ATM (INR/ATM)	25,705	34,136	32.8%

6.2.5. From the above table, It has been observed that the O&M expenses had grown at a higher rate compared to traffic during the same period. The increase in O&M expenses in FY 2020 vis-à-vis FY 2016 shall be

attributed to reasons like expenses towards the flood mitigation and increased expenses in light of employee pay revision and increased expenses due to terminal expansion. Traffic on the other hand had not grown so much due to reasons like COVID-19 pandemic, Middle East economic crisis and closure of Jet Airways.

6.2.5.1. Further, considering the impact of inflation into account, the inflation adjusted O&M expenses per PAX and per ATM in FY 2020 and FY 16 have also been compared. Inflation adjustment has been done by assuming an annual inflation of 5% and by considering FY 2016 as the base year. The inflation adjustment has been done by using the following ratio:

Inflation adjustment ratio = (Price in FY 2015-16) / (Price in FY 2019-20) = (100.0 / 121.5) = 0.82

6.2.5.2. Based on the above adjustment, the O&M expenses per PAX and per ATM for FY 16 and FY 20 are compared as shown in the table below:

Table 13: Comparison of inflation adjusted expenses between FY 16 and FY 20

Parameter / Aspect	FY 16	FY 20 (inflation factor adjusted)
O&M expenses per PAX (INR/PAX)	191	196
O&M expenses per ATM (INR/ATM)	25,705	28,083

6.2.5.3. From the above table, it can be seen that, when adjusted for inflation, the O&M expenses per PAX is marginally higher, whereas, the O&M expenses per ATM have increased by about 9-10%.

6.2.5.4. The projections for O&M expenses allowed by the Authority at the time of tariff determination for the Second Control Period and the actuals expenses claimed by CIAL for true-up are given in the table below. The expenses claimed by CIAL are lower than the expense approved by the Authority in the Tariff Order for the 2nd Control Period.

Table 14: O&M expenses of CIAL for the 2nd Control Period - Projections vs. Actuals

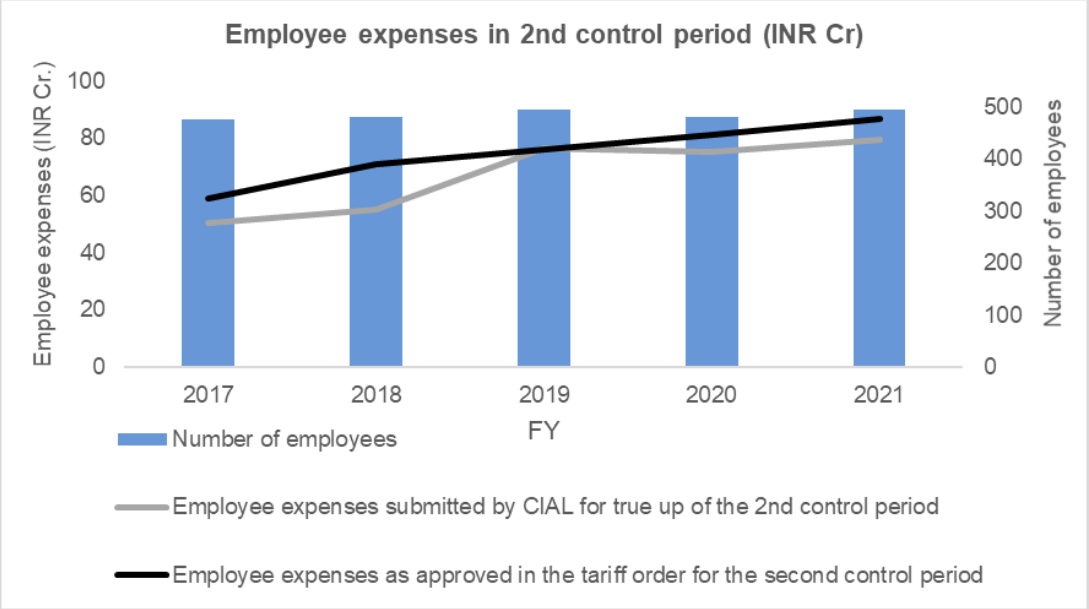
Item	Projections (As per Tariff Order for 2nd Control Period)	Actuals (As per true-up submission for the 2nd Control Period)
O&M expense considered Aeronautical (INR Cr) for the 2nd Control Period	1073.0	844.8

6.3. Assessment of reasonableness of major O&M expenses

Employee expenses

6.3.1. CIAL has submitted that the employees of CIAL Duty-Free are seconded to the subsidiary (CDRSL) that manages the Duty-Free shop at Cochin airport and that their wages are directly paid by CDRSL, therefore these wages are not a part of the employee expenses of CIAL.

Figure 6: Analysis of employee expenses



6.3.2. From the graph above, it can be seen that the employee expenses have grown with the gradual increase in number of employees. CIAL has stated that the reason for high growth in FY 19 is due to pay revision implemented as per the 5 year pay increase policy of CIAL. Further, the expenses claimed by CIAL for true up are lower than the figures approved by the Authority in the tariff order for the Second Control Period, except in FY 19 when the pay revision happened but the difference is not significant.

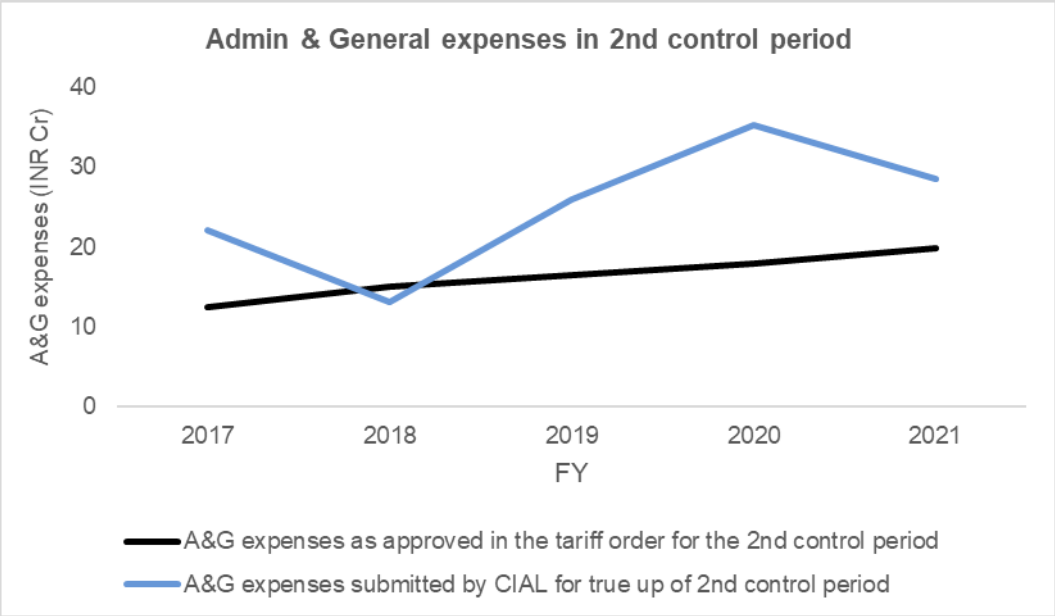
6.3.3. It was observed that the number of employees in FY 21 has increased to 496 from 482 in FY 20 leading to an increase in employee cost in FY 21. CIAL has clarified that the requirement of additional employees was determined before the spread of COVID-19 and that the recruitment process had commenced prior to the start of the crisis. CIAL has added that it hasn't retrenched any workers after the crisis hit.

