

**STUDY ON EFFICIENT OPERATION AND  
MAINTENANCE COSTS**

**(RFP No. 02/2018-19)**

*for*

**DELHI INTERNATIONAL AIRPORT LIMITED  
2014-2019**

*by*

**R. SUBRAMANIAN AND COMPANY LLP  
CHARTERED ACCOUNTANTS**

*initiated by*

**AIRPORTS ECONOMIC REGULATORY AUTHORITY OF  
INDIA**

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## **1 STATEMENT OF CONFIDENTIALITY**

This report has been prepared by M/s. R. Subramanian and Company LLP, Chartered Accountants, an Indian Limited Liability Partnership Firm as part of its deliverables under the engagement awarded as per RFP No. 02/2018-19 dated 27<sup>th</sup> November 2018 floated by the Airports Economic Regulatory Authority of India (AERA or the Authority). This document is being submitted to AERA for use in connection with the tariff determination of Delhi International Airport Limited (DIAL). This report or its contents may not be shared with anyone except with the consent of AERA. R. Subramanian and Company LLP shall not have any liability for the unauthorized use or distribution of this document.

## 2 OBJECTIVE OF THE ENGAGEMENT

Establishing efficient operation and maintenance costs and their reasonableness is pivotal to the effective execution of tariff determination for Aeronautical services. This expenditure has consistently been increasing, driven by investments in expanding, modernizing and sustaining airport efficiency and excellence.

Assessment of Operation and Maintenance cost requires AERA to periodically examine not only the financial information submitted by the airport operator, but also independently examine the baseline operating cost levels, cost reduction, efficiency initiatives and benchmarking exercises undertaken by the airport operator etc.

Additionally, the Authority observes the growing influence of IT as a cost driver owing to its deployment in almost all airport facilities and services. This has resulted in increase in costs driven by third party execution of IT products and/or services and various tangible and intangible expenses originating under innovative transaction methods with varying degrees of in-house and third-party involvement.

Given the above circumstances, AERA deemed it necessary to conduct an independent study in the area of determination of Efficient Operation and Maintenance costs, before considering these costs as part of tariff determination exercise.

The various statutes and documents which determined the scope of our study include:

1. The Airports Economic Regulatory Authority of India Act, 2008
2. Operation, Management and Development Agreement (OMDA) between Airports Authority of India and Delhi International Airport Private Limited (now Delhi International Airport Limited), dated 4<sup>th</sup> April 2006
3. State Support Agreement of the Delhi Airport between The President of India on behalf of The Government of India and Delhi International Airport Private Limited (now Delhi International Airport Limited), dated 26<sup>th</sup> April 2006
4. Orders of Telecom Disputes Settlement and Appellate Tribunal (TDSAT)
5. The Master Service Agreement between DIAL, Wipro and Wipro Airport IT Services Limited.
6. Documents and records of, and discussions with management of DIAL

### **3 TERMS OF REFERENCE AND OUR WORK PERFORMED**

The detailed scope of this engagement as stipulated under the Schedule-1, Terms of Reference of RFP No. 2/2018-19 of AERA, have been provided below. The scope entails determination of efficient Operation and Maintenance costs and segregation into Aeronautical vs Non-Aeronautical costs for DIAL.

#### **3.1 EXTRACT OF TERMS OF REFERENCE FROM PARAGRAPH 3 OF SCHEDULE - 1 OF RFP NO. 2/2018-19**

- a) Examine the **Quality & Adequacy of Processes** employed by the Airport operator and establish that cost collection, recording, controlling processes & systems are adequate to ensure correct and complete capture of costs, in reference to internal & external reports including MIS and Budgets.
- b) Ensure that **Quality of Cost Capture process** is aligned with key project documents/agreements and do not violate philosophy, guidelines, directions, Orders stipulated by the Authority.
- c) Examine **Measurement & Quantification** processes employed, by conducting activities including
  - Identification and understanding of drivers of cost and determinants of cost *levels*
  - Study cost behaviour and patterns from perspectives such as ABC analysis, fixed vs variable costs, controllable vs uncontrollable costs, Recurring vs Non-recurring etc.,
  - Study cost segregation between Aeronautical and Non-Aeronautical costs from services/activities, revenues, assets perspectives, methods used to achieve segregation, the common pool of costs identified, the allocation ratios used to split common cost pool.
  - Peruse the periodic management reports that discuss cost reduction initiatives, cost variance reports and examine the Key performance indicators (KPIs) assessing cost productivity and efficiency.

- Study/Benchmark the KPIs both inter-airport and intra-airport including both domestic and international airports in the ambit of the study.
  - Ensure measurement and quantification of costs are aligned to methodologies, directions, guidelines stipulated by Authority and relevant project documents/agreements.
- d) **Assess reasonableness** in reference to scale of operations & **determine efficient** operating and maintenance costs by
- Incorporating learnings gained from 3 a) b) and c)
  - Relate the costs to cost constraints, cost advantages that operate in the airport operator's cost environment; strategic features in the airport operator's business environment; the significant infrastructural facilities; key customer and consumer touch points; primary Aeronautical and Non- aeronautical activities & principal revenue streams & service lines of the airport
- e) Detailed study and examination of the contractual arrangement and transaction/s between Delhi airport and the Information Technology Joint Venture (IT JV) *[clause 6.111 – 6.112 supported by 6.103 -6.110 in Order No. 40/2015-16 dated 8th December, 2015 issued 10th December, 2015 in the Determination of Aeronautical Tariffs in respect of Indira Gandhi International Airport, Delhi for the Second Control Period (01.04.2014 - 31.03.2019) issued by Airport Economic Regulatory Authority of India.*
- Study should establish an understanding of this joint business arrangement, the services envisaged under this contract, understand the transactions conducted, the costs incurred, the revenue streams earned due to the use of the services of such ITJV and segregation into Aeronautical and Non-Aeronautical, impact on the tariff / true up exercise.
- f) Prepare **Report and Recommendations** detailed as under

**f.1) General application across Major Airports**

A typical **efficient** operations and maintenance cost environment, the cost structure and customary cost line items and cost drivers. Define this in context of the size/volume, key infrastructural facilities, the primary Aeronautical and Non-Aeronautical activities, key customer and consumer touch points, the service lines and revenue streams of the airport that determine an airport's cost environment

- Recommendations that will serve as guide to ensure reliability and completeness of cost capture
- Recommendations to aid correct measurement and quantification of costs in reference to airport operator's scale of operations
- Recommendations for standards that would serve as guidelines for segregation into Aeronautical vs. Non-Aeronautical costs including allocation methodologies for common costs segregation into Aeronautical & Non-Aeronautical costs including illustrative cases in/ learnings from global scenario.
- Guidelines to establish optimal cost levels to Aeronautical & Non-Aeronautical activities, revenues and assets including illustrative cases in/learnings from global scenario.
- Recommendations to identify strategic influencers of an airport's cost environment such as cost advantages and cost constraints including illustrative cases in/learnings from global scenario.
- Any other factors that the consultant feels has significant bearing on the report

**f.2) IT cost environment and guidelines for monitoring its effectiveness**

- Optimal mix of outsourcing vs in-house servicing in IT tasks
- Systemic controls that airport operator must execute in IT cost and supplier management in general and especially in supplier concentration scenarios.
- Measurement and monitoring IT spend effectiveness, role of SLAs in reducing or controlling outsourced costs etc., and
- Any other matter that the consultant feels has significant bearing on comprehending IT cost environment of the airport operator.

**f.3) Quality of cost capturing and its reasonableness**

- The existing Operation and Maintenance cost environment, the quality of processes of cost capture, the reasonableness of costs.
- The Variances and/or inconsistencies prevalent with respect to present practices in determination of Efficient costs, suggestions for rectification/improvement of cost capture/measurement processes,

- Impact of such efficient costs on the tariff determination exercise specifically explaining short, medium- and long-term consequences if any.
- Determination of the revised Efficient operating and maintenance cost.

**f.4) Detail observations on Aeronautical and Non-Aeronautical costs with respect to**

- Existing segregation process and amount,
- Recommendations that would serve as guidelines for segregation into Aeronautical vs. Non-Aeronautical costs including allocation methodologies for common costs segregation,
- Determination of the revised Aeronautical and Non-Aeronautical costs

**f.5) Any other factors that the consultant feels has significant bearing on the report including learnings from relevant airports operating in other countries**

*The above should include specific sections detailing IT cost environment and guidelines for the same including discussions on*

- Existing Mix and optimal mix of outsourcing vs in-house servicing in IT tasks
- Existent Systemic controls and improvements that airport operator must execute in IT supplier management in general and especially in supplier concentration scenarios.
- Measurement and monitoring IT spend effectiveness, role of SLAs in reducing or controlling outsourced costs etc., and
- Any other matter that the consultant feels has significant bearing on comprehending IT cost and supplier environment of the airport operator.