6.3.4. Given the above, the employee costs submitted by CIAL appear to be reasonable.

Admin and General Expenses

6.3.5. Admin and General expenses include various miscellaneous expenses incurred including flood mitigation expenses. CIAL has considered flood related losses and flood related expenses as net of insurance claim recovery. The airport operator has also excluded the provision for doubtful debt from the Admin and General expenses submitted for true up.

Figure 7: Analysis of A&G expenses



6.3.6. The A&G expenses submitted by CIAL for true up are higher than the figures approved by the Authority in the tariff order for the Second Control Period except in FY 18. The components of A&G expenses were studied to understand the reason for the increase in expenses.

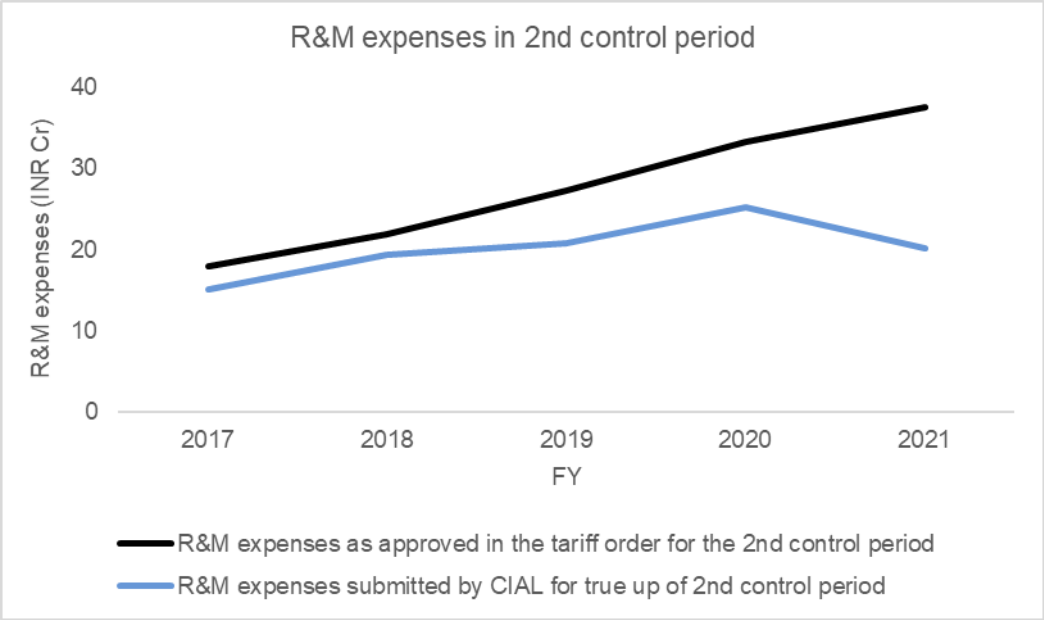
6.3.7. It was observed that in FY 17 bad debts written off worth 10.1 Cr were included in the submission of A&G expenses. During FY 19 to FY 21, flood related losses & flood mitigation expenses worth ~INR 29 Cr (after netting of insurance claim recovery) were included in the A&G expense submitted by CIAL. Therefore, the deviation in A&G expenses from figures projected by the Authority in the previous order were primarily because of these two factors, which are uncontrollable costs for an airport operator.

6.3.8. Hence, the A&G expenses submitted by CIAL appear to be reasonable, however, the allocation of various expenses included under Admin and General expenses needs to be examined, which is covered in Section 8 of this study.

Repair costs

6.3.9. The R&M expenses for FY 17 to FY 20 are based on actuals. For the projected repair costs of FY 21, CIAL has considered a COVID-19 reduction factor of 20%. As per the airport operator, this factor was calculated based on the expenses incurred during April to September 2020.

Figure 8: Analysis of Repairs and Maintenance expenses



6.3.10. From the above graph, it can be seen that the R&M expenses claimed by CIAL for true up are lower than the expenses approved by the authority in the tariff order for the Second Control Period. Also, as discussed in the previous section, the R&M expenses have grown at a lower rate in the Second Control Period compared to the period from FY 11 to FY 16. Hence, the R&M expenses submitted by the airport operator seem to be reasonable.

6.3.11. CIAL has claimed that these expenses have been allocated as per the proposal of the Authority in the tariff order for the Second Control Period. The allocation will be examined in a later section of this study.

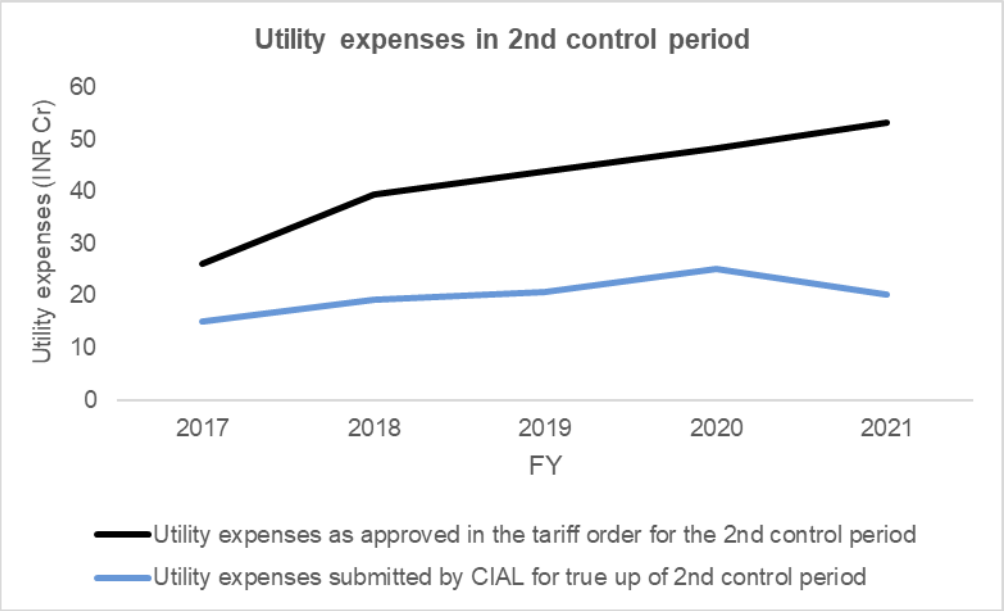
Utility expenses

6.3.12. The unit power charges considered by CIAL were found to be matching with the rates agreed in the Power Purchase Agreement with CIAL Infra. For FY 21, CIAL has estimated utility costs by considering the passenger traffic growth rates.

6.3.13. As per the direction of the Authority in the previous tariff order, CIAL has considered the Power, Water and Fuel charges after netting off utility service charges levied from the concessionaires. Accordingly, after setting off the recoveries, the net costs have been considered 100% Aeronautical.

6.3.14. The utility service charges for FY 21 have been projected to be 10% of utility costs for the same period, this was found to be lower than the average (19%) during FY 17 to FY 20. CIAL has clarified that the ratio was reduced to account for the closing of businesses by concessionaires due to the impact of COVID-19 and that the actual charges during April-September 2020 was only 7.4% of utility costs during the same period, which is lower than the assumption of 10%.

Figure 9: Analysis of Utility expenses



6.3.15. As discussed in the previous section, the Utility expenses have grown at a higher rate in the Second Control Period compared to FY 11 to FY 16, however, this can be attributed to the increase in terminal area with the commissioning of the new international terminal. Also, from the above graph it can be see that the total Power, Water and Fuel charges claimed by CIAL for true up are much lower than the expenses approved by the Authority in the tariff order for the Second Control Period. Hence the Power, Water and Fuel charges submitted by the airport operator seem reasonable.

Conclusion:

6.3.16. The expenses discussed above together account for more than 80% of the expenses submitted by the airport operator. The remaining expense items submitted by the airport operator are within the figures approved by the authority in the tariff order for the Second Control Period, except in the case of Vehicle Running and Maintenance, Safety & Security and CUTE expenses. However, the deviation is immaterial. These expenses have been further analysed in the later sections. Based on the assessment of the major expense items it can be concluded that the O&M expenses claimed by CIAL for true up seem to be reasonable. However, the allocation of O&M expenses needs to be examined, which is covered in Section 8 of this study.

6.4. Summary of internal benchmarking

6.4.1. .Total operational expenses during the period FY 16 to FY 20 have grown at a lower CAGR (~12%) as compared to that during the period FY 11 to FY 16 (~18%). Expenses under few heads like Safety and Security, Utilities and Administrative and General had grown at a higher CAGR during FY 16 to FY 20 vis-à-vis FY 11 to FY 16 and the same can be attributed to expenses incurred for flood mitigation and increased terminal area due to the commissioning of new International Terminal.

6.4.2. The O&M expenses per PAX and per ATM in FY 20 have increased vis-à-vis FY 16. Such an increase in O&M expenses per PAX and ATM are due to increase in O&M expenses (due to employee pay revision, terminal expansion and flood mitigation) coupled with decrease in traffic (due to COVID-19 Pandemic). On adjusting the impact of these events, the growth in O&M expenses has been found to be justifiable.

6.4.3. It is observed that the inflation adjusted O&M expenses per PAX in FY 2020 is only marginally higher than the same in FY 16.

6.4.4. The O&M expenses claimed by CIAL for true-up of the Second Control Period are lower than the figures approved by the Authority in the Tariff Order for the Second Control Period. Among the major expense items only the Admin and General expenses were found to be higher than the expenses approved by the

Authority in the previous order. However, this is due to the consideration of certain non-recurring expenses viz., bad debt written off, flood related losses and flood mitigation expenses under this item. Based on the assessment of the major expenses, the O&M expenses claimed by CIAL for true up seem reasonable.

6.4.5. Hence, as per the internal benchmarking analysis, the O&M expenses of CIAL for the Second Control Period are found to be reasonable.

6.5. Conclusion

6.5.1. Based on the observations from Internal Benchmarking, it can be concluded that the operations and maintenance expenses for Second Control Period at Cochin International Airport are reasonable.

7. EXTERNAL BENCHMARKING

7.1. Background

7.1.1. In this section, the benchmarking of O&M expenses across airports has been done to ascertain the reasonableness of the O&M expenses being incurred by CIAL. However, it must be noted that, in general, benchmarking is a complex exercise on account of the following factors:

- Passenger traffic
- Passenger mix (i.e. Domestic vs International Passenger)
- Level and extent of automation varies across airports
- Privatized airports vs those operated by Airports Authority of India (AAI)
- Extent of outsourcing of various activities
- Local labor conditions (e.g. Minimum wages)
- Age of the airport
- Physical size of the airport infrastructure
- Type of existing services at airports (e.g. Availability of aerobridges)
- Weather conditions that can impact facilities such as extent of air-conditioning/heating
- Sharing with other entities (e.g. Indian Army / Navy)

7.1.2. Nevertheless, and notwithstanding the challenges, a benchmarking exercise has been carried out in this report among select airports in India including CIAL. The exercise has been carried out across eight airports in Cochin, Mumbai, Patna, Goa, Kolkata, Pune, Ahmedabad and Bhubaneswar.

7.1.3. The following assumptions/considerations have been considered while carrying out the benchmarking exercise:

- All the figures considered are annual average numbers during FY 2017-20.
- For few airports like MIAL, values during FY 2017-19 are only available. Annual average during these three years have been considered.
- For those airports for which consultation papers are out for the next control period, actual values during the period FY 2017-20 in the paper are considered.
- For those airports for which Tariff Orders for the control period that includes FY 2017-20 are released, the figures from the order have been taken.
- Total Admin/general and other operating expenditures have been obtained by reducing Employee expenses, Repairs and Maintenance expense and Utilities expense from the Total Opex.
- All expenses are related to aeronautical activities.

7.1.4. Also, it would be pertinent to highlight here that the benchmarking has been carried out across two parameters i.e. PAX and ATM.

7.2. Analysis

7.2.1. The following table summarizes the average traffic (in million) from FY 17 to FY 20 across select airports considered in this study:

Table 15: Average traffic across select domestic airports

Airport location	Traffic (million) (Average from FY 17 to FY 20)
Cochin	9.75
Mumbai	47.49
Patna	3.62
Goa	8.32
Kolkata	18.53
Pune	8.10
Ahmedabad	9.63
Bhubaneswar	3.69

7.2.2. The various aspects related to O&M expenses based on passenger traffic compared across the select airports considered above are summarized in the table below:

Table 16: O&M expense comparison (passenger traffic wise) across select domestic airports

Airport location	Employee expense (INR) per PAX	R&M expense (INR) per PAX	Utilities expense (INR) per PAX	A&G expense (INR) per PAX	Total O&M expense (INR) per PAX
Cochin	66	21	26	56	169
Mumbai	37	23	22	77	158
Patna	49	15	5	63	132
Goa	19	7	9	11	46
Kolkata	95	33	36	17	180
Pune	51	10	9	8	78
Ahmedabad	40	26	24	24	114
Bhubaneswar	51	23	9	86	170

7.2.3. From the above table following observations may be gathered:

- The comparable airports in terms of average PAX are Ahmedabad, Goa and Pune
- Among the above three airports and CIAL, the employee expense per PAX of CIAL is the highest and nearly 3.5x than that of the airport in Goa;
- R&M expense is also the 2nd highest and nearly 3x than that of Goa
- Utilities expense is also the highest for CIAL when compared to airports of Ahmedabad, Goa and Pune.
- Further, A&G expense is coming to be the highest and nearly 7x more than that of the airport in Pune.
- Compared to a larger international airport i.e. MIAL, the total O&M expense per PAX of CIAL is moderately higher despite having lower PAX.
- CIAL seems to be performing better than Kolkata in all aspects expect for A&G per PAX.

- Considering the above, it is observed that based on per PAX basis benchmarking, CIAL seems to have higher operational expenses with respect to its select comparable peers.
- However, it would be pertinent to note that when compared to the airports with similar traffic, Cochin airport is much larger in terms of terminal area. The new international terminal commissioned in 2017 was planned to equip the airport for future growth and designed to handle the projected traffic till 2028. Therefore, CIAL is yet to achieve significant economies of scale and optimum utilisation levels.
- Also, the assessment from only one perspective (i.e., per PAX basis) may not provide a true picture. Hence, CIAL's expenses have also been assessed on per sqm (of terminal area) basis.