**f.6) Joint business arrangement with ITJV**

- Set out an understanding of the business arrangement and the services contemplated under the same.
- Detail report on the costs incurred in this arrangement, the Aeronautical vs. Non-Aeronautical segregation and establish relation to the revenue streams earned and assets invested by DIAL owing to this arrangement.
- Revisions and Rectifications to the submissions made to the Authority for Tariff determination/True up exercises.

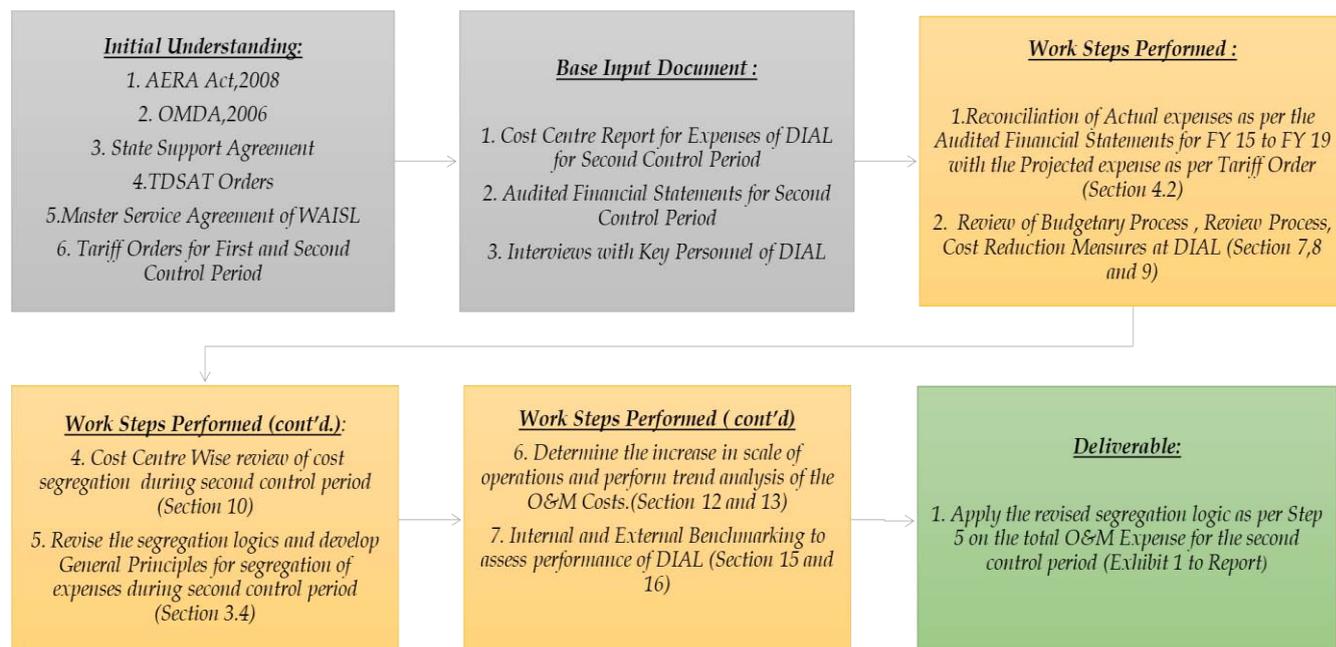
### 3.2 EXPENSE CLASSIFICATION

For the purpose of tariff determination and reporting the total operating and maintenance expenses of DIAL have been classified under the following categories:

- **Terminal Operating Expenses** such as Utilities, Consumables, Housekeeping, Insurance, Repairs and Maintenance, Security and Landside expenses, IT JV expenses (Gap Funding) etc.
- **Administration and General Expenses** such as Advertising and Sales Promotion, Charities and Donations, Consultancy, Office Maintenance, Rent, Traveling and Conveyance, Chartering expense, allocation of Corporate costs etc.
- **Manpower expenses**

### 3.3 STEPS FOR OUR WORK PERFORMED

The flowchart detailing the steps followed to complete the report is given below:



S. No	Work Steps Performed	Reference to TOR of RFP 02/2018-19	Reference to Report
1.	Our study on segregation and efficient operation and maintenance cost is based on the expense segregation workings provided by DIAL (FY15 to FY19), audited financial statements (FY15 to FY19), treatment adopted by AERA in respect of certain expenses for previous control periods and information provided to us by the management of DIAL	NA	NA
2	We initiated our Study by familiarizing ourselves with key documents and statutes described in section 2 of this report and DIAL approach to segregation of expenses into Aeronautical and Non-Aeronautical described in section 11.1 of the report. We assessed the nature of costs incurred based on parameters such as recurring vs. non-recurring, fixed vs. variable and controllable vs. uncontrollable costs	NA	NA
3	We interviewed Finance (CFO, Senior Manager etc) to understand the process followed for recording of costs and tested documents on a sample basis to ensure that the cost capturing process is adequate and complete	3a	<b>Section 10.3: Cost Accounting Methodology at DIAL</b>
4	We reviewed the budgetary process followed by DIAL (development of Annual Operating Plan at the beginning of the Financial Year) with respect to determination of budgets for the various cost categories, approval of budgets and the process followed for its monitoring.	3b	<b>Section 7: Budgeting Process of DIAL</b>
<b>Section 8: CEO Review Mechanism</b>			
5	We then interviewed various cross functional teams such as Projects & Engineering (P&E), Quality etc to understand the various cost savings measures/ continuous improvement plans developed and implemented by them to achieve efficiency/ Business Excellence in the overall operations of the Airport and the related costs.	3c	<b>Section 9: Cost Reduction Measures and Improvement Plans of DIAL</b>

S. No	Work Steps Performed	Reference to TOR of RFP 02/2018-19	Reference to Report
6	<p>We compared the total operating and maintenance expenses as considered in the true-up section of the MYTP for subsequent control period with the audited financial statement of the respective years of Second Control Period and the initial cost projection adopted by AERA as per the Tariff Order for the second control period.</p>	NA	<p><b>Section 4.2:</b> Comparison to Projections</p>
7	<p>We reviewed the workings shared with us by DIAL relating to segregation of expenses and assessed the segregation of expenses by the narration of the cost centre in the workings provided to us.</p> <p>The transactional accounting for each of the above expense were pooled into 134 different cost center groups which were further grouped into 28 major cost center departments depending upon their nature. Assessment of all the 134 cost centers were made for segregation of expenses into Aeronautical and Non-Aeronautical.</p> <p>A basis for determining the proportion of segregation of Common costs into Aeronautical and Non-Aeronautical was derived.</p>	3d	<p><b>Section 10.4:</b> Review of Cost Centre Segregation into Aero and Non-Aero</p> <p><b>Section 3.4:</b> Basis for Segregation</p>
8	<p>We have segregated the expense item wherever we differed with DIAL on segregation. Additional information was sought from DIAL wherever needed to quantify the impact of a change in the segregation logic.</p>	3d	<p><b>Table 2:</b> Summary of Adjustments to segregation of DIAL</p>
9		3d	<p><b>Section 6:</b> Traffic Trend of the Airport</p>

S. No	Work Steps Performed	Reference to TOR of RFP 02/2018-19	Reference to Report
	<p>The increase in the annual expense for the second control period was compared to the increase in the scale of operations to eliminate its effect in the increase of total spend.</p> <p>The per PAX/per ATM costs year on year were then compared and for any increase/decrease beyond 25% of the immediate previous year, a root-cause analysis was performed to assess other factors like improvement plan implementation, increase in wage rates, one-time expenses, etc attributing to the upward trend or downward trend in expenses if any.</p>		<p><i>Section 12 and Section 13: Trend Analysis of the Costs</i></p>
10	<p>We performed internal and external benchmarking of the above cost categories to assess performance of DIAL over a period and against domestic and international airports.</p>	3d	<p><i>Section 15: Internal Benchmarking</i></p>
11	<p>We studied the outsourcing contracts of DIAL and examined the IT JV costs incurred by them and the basis for appropriately segregating the IT JV costs in to “Aeronautical” and “Non-Aeronautical”.</p>	3e	<p><i>Section 16: International and Domestic Benchmarking</i></p> <p><i>Report to RFP 03/2018-19, Section 16</i></p>

### 3.4 BASIS FOR SEGREGATION OF COSTS

As described in our work steps in paragraph 3.3 of this Report, we have reviewed the various cost centres and developed a basis for segregation into Aeronautical and Non-Aeronautical activities. We have also determined the appropriate proportion of Common Cost Centre that may be included in Aeronautical activity, in order to determine the total Aeronautical cost. Broadly, our principles for segregation of costs (also described as Segregation Logic in this Report) are as follows:

### **Aeronautical Costs**

- Expense incurred for operation and maintenance of Aeronautical assets.
- All costs incurred for Aeronautical activities under Schedule 5 of OMDA are segregated as Aeronautical Costs.