7.2.4. The following table summarizes the average terminal building area (aeronautical portion) from FY 17 to FY 20 across select airports in India:

Table 17: Average terminal building area (aeronautical portion) across select domestic airports

Airport location	Terminal Area (lakh sqm) (Average from FY 17 to FY 20)
Cochin	2.05
Mumbai	4.77
Patna	0.07
Goa	0.60
Kolkata	2.07
Pune	0.20
Ahmedabad	0.65
Bhubaneswar	0.30

7.2.5. The various aspects related to O&M expenses compared across the select airports considered in this study and based on terminal area are summarized in the table below:

Table 18: O&M expense comparison (terminal area wise) across select domestic airports

Airport location	Employee expense (INR) per sqm	R&M expense (INR) per sqm	Utilities expense (INR) per sqm	A&G expense (INR) per sqm	Total O&M expense (INR) per sqm
Cochin	3140	985	1250	2670	8045
Mumbai	3660	2285	2145	7620	15715
Patna	24240	7330	2450	30755	64775
Goa	2605	930	1300	1490	6325
Kolkata	8475	2910	3180	1550	16120
Pune	20295	3900	3605	3360	31165
Ahmedabad	5840	3915	3560	3490	16810
Bhubaneswar	6320	2855	1170	10675	21020

Note: The numbers in the above table have been approximated to nearest multiple of 5

7.2.6. From the above tables, following observations may be gathered:

7.2.6.1. When compared with the airports (which have the traffic in comparable range) – Ahmedabad, Goa and Pune, it is observed that:

- The employee expense per sqm of terminal area is higher for CIAL only when compared with Goa airport. When compared with the other airports considered here, CIAL seems to have a better Employee expense to Terminal Area ratio
- Only Goa airport has lower R&M expense vis-à-vis Cochin airport on per sqm of terminal area basis.
- For utilities, CIAL has the lowest expense with respect to these airports
- For A&G expenses per sqm, only Goa airport seems to be performing better than CIAL

- At an overall basis, only Goa airport has expenses (on terminal area basis) lower than CIAL, whereas, CIAL is performing better than other airports.

7.2.6.2. When compared with all the remaining airports, it is observed that:

- CIAL seems to have the lowest expenses for all heads with respect to the expenses of remaining airports on terminal area basis. Only Bhubaneswar airport has lower utilities expense per sqm and Kolkata airport has lower A&G expenses per sqm when compared with Cochin airport.

- On overall basis, CIAL airport is seen to have lowest O&M expenses per sqm of terminal area when compared with remaining airports.

7.2.6.3. Hence, benchmarking the expenses of CIAL with expenses of above airports suggests that the operational expenses for CIAL are reasonable.

7.2.6.4. Herein, it is important to note that there is a huge variability in the expense numbers for each airport which signals that all these operational expenses at the airport are a function of various factors such as the size of the airport infrastructure, profile of passengers, existing capacity and traffic, weather conditions, age of the airport assets, etc. Hence, comparison of O&M expenses between distinct airports may not be suitable to regulate the expenses.

7.3. Summary of External Benchmarking

7.3.1. It is observed that based on per pax basis benchmarking, CIAL seems to have higher operational expenses with respect to its select comparable peers. However, on a per terminal area basis CIAL is found to have lower O&M expenses in comparison to most of the other Airports.

7.3.2. Comparison with the airports (which have the traffic in comparable range) – Ahmedabad, Goa and Pune, it is observed that at an overall basis only Goa airport has expenses (on terminal area basis) lower than CIAL, whereas, CIAL is performing better than the other two Airports.

7.3.3. Further, on comparison with all the remaining airports, it is observed that CIAL seems to have the lowest expenses for all heads with respect to the expenses of remaining airports on terminal area basis.(except for Bhubaneswar airport in case of utilities expense per sqm, and Kolkata airport in case of A&G expenses per sqm). However, on an overall basis CIAL airport is seen to have lowest O&M expenses per sqm of terminal area when compared with remaining airports.

7.3.4. Hence, benchmarking the expenses of CIAL with expenses of above airports suggests that the operational expenses for CIAL are reasonable.

7.4. Conclusion

7.4.1. Based on the observations from external benchmarking, it can be concluded that the operations and maintenance expenses at Cochin International Airport are reasonable.

7.4.2. However, due to the variability in factors between different airports, regulation of expenses based on external benchmarking does not seem appropriate.

8. ALLOCATION OF EXPENSES ACROSS AERONAUTICAL AND NON-AERONAUTICAL ACTIVITIES

8.1. Introduction to segregation of expenses

8.1.1. As part of this study, principles for allocation of various expenses have been reviewed and a basis has been developed for the allocation of expenses into aeronautical and non-aeronautical activities. The appropriate proportion of common expenses that may be included under Aeronautical expenses has also been determined. The following principles for allocation of the various O&M expense elements have been adopted:

8.1.1.1. Expenses which are incurred for operation and maintenance of Aeronautical assets to be categorized as aeronautical expenses.

8.1.1.2. Expenses which are incurred for operation and maintenance of Non-Aeronautical assets to be categorized as non-aeronautical expenses.

8.1.1.3. Expenses for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical to be segregated as Common Expenses.

8.1.1.4. Expenses primarily incurred for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are segregated as Common Expenses. Examples are expenses for Civil and Electrical Maintenance for Terminal Building.

8.1.1.5. Expenses which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Expenses. Examples are Transit House and Corporate Headquarters.

8.1.1.6. Common expenses are apportioned to Aeronautical activity based on an appropriate ratio. This ratio has been determined such that it is fair with respect to the actual nature of the services for which these expenses will be incurred. However, in the absence of any specific information regarding the purpose of incurring the expense, a reasonable ratio is determined based on review of other records of the Airport.

8.1.2. The classification followed by the airport operator with respect to expenses 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 19: General Principles for Expense Classification

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	

Expense Category	Expense Sub-Category / Description	Expense Classification*
	Consumables	
	Other operational expenses	
	Power Charges (Net of concessionaires)	Aeronautical
	Water Charges (Net of concessionaires)	
	Fuel Generator Sets (Net of concessionaires)	
CUTE operational expenditure		Aeronautical

** as per the classification provided by the airport operator*

8.1.3. CIAL has proposed to bifurcate the expenses among the aeronautical, non-aeronautical and common expense as per the allocation basis elaborated in the table below.

Table 20: Allocation basis considered by the Airport Operator

Expense Category	Expense Sub-Category / Description	Expense Classification	Allocation Basis
Manpower expenses	Salary, wages & bonus; Contribution to provident fund; Staff welfare expenses; New employee expenses	Common	Number of Employees
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	Number of Employees
	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	Gross Block
Other Expenses	Safety & Security expenses	Common	Number of Employees
	Vehicle Running & Maintenance expenses		
	House Keeping expenses		
	Consumables		
	Other operational expenses		
	Power Charges (Net of concessionaires)	Aeronautical	
	Water Charges (Net of concessionaires)		
	Fuel Generator Sets (Net of concessionaires)		
CUTE operational expenditure		Aeronautical	

8.2. Assessment of allocation ratios for common expenses

8.2.1. Terminal Allocation Ratio

8.2.1.1. The airport operator had proposed 6.28% and 9.00% of terminal area for the provision of Non-Aeronautical services / activities in International and Domestic terminals respectively.

8.2.1.2. However, based on the assessment of actual area allocated towards the Non-Aeronautical activities, as per the Study on Allocation of Assets Between Aeronautical and Non-Aeronautical Assets for CIAL, it is found that with the re-classification of areas, especially the ones which are recognized as 'Common' by AERA and were considered as Aeronautical by the airport operator, the actual area allocation percentage

has changed and lies in the optimum range studied based on the benchmarking exercise. Accordingly, the actual allocation of area (in %) towards Non-Aeronautical activities, viz. 8.47% and 9.88% for the International and Domestic terminals respectively, has been proposed for the purposes of the tariff determination. This changes the percentage of area allocated for Non-Aeronautical activities to 8.94% from 7.19% for the entire terminal area. The details of the revised allocation are given in the table below.

Table 21: Revised terminal area allocation as per Study on Allocation of Assets of CIAL

International Passenger Terminal		
Total Terminal Area	146528	sqm
Excluded Area	1910	sqm
Total Non-Aero Area	12247	sqm
Total Aero Area	132371	sqm
Non-Aero % in International Passenger Terminal	8.47	%
Domestic Passenger Terminal		
Total Terminal Area	74123	sqm
Total Non-Aero Area	7325	sqm
Total Aero Area	66798	sqm
Non-Aero % in Domestic Passenger Terminal	9.88	%
Combined Passenger Terminal Area of Domestic & International	220651	sqm
Excluded Area	1910	sqm
Combined Non-Aero Area	19572	sqm
Combined Aero Area	199169	sqm
Combined Non-Aero % of Terminals in CIAL	8.94	%

8.2.2. Gross Block Ratio

8.2.2.1. Further, based on the outcome of the independent study on allocation of assets between aeronautical and non-aeronautical services, the ratio of average aeronautical assets to total assets have been considered.

Table 22: Allocation of Gross Block

% Aero Gross Block	FY 17 *as on 31 Mar 2017*	FY 18 *as on 31 Mar 2018*	FY 19 *as on 31 Mar 2019*	FY 20 *as on 31 Mar 2020*	FY 21* *as on 31 Mar 2021*
Revised Aeronautical Ratio	83.6%	83.3%	84.3%	84.6%	86.1%

**Aeronautical Gross Block for FY 21 includes Financing Allowance*

8.2.3. Employee Ratio

8.2.3.1. The table below provides the employee breakup across the Second Control Period along with the basis of computing the employee ratio:

Table 23: Department-wise employee strength and employee ratio of CIAL

FY ending March 31	2017	2018	2019	2020	2021
PERSONNEL ALLOCATION					
Managing Director and Executive directors	3	4	4	4	4
MD's office - Admin	4	4	4	4	4

FY ending March 31	2017	2018	2019	2020	2021
MD's office - Strategy and projects	2	2	3	5	5
Airport Operations/Elec/IT	0	0	0	0	0
Operations	34	33	35	34	34
IT & Communication	14	14	15	16	16
Electrical Engineering	70	69	76	71	68
Cargo Employees	104	103	104	103	103
Security	80	87	91	89	96
ARFF	88	92	93	87	98
CSO/ARFF	1	0	0	0	0
Secretarial	5	3	2	2	2
Human Resource	6	6	6	6	6
Finance	13	13	12	12	12
Public relations & Corp Communication	1	1	1	1	1
Duty Free (seconded to CDRSL from 2017)	63	63	66	66	65
Civil Eng.	2	3	3	1	1
Kochi international Airport Security	2	2	2	2	2
Commercial	18	18	17	15	15
CIAL Golf & country club	3	3	3	3	3
Civil Eng. - Airport Works	21	20	18	17	17
Civil Eng. - LUP works	5	4	4	9	8
Deputation to CIASL	1	1	1	1	1
Total	**540**	**545**	**560**	**548**	**561**
Direct Aero employees	428	432	445	433	447
Direct Non-aero employees (commercial + golf course)	21	21	20	18	18
CIAL Duty free employees (Seconded to CDRSL)	63	63	66	66	65
Common employees (MD's office + Finance + HR)	28	29	29	31	31
Total	**540**	**545**	**560**	**548**	**561**
Common employee's apportionment					
Apportionment ratio	95.3%	95.4%	95.7%	96.0%	96.1%
Common aero employees	27	28	28	30	30
Common non-aero employees	1	1	1	1	1
Total common employees	28	29	29	31	31

FY ending March 31	2017	2018	2019	2020	2021
Total aero employees	455	460	473	463	477
Total non-aero employees	22	22	21	19	19
Total employees of CIAL	**477**	**482**	**494**	**482**	**496**
Employee Ratio	**95.32%**	**95.36%**	**95.70%**	**96.01%**	**96.13%**

8.2.3.2. The study evaluated the computation of employee ratio submitted by CIAL. CIAL has classified employees in to direct Aeronautical, direct Non-Aeronautical (Commercial and Golf Course) and Common. As per the stance taken by the Authority in the Tariff Order for the Second Control Period, CIAL has apportioned employees in Common departments like MD's Office, HR and Finance into Aeronautical and Non-Aeronautical. It was observed that the employees of CIAL Duty Free were excluded from the calculation of employee ratio, CIAL has stated that the wages of these employees are paid by the subsidiary (CDRSL) that operates the Duty Free shop and that their wages are not part of the employee expense of CIAL. Further, the airport operator has clarified that departments like Electrical Engineering and Civil Engineering are completely engaged in Aeronautical activities and that the concessionaires can't avail services from these departments. The basis for computing the employee ratio as considered by the airport operator has been found to be appropriate and in line with the approach of the Authority. Accordingly, the same ratio has been considered for the allocation of certain Common O&M expenses between the Aeronautical and Non-Aeronautical.

8.3. Reallocation of Common expenses

The study has assessed CIAL's proposition of allocation basis of common expenses along with categorisation of expenses between Aeronautical and Non-Aeronautical services. The study has suggested reallocation of Operation and Maintenance expenses to determine efficient O&M expenses and has proposed the following adjustments:

8.3.1. Safety & Security Expenses

8.3.1.1. CIAL has proposed to allocate the safety & security expenses based on employee ratio.

8.3.1.2. The submissions by CIAL have been analysed and it has been observed that the security personnel are being deployed for the security of whole terminal building and airport. Therefore, the logic for segregating the safety & security expenses on the basis of employee ratio may not be appropriate. The allocation of these expenses based on employee ratio essentially means the security personnel are being deployed for the security and safety of the employee only, which is not the case. Therefore, it may not be appropriate to allocate the same on the basis of employee ratio and accordingly, it is proposed to allocate the same in the proportion of the weighted average terminal allocation ratio.

8.3.1.3. Thus, it is proposed to re-allocate the expenses incurred for safety & security expenses based on proportion of the weighted average terminal allocation ratio, thereby reducing the aeronautical portion of safety & security expenses by INR 1.64 crore for the 2nd Control Period. The impact on account of the proposed re-allocations is summarized below:

Table 24: Impact on Safety & Security Expenses

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
As per Airport Operator's Submission	3.76	6.42	8.21	8.45	6.77	33.60
As proposed by the Authority	3.59	6.13	7.81	8.02	6.41	31.96
Difference	0.17	0.29	0.40	0.44	0.36	1.64

8.3.2. Housekeeping Expenses

8.3.2.1. CIAL has proposed to allocate the housekeeping expenses on the basis of employee ratio.

8.3.2.2. The submissions by CIAL have been analysed and it has been observed that the housekeeping expenses are expensed majorly for the upkeep and cleanliness of the terminal building and areas surrounding the terminal building. The allocation of these expenses based on employee ratio would be appropriate if these expenses were incurred for the upkeep of the office building only. Therefore, allocating these expenses considering the employee ratio may not be appropriate and accordingly, it is proposed to allocate the same using the terminal allocation ratio.

8.3.2.3. Thus, it is proposed to re- allocate the expenses incurred for housekeeping expenses based on the terminal allocation ratio, thereby reducing the aeronautical portion of housekeeping expenses by INR 2.32 crore for the 2nd Control Period as shown below:

Table 25: Impact on Housekeeping Expenses

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
As per Airport Operator's Submission	6.95	9.52	9.82	11.13	10.03	47.45
As proposed by the Authority	6.64	9.09	9.35	10.56	9.50	45.13
Difference	0.31	0.43	0.48	0.57	0.53	2.32

8.3.3. Consumables

8.3.3.1. CIAL has proposed to allocate the consumables on the basis of employee ratio.

8.3.3.2. The submissions by CIAL have been analysed and it has been observed that the consumables are used across the terminal building and airport and allocating it on basis of employee expenses means they primarily pertains only to the office expenses. However, these consumables are used across the terminal building by the passengers as well. Therefore, it will not be appropriate to allocate the same on the basis of employee ratio and accordingly, it is proposed to allocate the same using the terminal allocation ratio.