### **Non-Aeronautical Costs**

- Expense incurred for operation and maintenance of Non-Aeronautical assets.
- Costs incurred for Non-Aeronautical activities covered under Schedule 6 of OMDA are treated as Non-Aeronautical expenses. Examples are Cargo, Ground Handling and Retail Spaces.

### **Common Costs**

- Costs for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical are segregated as Common Costs.
- Costs primarily incurred for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are segregated as Common Costs. Examples are costs for Civil and Electrical Maintenance for Terminal Building.
- Costs which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Costs. Examples are Transit House and Corporate Headquarters.
- Common costs are apportioned to Aeronautical activity based on an appropriate cost driver. However, in the absence of any specific information regarding the purpose of incurring the cost, a reasonable ratio is determined based on discussions with management and our review of other records of the Airport.

Table 1 General Principles for Broad segregation of expenses incurred from FY15 – FY19

(₹ crores)

Expense	Aero Portion	Non-Aero Portion	Total	Segregation Logic
Utilities Cost (Power, Fuel and Water)	557.07	-	557.07	100% Aeronautical (Net of Recoveries)
Airside Operations	196.32	-	196.32	100% Aeronautical
Security and Vigilance Expenses	99.73	-	99.73	100% Aeronautical
Passenger Fee Collection Charges	20.31	-	20.31	100% Aeronautical
Fire Fighting Services	3.91	-	3.91	100% Aeronautical
Environment Maintenance Cost	14.03	-	14.03	100% Aeronautical
Commercial Airline Marketing	17.71	-	17.71	100% Aeronautical
Electrical Maintenance Expenses including R&M	61.46	11.73	73.19	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Mechanical Maintenance Expenses	77.85	14.77	92.62	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
System Maintenance Expenses	138.34	26.21	164.55	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Terminal Operations Costs	200.40	37.92	238.32	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Civil Maintenance Cost	21.35	4.06	25.41	Common Expenses within the Terminal are segregated in proportion of the floor space at the respective Terminal. Refer Note 1 at Page 19.
Support Business Functions like Finance, Information Technology, Central Stores and Procurement, Management Assurance, Senior Management Office, etc (Excluding HR and Legal)	530.91	66.02	596.93	Expenses related the support business functions are segregated into Aeronautical and Non-Aeronautical in proportion to the Adjusted Gross Fixed Assets (89:11). Refer Table 82 for details.
Advertising and Business Expenses	50.21	6.22	56.43	Expenses related the support business functions are segregated into Aeronautical and Non-Aeronautical in proportion to the Adjusted Gross Fixed Assets (89:11). Refer Table 82 for details.
Landscaping Expenses	23.41	4.42	27.83	Landscaping costs outside the Terminal are segregated into Aeronautical and Non-Aeronautical in proportion to the Adjusted

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Expense	Aero Portion	Non-Aero Portion	Total	Segregation Logic
				Gross Fixed Assets (89:11). Refer Table 82 for details.
Corporate Cost Allocation	321.03	39.77	360.78	Expenses distributed to group companies for central functions are segregated into Aeronautical and Non-Aeronautical in proportion of Adjusted Gross Fixed Assets (89:11). Refer Table 82 for details.
Chartering Cost Expenses	13.52	13.53	27.05	Assuming 50:50 proportion of Aeronautical and Non-Aeronautical usage, Chartering costs are segregated in 50:50 proportion
Expenses for Transit Houses	22.48	22.48	44.96	Assuming 50:50 proportion of Aeronautical and Non-Aeronautical usage, costs of transit houses are segregated in 50:50 proportion
Legal Consultancy Charges	40.31	13.55	53.86	These costs are segregated in proportion to the Aeronautical and Non-Aeronautical value of Legal Cases (74.84: 15.16).
Corporate Social Responsibility	30.07	3.65	33.72	The Authority may take its own view in this regard. Refer Note 2 at Page 19.
Charities and Donation	-	8.16	8.16	100% Non-Aeronautical
Gap Funding for IT JV	57.74	16.15	73.89	The funding for the IT JV to cover the excess costs over revenue is segregated in proportion to the IT assets owned by the IT JV
Employee Cost	657.83	81.43	739.28	1. Employee cost of departments engaged in Aeronautical activities have been considered as Aeronautical 2. Employee cost of departments engaged in Non-aeronautical activities have been considered as Non-Aeronautical 3. Employee cost of common departments have been segregated in proportion of the Adjusted Gross Fixed Asset ratio (89:11) defined in Table 82. Refer Note 3 at Page 19.
HR Consultancy and Outsourcing Cost	276.51	34.24	310.75	1. Employee cost of departments engaged in Aeronautical activities have been considered as Aeronautical 2. Employee cost of departments engaged in Non-Aeronautical activities have been considered as Non-Aeronautical 3. Employee cost of common departments have been segregated in proportion of the Adjusted Gross Fixed Asset ratio (89:11) defined in Table 82. Refer Note 3 at Page 19

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Expense	Aero Portion	Non-Aero Portion	Total	Segregation Logic
Commercial Property Development	-	29.15	29.15	Expenses Related Commercial Property Development are classified as Non-Aeronautical
Retail Area Development	-	23.01	23.01	Expenses Related Retail Area Development are classified as Non-Aeronautical
Payment of VRS	78.42	9.72	88.14	1. Employee cost of departments engaged in Aeronautical activities have been considered as Aeronautical 2. Employee cost of departments engaged in Non-Aeronautical activities have been considered as Non-Aeronautical 3. Employee cost of common departments have been segregated in proportion of the Adjusted Gross Fixed Asset ratio (89:11) defined in Table 82. Refer Note 3 at Page 19
Property Tax	66.93	8.98	75.91	Expenses towards Property taxes have been apportioned in the ratio of adjusted Aeronautical expenses to Non-Aeronautical expenses of DIAL for the Second Control Period (88.15%:11.85%)
Finance Charges (Refinancing Charges, Bank Charges and Amortisation Costs)	234.34	29.17	263.51	Finance Charges (other than Forex losses) are segregated in proportion of the Adjusted Gross Fixed Assets ratio (89:11) defined in Table 82.
Foreign Exchange Gain/Loss on External Commercial Borrowings	-	-	646.43	Foreign exchange loss of ₹ 646.43 crores was incurred by DIAL (included as part of finance charges) on repayment of External Commercial Borrowings. The Authority may take its own view with regard to the foreign exchange loss.
Airport Operator Fee	427.17	259.24	686.41	Services of the Airport Operator are being used for both Aeronautical and Non-Aeronautical activities. Hence, as per the terms of agreement with the Airport Operator, 3% of the total Aeronautical Revenue is allocated towards Aeronautical expenses and 3% of total Non-Aeronautical revenue is allocated towards Non-Aeronautical expenses.
<b>Grand Total (Refer Note 4)</b>	<b>4,239.36</b>	<b>763.58</b>	<b>5,649.36</b>	

**Note:**

1. The proportion of the terminal space for Aeronautical and Non-Aeronautical activities has been arrived at, considering the space demarcated for the above activities at each terminal as per the initial floor plan. On comparing the actual space let out for Non-Aeronautical activities at the terminals (during Second Control Period) with the demarcated space, we noted that the actual space let out were lower than the demarcated space. *Refer Table 21 in this report for detailed workings.* Hence, the demarcated space has been taken as the basis for apportionment of Aeronautical and Non-Aeronautical activities within the terminals.
2. CSR Expenditure: Being a registered Company, CSR expenditure is a statutory requirement and a business expense required to be spent for the purpose of continuing and maintaining the operations of the Company. DIAL had spent ₹ 33.72 crores on CSR and claimed ₹ 30.07 crores as Aeronautical Expenses in the ratio of Gross Fixed Assets of the Company. The Authority may take its own view in this regard.
3. In our opinion, the most appropriate methodology to be adopted for the segregation of total costs related to manpower, HR consultancy and payment towards VRS would be to analyze the costs incurred department wise and segregate the expenses based on the nature of the department i.e. Aeronautical, Non-Aeronautical or Common. However, since at DIAL the data on costs per department was not available for our analysis, the above manpower costs have been segregated in the proportion of Aeronautical Gross Fixed Assets to Total Assets.
4. The total adjusted Aeronautical expense of ₹ 4,239.36 crores excludes foreign exchange loss of ₹ 576.30 crores on external commercial borrowings that was claimed by DIAL as part of aeronautical expenses. The Authority may take its own view with regard to the foreign exchange loss.

## 4 EXECUTIVE SUMMARY

### 4.1 ADJUSTMENT TO AERONAUTICAL EXPENSES IN SECOND CONTROL PERIOD BASED ON ADOPTED SEGREGATION LOGICS

Table 2 Summary of adjustments to the Aeronautical expenses in Second Control Period

(₹ crores)

Operation and Maintenance Expense	FY15 -FY18	FY19	Total
<b>A. Expenses as per Audited Financial statements of Second Control Period (Refer Exhibit 1)</b>	<b><u>3,656.51</u></b>	<b><u>1,043.96</u></b>	<b><u>4,700.47</u></b>
i. Operation and Maintenance Costs	2,984.23	904.74	3,888.97
ii. Airport Operator Fee	571.51	114.90	686.41
iii. Property Tax	29.11	7.84	36.95
iv. Payment of VRS	71.66	16.48	88.14
<b>B. Additional O&amp;M Expenses Claimed by DIAL on actual Payment</b>	<b><u>915.44</u></b>	<b><u>33.45</u></b>	<b><u>948.89</u></b>
i. Finance Charges (Refinancing Charges, Bank Charges and Amortisation Costs)	252.12	11.39	263.51
ii. Forex Gain/ Loss on Foreign Currency Borrowings	624.37	22.06	646.43
iii. Additional Property Tax Paid on demand	38.95	0.00	38.95
<b>C. Total O&amp;M Expenses (A+B)</b>	<b><u>4,571.95</u></b>	<b><u>1,077.41</u></b>	<b><u>5,649.36</u></b>
<b>D. Aeronautical expenses as classified by DIAL (included in C above)</b>	<b><u>3,959.82</u></b>	<b><u>920.63</u></b>	<b><u>4,880.45</u></b>
i. Aeronautical expenses (excluding Forex losses as per D(ii) mentioned below).	3,403.19	9,00.96	4,304.15
ii. Forex losses (claimed by DIAL as Aeronautical)	556.63	19.67	576.30
<b>E Non-Aeronautical Expenses as classified by DIAL (included in C above).</b>	<b><u>612.13</u></b>	<b><u>156.78</u></b>	<b><u>768.91</u></b>
<b>F. Impact on (D) due to change in Segregation Logics</b>			

<b>Operation and Maintenance Expense</b>	<b>FY15 -FY18</b>	<b>FY19</b>	<b>Total</b>
i IT JV Gap Funding (Refer Report on Allocation of Assets RFP 03/2018-19, Table 43)	(8.20)	0.00	(8.20)
ii T1 and T2 System Maintenance (Refer 4.3.1.1)	(1.31)	(0.95)	(2.26)
iii Landscaping Costs (Refer 4.3.1.2)	(2.97)	(1.45)	(4.42)
iv Quality Management Costs (Refer 4.3.1.3)	(1.20)	(0.40)	(1.60)
v T3 costs adjusted for the 8652Sq Meters (Refer 4.3.2)	6.22	1.89	8.11
vi Common Costs Outside the Terminal (Refer 4.3.3.1)	(1.64)	(0.41)	(2.05)
vii Chartering Costs (Refer 4.3.3.2)	(6.15)	(4.46)	(10.61)
viii Transit Houses (Refer 4.3.3.3)	(13.13)	(4.78)	(17.91)
ix Charities and Donations (Refer 4.3.3.5)	(6.32)	(0.95)	(7.27)
x Legal Consultancy (Refer 4.3.3.6)	(6.30)	(1.41)	(7.71)
xi DIAL Manpower Cost (Refer 4.3.3.7)	(4.81)	(1.16)	(5.97)
xii HR Consultancy Costs (Refer 4.3.3.7)	(2.03)	(0.48)	(2.51)
xiii Property tax (Refer Table 38)	(0.94)	(0.16)	(1.1)
xiv. Payment of VRS to AAI (Refer Table 34)	(0.62)	(0.10)	(0.72)
xv. Finance Charges (Refer Table 39)	(0.57)	(0.00)	(0.57)
<b>G. Total Impact on Aeronautical expenses (Refer Point D above) due to change in segregation logics</b>	<b>(49.97)</b>	<b>(14.82)</b>	<b>(64.79)</b>
<b>H. Total Adjusted Aeronautical Expenses for Second Control Period (D(i)-G)</b>	<b><u>3,909.85</u></b>	<b><u>905.82</u></b>	<b><u>4,815.67</u></b>
<b>I. Total Adjusted Aeronautical Expenses for Second Control Period (Refer Note 1)</b>	<b><u>3,353.22</u></b>	<b><u>886.14</u></b>	<b><u>4,239.36</u></b>

Note:

1. The total Adjusted Aeronautical expense of ₹ 4,815.67 crores (refer item H of table 2) includes the aeronautical costs claimed by DIAL towards foreign exchange loss of ₹ 576.30 crores incurred on external commercial borrowings. By excluding the above foreign exchange loss, the adjusted Aeronautical expense amounts to ₹ 4,239.36 crores (Refer Table 2B for Year wise adjustments). The Authority may take its own view with regard to foreign exchange loss.

Table 2B: Year Wise Adjusted Aeronautical Operating and Maintenance Expenses of Second Control Period:

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	117.48	111.45	116.11	146.26	166.53	657.83
Utilities	112.32	121.66	106.54	113.20	103.35	557.07
Operating Expenses	248.14	250.77	261.42	313.76	332.68	1,406.78
Admin and General Expenses	135.14	128.45	153.37	193.22	200.65	810.84
Payment to AAI for VRS	16.65	16.24	15.66	15.18	14.70	78.43
Property Tax	7.94	5.18	6.19	6.35	6.93	32.59
Additional Property Tax Paid	12.15	-	22.17	-	-	34.33
Airport Operator fee	80.15	84.56	97.97	113.33	51.16	427.17
Finance Charges	118.13	14.75	80.90	10.40	10.16	234.34
<b>Total Expenses</b>	<b>848.10</b>	<b>733.06</b>	<b>860.33</b>	<b>911.70</b>	<b>886.16</b>	<b>4239.36</b>

Note: Refer Table 1A& 2 of Exhibit 1 for details

## 4.2 COMPARISON OF ACTUAL EXPENSE TO THE PROJECTIONS SUBMITTED TO AERA (RELATED TO SECOND CONTROL PERIOD) <sup>1</sup>

The actual costs incurred during the Second Control Period were compared to the total expense projections submitted to AERA for tariff determination of DIAL for Second Control Period.

The projected expense considered by the authority as per Table 57 of the second control period tariff order are only the Aeronautical portion of the total O&M expenses. In order to compare the total actual O&M expenses to the projections in the tariff order, the Aeronautical expense as per Table 57 of the tariff order were grossed up with Aeronautical percentages considered

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<sup>1</sup> Source: Tariff Order for second control period and Submission of DIAL for Tariff Proposal

in Table 53 of the second control period tariff order. The grossed-up expenses have been provided in Table 3 below:

*Table 3 Grossing of the Aeronautical Expenses as per Table 57 of the Tariff Order for Second Control Period:*

(₹ crores)

Particulars	Percentage as per Table 53 of tariff order for Second Control Period (used for grossing up expenses)	Total Projected Expenses as per Tariff Order of Second Control Period (after grossing up to 100%)					
		FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	89.79%	139.31	153.25	168.57	185.42	203.96	850.52
Utilities	100%	112.21	120.21	123.28	127.62	137.52	620.84
Terminal Operating Expenses	92%	311.59	336.14	362.64	391.25	391.25	1,792.87
Admin and General Expenses	70.28%	169.28	180.82	193.14	206.33	206.33	955.90
Payment to AAI for VRS	89.79%	18.72	18.25	17.61	17.06	16.47	88.12
Property Tax	87.54%	6.95	6.95	6.95	6.95	6.95	34.73
Airport Operator Fee	3% of Aero Revenue	84.21	89.70	75.01	14.64	16.18	279.74
<b>Total Projected Expenses</b>		<b>842.27</b>	<b>905.32</b>	<b>947.20</b>	<b>949.27</b>	<b>978.66</b>	<b>4,622.72</b>

The comparison of the total projected expense as per the Tariff Order to the actual expense incurred by DIAL is as per Table 4 below:

*Table 4 Actual Expenses vis-à-vis Total Projected Expense as per Tariff Order for Second Control Period*

(₹ crores)

Actual Expense as per DIAL's Audited Financials (A)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	132.12	125.34	130.58	164.48	186.76	739.28
Utilities	112.32	121.65	106.55	113.20	103.35	557.07
Operating Expenses	286.27	283.15	294.02	354.78	384.45	1,602.67
Admin and General Expenses	169.86	160.79	193.30	235.81	230.19	989.95
Payment to AAI for VRS	18.72	18.26	17.61	17.07	16.48	88.14
Property Tax	22.81	5.88	32.18	7.20	7.84	75.91