8.3.3.3. Thus, it is proposed to revise the aeronautical portion of consumables, reducing them to an extent of INR 0.77 crore for the 2nd Control Period. The impact of the proposed re-allocation is as shown under:

Table 26: Impact on Consumables

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
As per Airport Operator's Submission	1.95	3.16	3.19	3.65	3.65	15.60
As proposed by the Authority	1.87	3.01	3.03	3.46	3.46	14.83
Difference	0.09	0.14	0.15	0.19	0.19	0.77

8.3.4. Other Operational Expenses

8.3.4.1. CIAL has proposed to allocate the other operational expenses on the basis of employee ratio.

8.3.4.2. The submissions by CIAL have been analysed and it has been observed that the nature of other operational expenses was not provided, however, allocating the other operational expenses based on employee expenses implies that these expenses only pertain to the employee. However, it can be

considered that most of these miscellaneous expenses pertain to the overall airport operations and, therefore, it will be appropriate to allocate the same using the terminal allocation ratio.

8.3.4.3. Thus, it is proposed to re-allocate the expenses incurred for other operational expenses based on the terminal allocation ratio, thereby reducing the aeronautical portion of other operational expenses by INR 1.77 crore for the 2nd Control Period as shown below:

Table 27: Impact on Other Operational Expenses

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
As per Airport Operator's Submission	6.88	7.93	7.07	7.30	7.31	36.49
As proposed by the Authority	6.58	7.57	6.73	6.92	6.92	34.72
Difference	0.31	0.36	0.34	0.38	0.39	1.77

8.3.5. Administrative & General Expenses

8.3.5.1. CIAL has proposed to allocate the administrative & general expenses except for flood mitigation expenses on the basis of employee ratio.

8.3.5.2. The submissions by CIAL have been analysed and it has been observed that the administrative & general expenses suggests part of the expenses such as rent, rates & taxes, insurance costs, bank charges etc. pertain to the airport premises; some of these expenses such as consultancy fees, travelling & conveyance, communication expenses etc. relates to employees; and remaining part of these expenses pertaining to advertisements, general charges etc. relates to the airport terminal building, therefore, it will not be appropriate to allocate the entire administrative & general expenses in the proportion of the employee ratio. Therefore, the components of the administrative & general expenses related to the terminal building is proposed to be allocated using the terminal allocation ratio; components related to employee is proposed to be allocated in the employee ratio and the remaining components are proposed to be allocated in the ratio of average aeronautical assets to the total assets.

8.3.5.3. Thus, the study has revised the aeronautical portion of Administrative & General expenses, reducing them to an extent of INR 7.77 crore (The total difference is INR 31.31 crore which when subtracted by INR 23.54 crore of flood mitigation expenses outside airport is INR 7.77 crore) for the 2nd Control Period.

8.3.5.4. Further, it was seen that in the model, the 'Provision for Doubtful Debts/Advances' was incorrectly linked to previous financial year's number, which has been corrected.

8.3.5.5. In addition to the above changes in aeronautical allocation of Admin and General expenses, the flood mitigation expenses, which were found to be carried out outside the Airport premises, on public land, have been excluded. Since these measures also benefit the adjoining areas of the airport that include households and farmlands, the responsibility of such work cannot be entirely attributed to the airport. Also, these expenses are not recurring in nature and do not ordinarily appear in the O&M expenses of the airport. Hence, in line with the general approach followed by the Authority, these expenses incurred outside the airport have not been considered under Aeronautical O&M expenses. Thus, reducing the Administrative and general expenses further by INR 23.54 crore for the 2nd Control period as elaborated below:

Table 28: Impact on Admin & General Expenses

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
As per Airport Operator's Submission	22.17	13.09	25.96	35.22	28.50	124.93
As proposed by the Authority	19.36	12.98	25.53	20.01	15.75	93.62
Difference	2.81	0.11	0.43	15.21	12.75	31.31

8.3.6. Repair & Maintenance Expenses

8.3.6.1. Based on the inputs of the independent study on allocation of assets between the aeronautical and non-aeronautical services, the repair & maintenance expenses have been revised to an extent of INR 1.09 Cr due to the change in the ratio of average aeronautical gross block and average total gross block:

Table 29: Impact on Repair & Maintenance Expenses

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
As per Airport Operator's Submission	15.18	19.35	20.81	25.22	20.18	100.73
As proposed by the Authority	14.87	18.89	20.55	24.99	20.35	99.64
Difference	0.31	0.46	0.26	0.23	-0.17	1.09

8.3.7. Summary of segregation of expenses proposed by the Authority

8.3.7.1. Thus, based on observations and reasoning described above, the proposed overall re-allocation is as shown in the table below:

Table 30: Proposed allocation based on this study

Expense Category	Expense Sub-Category / Description	Expense Classification	Revised Allocation Basis
Manpower expenses	Salary, wages & bonus; Contribution to provident fund; Staff welfare expenses; New employee expenses	Common	Number of Employees
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	Gross Block / Number of Employees/ Terminal Usage Ratio
	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	Gross Block
Other Expenses	Safety & Security expenses	Common	Terminal Usage Ratio
	Vehicle Running & Maintenance expenses		Number of Employees
	House Keeping expenses		Terminal Usage Ratio
	Consumables		
	Other operational expenses		
	Power Charges (Net of concessionaires)	Aeronautical	
	Water Charges (Net of concessionaires)		
	Fuel Generator Sets (Net of concessionaires)		
CUTE operational expenditure		Aeronautical	

8.4. Impact of reallocation of Common expenses

8.4.1. The total year-wise impact on various heads under O&M expenses as a result of the proposed reallocation is shown below:

Table 31: Impact (INR crore) on O&M expense elements on account of proposed re-allocation between Aero & Non-Aero heads

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
Safety & Security Expenses	0.17	0.29	0.40	0.44	0.36	1.64
Housekeeping Expenses	0.31	0.43	0.48	0.57	0.53	2.32
Consumables	0.09	0.14	0.15	0.19	0.19	0.77
Other Operational Expenses	0.31	0.36	0.34	0.38	0.39	1.77
Administrative & General Expenses	2.81	0.11	0.43	15.21	12.75	31.31
Repair & Maintenance Expenses	0.31	0.46	0.26	0.23	-0.17	1.09
Total	**4.0**	**1.79**	**2.06**	**17.02**	**14.05**	**38.90**

8.4.2. Based on the above adjustments and re-classification (including the impact of change in terminal allocation ratio, Gross Block, etc.), the study has proposed the revised O&M expenses considered as efficient for Second Control Period as can be seen in the table below:

Table 32: O&M expenses proposed by the Authority in the true up of 2nd Control Period

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
Payment to employees	50.44	54.92	76.70	75.13	79.31	336.49
Admin Expenses	19.36	12.98	25.53	20.01	15.75	93.62
Repairs Expenses	14.87	18.89	20.55	24.99	20.35	99.64
Safety & Security expenses	3.59	6.13	7.81	8.02	6.41	31.96
Power, water & fuel Charges	17.03	26.31	27.78	31.25	23.45	125.83
Vehicle Running & Maintenance expenses	0.85	0.87	1.38	0.94	0.57	4.61
House Keeping expenses	6.64	9.09	9.35	10.56	9.50	45.13
Consumables	1.87	3.01	3.03	3.46	3.46	14.83
Other operational expenses	6.58	7.57	6.73	6.92	6.92	34.72
CUTE operational expenditure	1.03	2.07	4.48	5.30	6.15	19.03
Total	**122.24**	**141.84**	**183.35**	**186.58**	**171.86**	**805.87**