Actual Expense as per DIAL's Audited Financials (A)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Airport Operator fee	119.90	128.68	151.05	171.87	114.90	686.40
Finance Charges	661.86	30.51	172.89	11.23	33.45	909.94
<b>Total Expenses</b>	<b>1,523.86</b>	<b>874.26</b>	<b>1,098.18</b>	<b>1,075.65</b>	<b>1,077.42</b>	<b>5,649.36</b>
Projected Expense as per Table 57 of Second Control Period Tariff Order (B)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	139.31	153.25	168.57	185.42	203.96	850.52
Utilities	112.21	120.21	123.28	127.62	137.52	620.84
Operating Expenses	311.59	336.14	362.64	391.25	391.25	1,792.87
Admin and General Expenses	169.28	180.82	193.14	206.33	206.33	955.90
Payment to AAI for VRS	18.72	18.25	17.61	17.06	16.48	88.12
Property Tax	6.95	6.95	6.95	6.95	6.95	34.73
Airport Operator fee	84.21	89.70	75.01	14.64	16.18	279.74
Finance Charges	-	-	-	-	-	-
<b>Total Expenses</b>	<b>842.27</b>	<b>905.32</b>	<b>947.20</b>	<b>949.27</b>	<b>978.67</b>	<b>4,622.72</b>
Actual Expense over/(under) Projected Expense (A-B)						
Financial Year	FY15	FY16	FY17	FY18	FY19	Total
Salaries, Wages and Manpower	-7.19	-27.91	-37.99	-20.94	-17.20	-111.24
Utilities	0.11	1.44	-16.73	-14.42	-34.17	-63.77
Operating Expenses	-25.32	-52.99	-68.62	-36.46	-6.80	-190.19
Admin and General Expenses	0.58	-20.03	0.16	29.48	23.86	34.05
Payment to AAI for VRS	-0.00	0.01	0.00	0.01	0.00	0.02
Property Tax (Refer Note 1)	15.85	-1.08	25.23	0.25	0.89	41.16
Airport Operator fee (Refer Note 2)	35.69	38.98	76.04	157.23	98.72	406.66
Finance Charges (Refer Note 3)	661.86	30.51	172.89	11.23	33.45	909.94
<b>Total Expenses</b>	<b>681.58</b>	<b>-31.07</b>	<b>150.98</b>	<b>126.38</b>	<b>98.75</b>	<b>1,026.63</b>

**Note:**

- Property tax is higher than the projected number as DIAL incurred an additional liability of ₹ 38.95 crores due to additional tax demand from Municipal Corporation of Delhi (MCD).
- The variance in Airport Operator fee of Rs 406.66 crores (between Actual expenses and that projected in the Tariff order) is on account of higher collection of tariff revenue. (Airport operator's fee is computed as 3% of Aeronautical revenue).

3. Finance charges totaling to ₹ 909.94 crores includes foreign exchange losses of ₹ 646.43 crores (*out of which ₹ 576.30 was claimed by DIAL as Aeronautical expenses and ₹ 70.13 crores as Non -Aeronautical expense*) incurred on repayment of External Commercial Borrowings and other bank charges (as also mentioned in Note 4 to Table 1 and Note 1 to Table 2). Also, it was noted that the forex loss for FY15 was higher than the other Financial Years of the Second Control Period due to repayment of external commercial borrowing of USD 350 million.

### **4.3 DETAILS OF THE ADJUSTMENTS MENTIONED IN SECTION 4.1 (TABLE 2)**

#### **4.3.1 SEGREGATION OF AERONAUTICAL TO COMMON EXPENSES**

##### **4.3.1.1 IT SYSTEMS MAINTENANCE COSTS FOR T1 AND T2**

- *Refer Table 16 and Table 17*
- *Segregation by DIAL: 100% Aeronautical*
- *Issue:* These are common facilities used for both Aeronautical and Non-Aeronautical services. Hence, the total IT expense of ₹ 8.22 crores are segregated to “Common” and segregated in the proportion of the Adjusted Gross Fixed Assets ratio of 89:11 (*Refer Table 82 for segregation of assets for workings on Adjusted Gross Fixed Assets ratio*).
- *Impact:* The total impact of segregation from 100% Aeronautical to 88.92% reduces Aeronautical expense to the extent of **₹ 2.26 crores**.

##### **4.3.1.2 LANDSCAPING COSTS**

- *Refer Table 16 and Table 17*
- *Segregation by DIAL: 100% Aeronautical*
- *Issue:* It includes costs for entire Terminal, approach roads to Terminals and the admin office serving both Aeronautical and Non-Aeronautical facilities. Hence

this expense is segregated as “Common” and segregated in the proportion of the weighted average terminal space.

- **Impact:** The total impact of segregation from 100% Aeronautical to 84.10% reduces Aeronautical expense to the extent of ₹ 4.42 crores.

#### 4.3.1.3 QUALITY MANAGEMENT COSTS

- *Refer Table 16 and Table 17*
- *Segregation by DIAL:* 100% Aeronautical
- *Issue:* Quality Management team, work towards the overall improvement of Airport operations and aren't specific to Aeronautical Operations. Hence the costs are segregated to “Common” and segregated in proportion of Adjusted Gross Fixed Asset Ratio of 89:11
- **Impact:** The total impact of segregation from 100% Aeronautical to 89:11 reduces Aeronautical expense to the extent of ₹ 1.60 crores.

#### 4.3.2 SEGREGATION OF COMMON COSTS WITHIN THE TERMINAL

- *Refer Table 19 and Table 20*
- *Segregation by DIAL:* Proportion to Floor area measurement segregated into Aeronautical and Non-Aeronautical Space
- *Issue:* The total floor area measurement for the terminals were drawn from M/s Jacob's Consultancy report dated 14th June 2011 detailing the area measurements for each component into Aeronautical / Non-Aeronautical. However, Order number 28 of AERA dated 14th November 2011 directed the elimination of 8652sqm from the gross area calculation and the total let-out area to the concessionaires at Terminal 3 which were not considered in the 14<sup>th</sup> June 2011 report.
- Considering the impact of the adjustment of 8652sqm in line with the order number 28 of AERA, the proportion of Aeronautical floor space was revised from 82% to 84%.

- **Impact:** ₹ 8.11 crores of addition towards Aeronautical Expenses due to change in Aeronautical proportion from 82% to 84%.

### 4.3.3 SEGREGATION OF COMMON COSTS OUTSIDE THE TERMINAL

#### 4.3.3.1 SUPPORT FUNCTIONS AND SENIOR MANAGEMENT COSTS

- *Refer Table 23 and Table 24*
- **Segregation by DIAL:** Costs related the office of the Business Chairman and Group Chairman, the allocated costs from its group companies and costs related the support business functions like IT, finance, etc. were segregated into Aeronautical/Non-Aeronautical in the proportion of Aeronautical/Non-Aeronautical Closing Gross Fixed asset base of the company which was in the range of 89.08%: 10.92% to 89.27% : 10.73% year on year for the Second Control Period.
- **Issue:** Owing to the revision in the segregation logics under RFP 03/2018-19 for assets related to the New Udaan Bhavan, the office development of the Business and Group Chairperson and the common guest houses (*Refer Table 82 for segregation of assets for workings on Adjusted Gross Fixed Assets ratio*), the Aeronautical proportion of the assets was reduced from 89.08% to 89.27% to 89 %. This decrease in proportion of assets were applied to the above costs resulting in decrease of Aeronautical proportion of expenses.
- **Impact:** The adjusted Gross Fixed Ratio (89:11) reduced the Aeronautical Expenses to the extent of ₹ 2.05 crores.

#### 4.3.3.2 CHARTERING COSTS

- *Refer Table 25*
- **Segregation by DIAL:** Flying charges of charter used by the Business and Group Chairperson of DIAL have been currently segregated in proportion to the Gross Fixed Asset Base of the Company of 89:11.

- **Issue:** Since the purpose of these chartering services cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the chartering services are used by the senior management in a 50:50 proportion for Aeronautical and Non-Aeronautical services.
- **Impact:** Revisiting the segregation, reduced the proportion of Aeronautical expense from 89% to 50%, has an impact of ₹ 10.61 crores on Aeronautical Expenses.

#### 4.3.3.3 TRANSIT HOUSE EXPENSE SEGREGATION

DIAL has taken guest houses on lease in Delhi for use by the transiting corporate members of the company and has incurred ₹ 45 crores for Second Control Period on rental and maintenance of the transit house.

- **Refer Table 26**
- **Segregation by DIAL:** Segregation of expenses is based on Gross Fixed Asset Ratio.
- **Issue:** Since the purpose of use of these guest houses cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the guest house is used in a 50:50 Proportion for Aeronautical and Non-Aeronautical services.
- **Impact:** Revisiting the segregation, reduced the proportion of Aeronautical expense from 89% to 50%, has an impact of ₹ 17.91 crores on Aeronautical Expenses.

#### 4.3.3.4 CORPORATE SOCIAL RESPONSIBILITY (CSR) COSTS

- **Refer Table 28**
- **Segregation by DIAL:** Being a registered Company, CSR expenditure is a statutory requirement and a business expense required to be spent for the purpose of continuing and maintaining the operations of the Company. DIAL had spent ₹ 33.72 crores on CSR and claimed ₹ 30.07 crores as Aeronautical Expenses in the ratio of Gross Fixed Assets of the Company.

- **Issue:** The Authority may take its own view in this regard.

#### 4.3.3.5 CHARITIES AND DONATIONS

- *Refer Table 27*
- **Segregation by DIAL:** Segregation based on Gross Adjusted Fixed Asset Ratio.
- **Issue:** As these expenses are not related to passenger or airline services, these costs are segregated as 100% Non-Aeronautical.
- **Impact:** Reduction of ₹ 7.27 crores from the total Aeronautical Expense base.

#### 4.3.3.6 LEGAL COSTS

- *Refer Table 30*
- **Segregation by DIAL:** Segregation based on Gross Adjusted Fixed Asset Ratio (89:11)
- **Issue:** Review of legal cases for Second Control Period up to FY17-18, showed that 19% (₹ 8.52 crores) of the total legal cases were Non-Aeronautical in nature, while the remaining were either Aeronautical or Common in nature. The common legal cases were apportioned in the ratio of adjusted gross fixed assets (89:11) and the revised value of Aeronautical and Non Aeronautical legal costs were worked out (which was in the proportion of 74.84% to 25.16%) The above revised % of Aeronautical to Non Aeronautical cases (74.84%: 25.16%) were applied for apportionment of total legal costs (₹ 53.86 crores incurred up to FY19).
- **Impact:** Reduction of ₹ 7.71 crores from the total Aeronautical Expense base due to change in proportion from Adjusted Gross Fixed Assets ratio (89:11) to proportion of Aeronautical cases legal cost to Non-Aeronautical cases legal cost (74.84%: 25.16%)

#### 4.3.3.7 COMMON HR/ MANPOWER COSTS

- *Refer Table 32 and Table 33*

- **Segregation of DIAL:** Manpower costs were segregated based on manpower count per department into Aeronautical and Non-Aeronautical costs.
- **Issue:** However, since the segregation is based on the manpower count per department aren't representative to the proportion of the associated cost of the department, the segregation logic has been revisited to ensure more accuracy. The segregation was revised from a proportion of 89.79% to 89% in the proportion of Aeronautical Gross Fixed Asset to the Total Gross Fixed Assets.
- **Impact:** The above revision reduces the Aeronautical expenses to the extent of ₹ 5.97 crores (manpower costs) and ₹ 2.51 crores (other HR related costs) towards Aeronautical Expenses.

## 4.4 INTERNAL BENCHMARKING

- *Refer: Section 15*

### 4.4.1 METHODOLOGY FOLLOWED FOR BENCHMARKING

- Following cost components of DIAL were analysed over the time period within DIAL:
  - i. Terminal Operating costs (like utilities, repairs and maintenance, housekeeping, consumables, security etc)
  - ii. Administrative & General expenses
  - iii. Manpower costs
- Data for first control period was collated from ICWAI report on "Assessment of efficient Operation and Maintenance costs".
- Data for second control period were collated from the respective years Audited Financial Statements of DIAL
- The percentage change in costs over control periods 1 and 2 were analysed and the probable factors affecting the change in costs were noted.
- Trend analysis of above costs were performed based on factors such as passenger traffic, air traffic movement (ATM), terminal and runway capacity utilisation, management structure and contract outsourcing practices.

#### **4.4.2 RESULTS:**

- Referring to the growth pattern in various operating factors over the period (depicted in the charts in section 16.1) like steady increase in Passenger traffic from 26.13 million in FY10 to 65.69 Million in FY18 (please refer Table 88 of the detailed report) and extensive utilisation of DIAL's runway capacity (from 45% in FY11 to 75% in FY18) we contend that the airports must expand its operational capacity to accommodate the increased workload, which invariably will lead to increased operating cost for Airport Operator.
- However, with expansion, Airports benefit from economies of scale (i.e. expenditure per PAX) by enhancing the efficiencies in the operating and spreading out of the overhead costs along with marginal increase in cost due to administrative complexities. Refer figure 3 of section 16.1 which reflects that the CAGR of the total costs from FY10 to FY18 is higher than the CAGR of the costs per PAX/ATM from FY10 to FY18.

### **4.5 EXTERNAL BENCHMARKING**

#### **4.5.1 EXTERNAL BENCHMARKING - DOMESTIC AIRPORTS**

- *Refer Section 16.1*

##### **4.5.1.1 METHODOLOGY**

- The Operation and Maintenance costs of DIAL were compared with the following airports:
  - i. Bengaluru Airport
  - ii. Hyderabad Airport
  - iii. Mumbai Airport
  - iv. Cochin Airport
- Benchmarking results were published on per passenger and per ATM basis.

#### **4.5.1.2 RESULTS:**

- Overall, DIAL Operation and Maintenance costs (per passenger and ATM) were reasonable in comparison with other airports. However, it is important to be mindful of the numerous uncontrollable factors that vary between the airports since these variable factors are generally consistent with costs.
- A comparison of Operation and Maintenance and Administration costs of DIAL and MIAL showed that on an average both the airports operate at the same levels of operating and non-operating costs

## **4.6 EXTERNAL BENCHMARKING - INTERNATIONAL AIRPORTS**

- *Refer Section 16.2*

### **4.6.1 METHODOLOGY**

- DIAL's operating costs and staff costs were benchmarked with 15 international airports (which includes Amsterdam, Melbourne, Sydney, London, Beijing, Hongkong, Changi)
- The benchmarking results were expressed on per Passenger basis; on per ATM basis and in relation to airport capacity.

### **4.6.2 RESULTS:**

- Delhi ranks in 15<sup>th</sup> position out of 16 airports (*in order of highest to lowest cost*) in terms of total costs per passenger
- Delhi ranks in 16<sup>th</sup> and 15<sup>th</sup> positions in terms of staff costs and non-staff costs per passenger, respectively (*in order of highest to lowest cost*)
- Overall analysis indicates that Delhi's costs are comparatively lower than its peers in the sample.

Reiterating the fact that the chosen comparable airport only broadly meets the criteria of comparable airport size, it is interpreted that the Operating and Maintenance cost levels at the Delhi Airport are comparatively lower than its peer airports. However the

scale of difference between the variation from the average for maintenance costs compared to the variation from the average for the other three metrics reinforces doubts relating to the comparability of maintenance costs on the grounds of differing approaches in allocating costs to the maintenance category at the various airports.

## 4.7 SUMMARY

The total Operational and Maintenance costs incurred by DIAL during Second Control Period is ₹ 5,649.36 crores. Of this cost and as classified by DIAL, Aeronautical Expenses (other than Forex Losses of ₹ 576.30 crores) are ₹ 4,304.15 crores and Non-Aero Expenses are ₹ 768.91 crores. Based on this Study, we have made an adjustment to the Aeronautical Expense for ₹ 64.79 crores (as mentioned in section 4.1) and the total expenses have been re-segregated (refer Table 2 of this section) as under:

- Adjusted Aeronautical expenses: ₹ 4,239.36 crores.
- Non-Aeronautical expenses: ₹ 833.70 crores.
- Forex losses: ₹ 576.30 crores. This has been classified as Aeronautical expense by DIAL. However, the Authority may take its own view with regard to the above foreign exchange loss.

DIAL's Operation and Maintenance costs (per passenger and ATM) were reasonable in comparison with other domestic airports. A comparison of Operation and Maintenance and Administration costs of DIAL and MIAL showed that on an average both the airports operate at the same levels of operating and non-operating costs.

On benchmarking DIAL with 15 international airports, it was noted that:

- *Delhi ranks in 15<sup>th</sup> position out of 16 airports (in order of highest to lowest cost) in terms of total costs per passenger.*
- *Delhi ranks in 16<sup>th</sup> and 15<sup>th</sup> positions in terms of staff costs and non-staff costs per passenger, respectively (in order of highest to lowest cost).*

Overall analysis indicates that Delhi's costs are comparatively lower than the other international airports reviewed.

## **5 PROFILE OF DELHI INTERNATIONAL AIRPORT PRIVATE LIMITED (DIAL)**

In the year 2003, the Airports Authority of India Act, 1994, was amended to enable setting up of private Airports and leasing of existing airports to private airport operators. The Amendment Act of 2003 was brought into effect on 01.07.2004. In pursuance thereof, the Government of India (GOI) had approved the modernization, up-gradation and development of the Delhi and Mumbai airports through private sector participation. Airports Authority of India (AAI) initiated the process of selecting a lead partner for executing the modernization projects and undertook a competitive bidding.