8.4.3. Accordingly, the Aeronautical and Non-Aeronautical components of operational expenses for the 2nd Control Period are provided below:

Table 33: O&M expenses (Aero and Non-Aero) based on the study for the true-up of 2nd Control Period

Second Control Period (INR crore)	Aeronautical	Non-Aeronautical	Total	Aeronautical (%)
Payment to employees	336.49	14.91	351.40	95.8%
Admin Expenses	93.62	88.80*	182.40	51.3%
Repairs Expenses	99.64	18.35	117.99	84.4%

Second Control Period (INR crore)	Aeronautical	Non-Aeronautical	Total	Aeronautical (%)
Safety & Security expenses	31.96	3.13	35.09	91.1%
Power, water & fuel Charges	125.83	-	125.83**	100.0%
Vehicle Running & Maintenance expenses	4.61	0.21	4.82	95.6%
House Keeping expenses	45.13	4.43	49.56	91.1%
Consumables	14.83	1.46	16.29	91.0%
Other operational expenses	34.72	35.85***	70.57	49.2%
CUTE operational expenditure	19.03	-	19.03	100.0%
Total	**805.87**	**167.14**	**973.0**	82.8%

**includes flood mitigation expenses undertaken outside the airport premises*
*** net of revenues from utility service charges*
****includes CSR expenses and Duty-Free management fee and discounts*

9. ASSESSMENT OF O&M EXPENSES FOR FY 21

9.1. Comparison of projections against actual data from April to January FY 2021

9.1.1. The airport operator was asked to share the actual expenses incurred for the months of FY 21 (to the extent such data was available). In order to assess the reasonableness of the initial projections submitted by the airport operator in the MYTP for the FY 2021, the same were compared against the actual figures (period from April 2020 to January 2021) extrapolated for the complete year.

9.1.2. As the expenses are not incurred in a linear manner across all the months of a year, hence, for this assessment, if the variation between the initially projected expense is within 10% of the projections made on actuals, then it has been considered as reasonable. Accordingly, the projections can be considered to hold true for the FY 2021.

Table 34: Comparison of O&M Expense projections vs extrapolated actuals

Item (INR Cr.)	Total O&M Expense Projection by CIAL for 2021	Actuals O&M Expenses from Apr-Jan FY 21	Actuals extrapolated for FY 2021	Variation	Variation within 10 %
Payment to employees	82.5	~ 64	~ 77	~ 7.1 %	✓
Operational expenses (excl. CUTE expenses)	84.0	~ 76	~ 91	~ (8.1) %	✓
CUTE Operational Expenditure	6.2	*In line with past trends*		-	✓
Admin & General Expenses	33.4	~ 19	~ 23	~ 31.6%	No
Total O&M Expenses	206.1	~ 158.6*	~ 196.5	~ 4.7 %	✓

~ connotates Approximately
** excluding CUTE expenses*

9.1.3. It can be observed from the above table that except for Admin & General expenses, the expense projections for the FY 2021 have been found to be reasonable when compared to the extrapolated actual expenses incurred till January 2021.

9.1.4. Further analysis has been undertaken for Admin & General expenses to understand the reason for such a deviation.

Table 35: Details of Admin & General expenses for FY 2021

Item	Projections for FY 21 *(post reclassification and other adjustments)*			Projections pro-rated for the entire year based on actuals from Apr to Jan 2021			Diff in Aero	Remarks
	Total Expenses	Aero	Non-Aero	Total Expenses	Aero	Non-Aero		
	(A)	(B)	(C)	(D)	(E)	(F)	(B) – (E)	
Repairs to Office Equipment	1.7	1.6	0.2	0.9	0.8	0.1	0.8	Such expenses may not be evenly spread out over the year. Further, the deviation is less than INR 1 Cr. Hence, no change is proposed
Insurance	6.0	5.4	0.6	6.3	5.6	0.6	(0.2)	Immaterial deviation
Rent	0.1	0.1	0.0	0.1	0.0	0.0	0.0	Immaterial deviation
Rates and Taxes	3.4	3.1	0.3	2.2	1.9	0.2	1.1	Such expenses may not be evenly spread out over the year. Further, the deviation is only around INR 1 Cr. Hence, no change is proposed
Postage and Telephone	0.6	0.6	0.1	0.4	0.4	0.0	0.2	Immaterial deviation
Printing and Stationery	0.2	0.2	0.0	0.2	0.1	0.0	0.0	Immaterial deviation

Travelling and Conveyance	0.9	0.8	0.1	0.8	0.7	0.1	0.1	Immaterial deviation
Auditor's Remuneration	0.1	0.1	0.0	0.1	0.1	0.0	0.0	Immaterial deviation
Directors Sitting Fees	0.1	0.1	0.0	0.1	0.1	0.0	0.0	Immaterial deviation
Advertisement and Publicity	1.0	0.9	0.1	0.2	0.2	0.0	0.7	As the deviation is not very significant, hence, no change is proposed
Loss on Fixed Assets sold/demolished/discarded	0.1	0.0	0.1	0.0	0.0	0.0	0.0	Immaterial deviation
Professional and Consultancy charges	1.3	1.1	0.1	0.6	0.6	0.1	0.6	Immaterial deviation
Bank Charges	0.3	0.3	0.0	0.0	0.0	0.0	0.3	Immaterial deviation
Foreign Exchange rate variation (Net)	0.9	0.8	0.1	0.1	0.1	0.0	0.7	Such expenses are linked to forex fluctuations and therefore, are not evenly spread out over the year. Further, the deviation is less than INR 1 Cr. Hence, no change is proposed
Bad Debts	1.0	0.9	0.1	0.0	0.0	0.0	0.9	Such expenses may be factored in towards the end of the year. Further, the deviation is less than INR 1 Cr. Hence, no change is proposed
Flood Related Expenses		0.0	0.0	0.4	0.4	0.0	(0.4)	Immaterial deviation
Flood Mitigation Expenses	13.6	0.0	13.6	10.3	0.0	10.3	-	Not relevant
Provision for doubtful debts	2.0	0.0	2.0	0.0	0.0	0.0	-	Not relevant
Discount given to customers				0.2	0.0	0.2	-	Not relevant
Total	33.4	15.7	17.8	22.9	11.1	11.7	**4.8**	**No change proposed**

Note: Numbers are rounded off to 1st decimal point. All the numbers are in INR Cr

9.1.5. Based on the above, the projections appear to be reasonably established and hence, no change (other than the impact on account of adjustments and reallocations as discussed in Section 8) is proposed.

Note: Since audited financial statements for FY 2021 are not yet available, the accuracy of the figures (actual O&M expenses from April 2020 to January 2021) could not be validated. The same may require truing up during the tariff determination for the Fourth Control Period.

10. OVERALL SUMMARY OF THE STUDY

10.1. Internal benchmarking for Second Control Period

10.1.1. It was observed that the total operational expenses during the period FY16 to FY 20 have grown at a lower CAGR (~12%) as compared to that during the period FY 2011 to 2016 (~18%). On the contrary, some of the expense items like Utilities, Safety and Security and Admin and General have grown at a higher CAGR during FY 16 to FY 20 vis-à-vis FY 11 to FY 16. This is due to expenses incurred for flood mitigation and increased terminal area in the 2nd Control Period.