In so far as DIAL Airport, New Delhi is concerned a consortium led by the GMR Group was selected for modernisation of the Airport. Post selection of the private consortium a special purpose vehicle, namely Delhi International Airport Private Limited (DIAL), was incorporated on 01.03.2006 with AAI retaining 26% equity stake and balance 74% of equity capital acquired by other members of consortia. The GMR consortia comprised GMR group entities, Fraport AG, Malaysia Airports Holdings BHD and India Development Fund (which exited the consortium subsequently). On 04.04.2006, DIAL signed the Operation, Management and Development Agreement (OMDA) with AAI and took over the operations of DIAL Airport on 03.05.2006.

In addition to the OMDA, DIAL entered into various agreements (as listed below) with AAI, GOI and the Government of National Capital Territory of Delhi to give effect to the process of transactions:

1. State Support Agreement (SSA)
2. Shareholders' Agreement (SHA)
3. CNS-ATM Agreement
4. Airport Operator Agreement (AOA)
5. State Government Support Agreement (SGSA)
6. Lease Deed Agreement (LDA)
7. Substitution Agreement

## 8. Escrow Agreement

Currently, **INDIRA GANDHI INTERNATIONAL AIRPORT (IGAI)** serves as a major hub or a focus destination for several Indian Carriers including Indigo, SpiceJet, Go Air, Air Asia and Vistara. It serves 56 International airlines and is directly connected to 62 international destinations across the world.

## 5.1 SALIENT FEATURES OF THE INDIRA GANDHI INTERNATIONAL AIRPORT<sup>2</sup>

- Advanced 5 level in-line baggage handling system with explosive detection technology for greater efficiency and security.
- Terminal 3 has state-of-the-art complex featuring Common Use Terminal Equipment (CUTE)
- The arrival hall features both standard and wide-body baggage reclaims belts.
- Two tier terminal building featuring the departure complex on the upper level and the arrivals at the lower level.
- New terminal can be accessed by a 6-lane approach road and a dedicated high-speed Metro line from the city centre.
- Access to the aircraft from the terminal is provided by 4 piers.
- For International passengers more than 95 desks for fast and smooth immigration procedures.
- 78 Aeronautical bridges
- Over 168 counters in the check-in area to speed up check-in and security clearances unobtrusively.

The roof of the building has stylized incisions to allow daylight and angled to protect the interior from direct sunlight creating an ambience maximizing the

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<sup>2</sup>Source: GMR DIAL Website

sense of volume, space and light inside. Optimal use of natural light in daytime reduces dependence on artificial light.

## 5.2 GROWTH IN AIRPORT OPERATIONS<sup>3</sup>



Delhi's DIAL serves as the primary international aviation hub of the Indian state of Delhi. The airport, spread over an area of 5,106 acres, is the busiest airport in India in terms of passenger traffic since 2009, the 12th busiest airport in the world and 6th busiest airport in Asia by passenger traffic handling nearly 67 million passengers in FY18. It is also the world's busiest airport for Airbus A320 aircraft and the second busiest airport in the country in terms of cargo traffic after Mumbai.

The report, based on data from Airports Council International (ACI), the global body that monitors airport traffic, also puts Delhi's compound annual growth rate (CAGR) between FY14 and FY17 at 14.3%. This being the highest among airports handling at least 40 million passengers per annum, comfortably ahead of Incheon, South Korea (10.5%), Pudong Shanghai, China (10.4%), and Dubai, UAE (7.4%).

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<sup>3</sup> Source: GMR DIAL Website

### 5.3 PASSENGER RATING GROWTH<sup>4</sup>

In 2010, DIAL was conferred the fourth best airport award in the world in the 15–25 million category, and *Best Improved Airport* in the Asia-Pacific Region by Airports Council International. The airport was rated as the *Best airport in the world* in the 25–40 million passengers’ category in FY15, by Airports Council International. DIAL was also awarded *The Best Airport in Central Asia* at the Skytrax World Airport Awards 2015. DIAL also stood first in the new rankings for FY15 Airport Service Quality (ASQ) Awards conducted by Airports Council International. The DIAL was also awarded the "World's Best Airport" at Airport Service Quality Awards 2017 in the highest category of airports handling more than 40 million passengers annually.

The growth on the overall satisfaction score over the years is demonstrated in the below graph. The parameters chosen for the rating and scores per parameters obtained by DIAL for third quarter ended 30<sup>th</sup> September 2018 is attached in the below file:



<sup>4</sup> Source: GMR DIAL Website

## 5.4 SUMMARY

- Delhi International Airport Private Limited (DIAL) was incorporated on 1 March 2006 with AAI retaining 26% equity stake and balance 74% of equity capital acquired by GMR consortia, which comprised GMR group entities, Fraport AG, Malaysia Airports Holdings BHD and India Development Fund (which exited the consortium subsequently). In 2006, DIAL signed the Operation, Management and Development Agreement (OMDA) with AAI.
- DIAL is the busiest airport in India in terms of passenger traffic since 2009, the 12th busiest airport in the world and 6th busiest airport in Asia by passenger traffic handling nearly 67 million passengers in FY18. The annual growth rate of DIAL (CAGR) between FY14 and FY17 based on data from Airports Council International (ACI) is at 14.3%.

## 6 TRAFFIC TREND AND CAPACITY UTILIZATION AT THE DIAL AIRPORT <sup>5</sup>

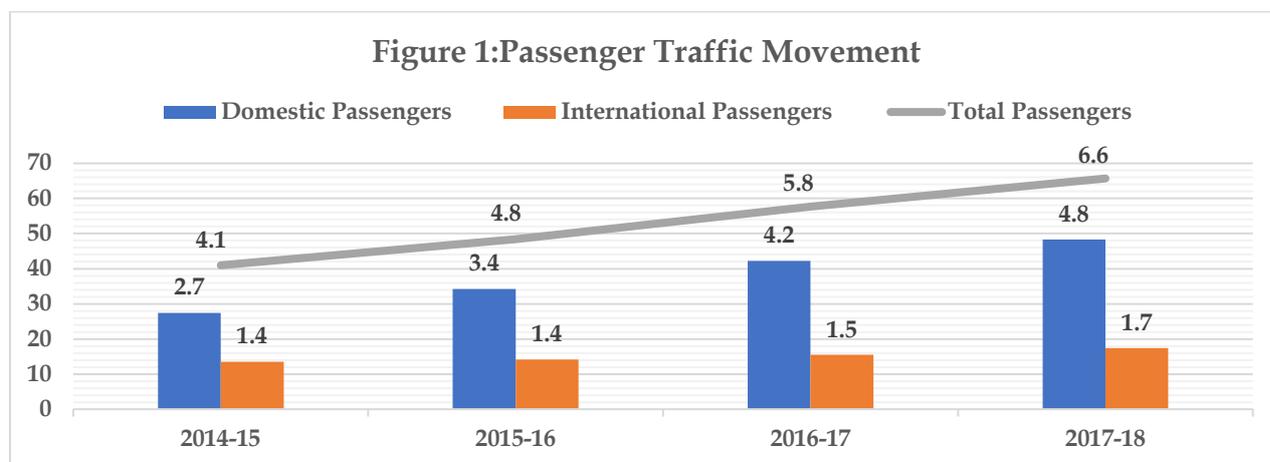
### 6.1 PASSENGER TRAFFIC MOVEMENT

Domestic and International Passenger traffic at DIAL during Second Control Period (FY15 to FY18) is indicated in **Table 5** below:

Table 5 Domestic and International Trend for Passenger Movement during Second Control Period

(In Crore passengers)

Particulars	FY15	FY16	FY17	FY18	CAGR
Domestic Passengers	2.75	3.43	4.22	4.83	20.73%
International Passengers	1.35	1.42	1.55	1.74	8.70%
Total Passengers	4.10	4.84	5.77	6.57	17.03%



The total passenger traffic at DIAL has achieved CAGR of 17.03% in the Second Control Period. Multiple factors like urban agglomerations, GDP, geographical location of the airport,

<sup>5</sup> Source: Management Report  
 R. Subramanian and Company LLP  
 Chartered Accountants

population, age structure and education level has impacted the steady increase in the passenger traffic.