10.1.2. The O&M expenses per PAX and per ATM in FY 2020 have increased vis-à-vis FY 2016 i.e. last year of the First Control Period. The increase in O&M expenses per PAX and ATM shall be attributed to increased O&M expenses (due to pay revision, terminal expansion and floods) coupled with decrease in traffic (due to COVID-19 pandemic). On adjusting the impact of these events, the growth in O&M expenses has been found to be justifiable.

10.1.3. The inflation adjusted O&M expenses per PAX in FY 20 is observed to be only marginally higher than that in FY 16.

10.1.4. In the assessment of major expenses viz., employee expenses, R&M expenses, A&G expenses and utility expenses, it was observed that only the A&G expenses were higher than the expenses approved by the Authority in the previous order. However, this is due to the consideration of certain non-recurring and uncontrollable expenses namely, bad debt written off, flood related losses and flood mitigation expenses.

10.1.5. The remaining expenses submitted by the airport operator were found to be within the figures approved by the Authority in the tariff order for the Second Control Period, except in the case of Vehicle Running & Maintenance, Safety & Security and CUTE expenses. However, the deviation is immaterial. Hence, as per the assessment of major expenses it seems that the O&M expenses claimed by CIAL are acceptable.

10.1.6. Also, CIAL's claim based on actual O&M expenses is lower than that approved by the Authority in its last order for CIAL i.e. the Second Control Period.

10.1.7. Therefore, based on the internal benchmarking, the O&M expenses of CIAL are found to be reasonable.

10.2. External benchmarking for Second Control Period

10.2.1. It is observed that based on per pax basis benchmarking, CIAL seems to have higher operational expenses with respect to its select comparable peers. However, on a per terminal area basis CIAL is found to have lower O&M expenses in comparison to most of the other Airports.

10.2.2. The Airports that are comparable with CIAL in terms of traffic are, Ahmedabad, Goa and Pune. it is observed that on an overall basis only Goa airport has expenses (on terminal area basis) lower than CIAL, whereas, CIAL is performing better than the other two airports.

10.2.3. Comparison of various O&M heads of CIAL (on per sqm terminal area basis) with the remaining Airports suggests that except for Bhubaneswar airport in terms of utilities expense per sqm, and Kolkata airport in terms of A&G expenses per sqm CIAL has lower value per sqm in all other expense heads. Also, on an overall basis CIAL airport is seen to have lowest O&M expenses per sqm of terminal area when compared with remaining airports

10.2.4. Hence, benchmarking the expenses of CIAL with expenses of above airports suggests that the operational expenses for CIAL are reasonable.

10.2.5. Nonetheless, It is important to note that there is a huge variability in the expense numbers for each airport which signals that all these operational expenses at the airport are a function of various factors such as the size of the airport infrastructure, profile of passengers, existing capacity and traffic, weather conditions,

age of the airport assets, etc. Hence, comparison of O&M expenses between distinct airports may not be suitable to regulate the expenses.

10.2.6. Taking a collective view of the observations from the internal and external benchmarking exercises, it is observed that the O&M expenses of CIAL are reasonable.

10.3. Efficient expense allocation for Second Control Period

10.3.1. Based on the principles laid out in the initial sections and the information collected from the airport operator during the site visit and other discussions, reclassifications and necessary adjustments are made to determine the efficient O&M expenses.

10.3.2. The airport operator had proposed 6.28% and 9.00% of terminal area for the provision of Non-Aeronautical services / activities in International and Domestic terminals respectively. However, based on the Study on allocation of assets into Aeronautical and Non-Aeronautical assets, the actual allocation of area (in %) towards Non-Aeronautical activities, viz. 8.47% and 9.88% for the International and Domestic terminals respectively, has been proposed for the purposes of the tariff determination. This changes the percentage of area allocated for Non-Aeronautical activities to 8.94% from 7.19% for the entire terminal area.

10.3.3. The employee ratio as considered by the airport operator for allocation of O&M expenses was found to be appropriate.

10.3.4. The R&M expenses has been adjusted to the extent of change in the aeronautical portion of the gross block as suggested in the separate study conducted for allocation of assets (Study on allocation of assets into Aeronautical and Non-Aeronautical assets).

10.3.5. The flood mitigation expenses have been excluded from the Administrative & General expenses as it was observed during the site visit that these expenses pertains to the activities carried outside the Airport premises. Further, the correction was made in the numbers of Provision for Doubtful Debts/Advances, while computing the aeronautical component of Administrative & General expenses.

10.3.6. The allocation basis for safety & security expenses, housekeeping expenses, consumables, other operational expenses, administrative & general expenses and power charges have been revised with the appropriate allocation ratio.

10.4. Assessment of O&M expense projections for FY 21

10.4.1. The reasonableness of the projections for FY21 was studied by comparing the actual O&M expenses data was obtained from the airport operator for the period from Apr 2020 to Jan 2021. Since the audited statements for this period are not yet available, the accuracy of the same could not be validated.

10.4.2. It has been found that the actual expenses incurred by the airport operator till a particular month are in line with the projections pro-rated for the same period. Hence, it is believed that the that the projections still hold true vis-à-vis the manner in which the actual expenses have been incurred by the airport operator.

10.5. Conclusion

10.5.1. 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 36: Efficient O&M Expenses for the 2nd Control Period as per the study

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
Payment to employees	50.44	54.92	76.70	75.13	79.31	336.49
Admin Expenses	19.36	12.98	25.53	20.01	15.75	93.62

FY ending March 31 (INR crore)	2017	2018	2019	2020	2021	Total
Repairs Costs	14.87	18.89	20.55	24.99	20.35	99.64
Safety & Security expenses	3.59	6.13	7.81	8.02	6.41	31.96
Power, water & fuel Charges	17.03	26.31	27.78	31.25	23.45	125.83
Vehicle Running & Maintenance expenses	0.85	0.87	1.38	0.94	0.57	4.61
House Keeping expenses	6.64	9.09	9.35	10.56	9.50	45.13
Consumables	1.87	3.01	3.03	3.46	3.46	14.83
Other operational expenses	6.58	7.57	6.73	6.92	6.92	34.72
CUTE operational expenditure	1.03	2.07	4.48	5.30	6.15	19.03
Total	**122.24**	**141.84**	**183.35**	**186.58**	**171.86**	**805.87**

10.5.2. The airport operator had proposed a total operational expenditure (aeronautical) of INR 844.76 Crore for the 2nd Control Period. Based on this study, the proposed operational expenditure is INR 805.87 Crore for the 2nd Control Period, thus, resulting in a reduction of **INR 38.90** Crore for the 2nd Control Period.

11. GLOSSARY

Abbreviation	Full Form
A&G	Administrative & General
AERA	Airports Economic Regulatory Authority
ATM	Air Traffic Movement
CAGR	Compounded Annual Growth Rate
CDRSL	Cochin Duty Free and Retail Services Limited
CIAL	Cochin International Airport Limited
CUTE	Common User Terminal Equipment
FY	Financial Year
GFA	Gross Fixed Asset
IATA	International Air Transport Association
IMG	Inter-Ministerial Group
INR	Indian Rupee
IT	Information Technology
MIAL	Mumbai International Airport Limited
MPPA	Million Passengers Per Annum
MYTP	Multi Year Tariff Proposal
NCAP	National Civil Aviation Policy
OPEX	Operational Expenditure
O&M	Operation and Maintenance
PAX	Passenger
R&M	Repair and Maintenance
RAB	Regulatory Asset Base
RFP	Request for Proposal
SQM (sqm)	Square meters