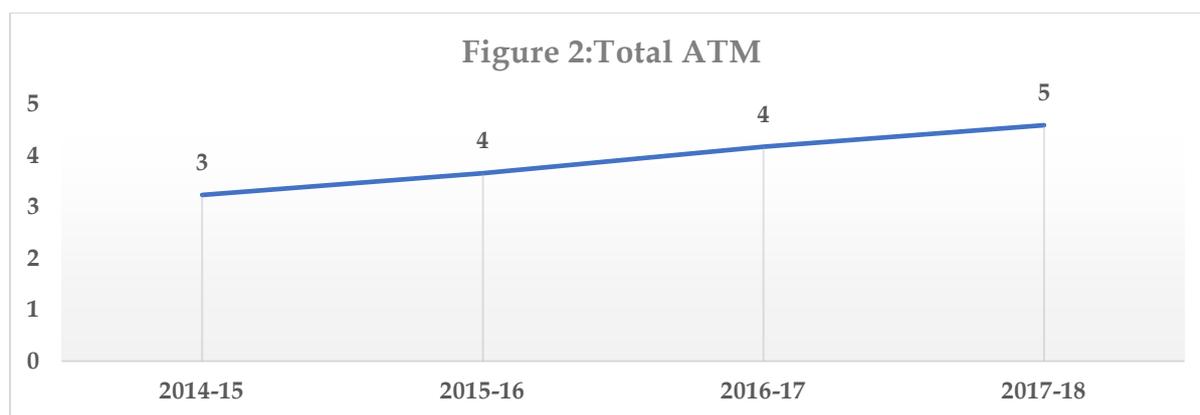
## 6.2 AIR TRAFFIC MOVEMENT

The total Air Traffic Movement (ATM) at DIAL (Landed Flights) during Second Control Period (FY15 to FY18) is indicated in **Table 6** below:

Table 6 Air Traffic Movement during Second Control Period

(laks)

Particulars	FY15	FY16	FY17	FY18	CAGR
Total ATM	3.23	3.66	4.17	4.59	12.39%



Air traffic at DIAL has achieved an overall CAGR of 12.39% in the Second Control Period.

## 6.3 CARGO MOVEMENT

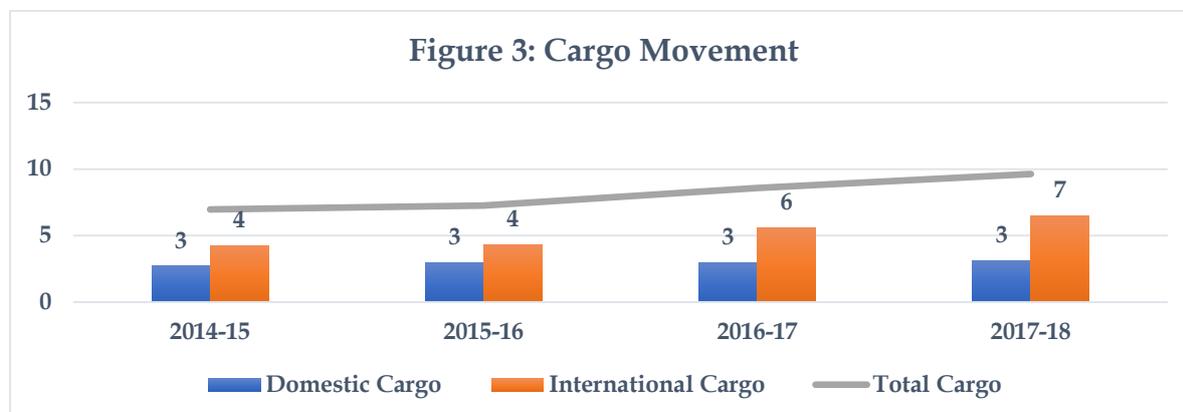
The Cargo at DIAL during Second Control Period (FY15 to FY18) is indicated in **Table 7** below:

Table 7 Cargo Movement During Second Control Period

(Laks)

Particulars	FY15	FY16	FY17	FY18	CAGR
Domestic Cargo	2.72	2.95	2.98	3.12	4.67%
International Cargo	4.25	4.31	5.59	6.51	15.32%

Total Cargo	6.97	7.26	8.57	9.63	11.40%
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Inventory build-ups, augmented export orders and strengthening of consumer demand, increase in online purchases, were important drivers that translated into CAGR of 11.40% in air cargo volumes.

## 6.4 CAPACITY UTILIZATION

### 6.4.1 PASSENGER TERMINAL

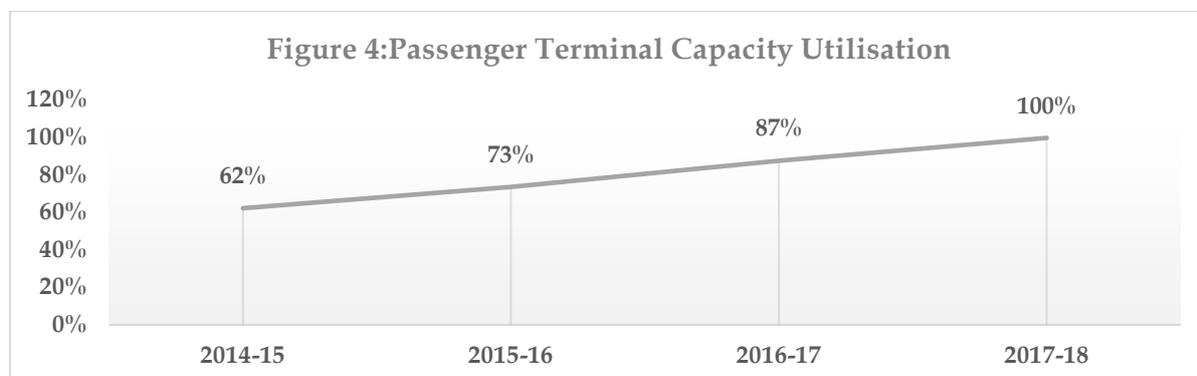
Passenger terminal capacity at DIAL Airport, New Delhi has been around 66 Million PAX per Annum (MPPA) from FY15 to FY18 including all the three operational terminals. Operational Passenger terminal capacity utilisation after the commissioning of the New International Terminal -3 is as below

Table 8 Terminal Building Capacity Utilisation during Second Control Period

(In crores)

Particulars	FY15	FY16	FY17	FY18
Total Passengers	4.10	4.84	5.77	6.57
Total Capacity	6.60	6.60	6.60	6.60
Capacity Utilisation	62%	73%	87%	100%

Note: 66M capacity per year for all three terminals includes the capacity built for T2 which was refurbished in Second Control Period to cater to the space currently under construction at T1.



It is observed that the passenger terminal capacity utilization has grown at DIAL Airport during Second Control Period. At the end of First Control Period, the operational passenger terminal capacity utilization is 100%. It implies that the operation cost (fixed capacity and committed costs) per passenger will go down with the increase in capacity utilization. Since major part of operation cost at an Airport is fixed cost (such as manpower cost, repair and maintenance cost), the overall operation cost per passenger will also go down with the increase in passenger capacity utilization.

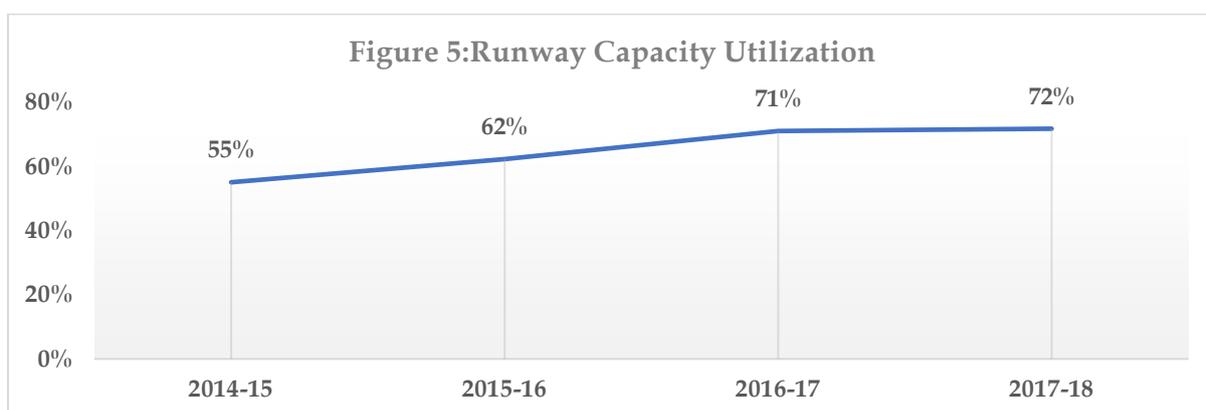
#### 6.4.2 RUNWAY CAPACITY

PEAK HOUR MOVEMENT: DIAL has three runways in operation i.e. 09/27, 10/28 and 11/29. DIAL had achieved a peak hour utilisation of around 67 movements for a particular hour up to FY17 and had increased to 73 movements in a particular hour for FY18. Thus, for the purpose of arriving at the capacity of the runway, we have calculated the highest movement in the runway for FY18 (73 Movements) to 24 hours of the day to 365 days in the year. This is under the assumption that the runway can support such numbers at any given time.

Table 9 Runway Capacity Utilisation

(Lakhs)

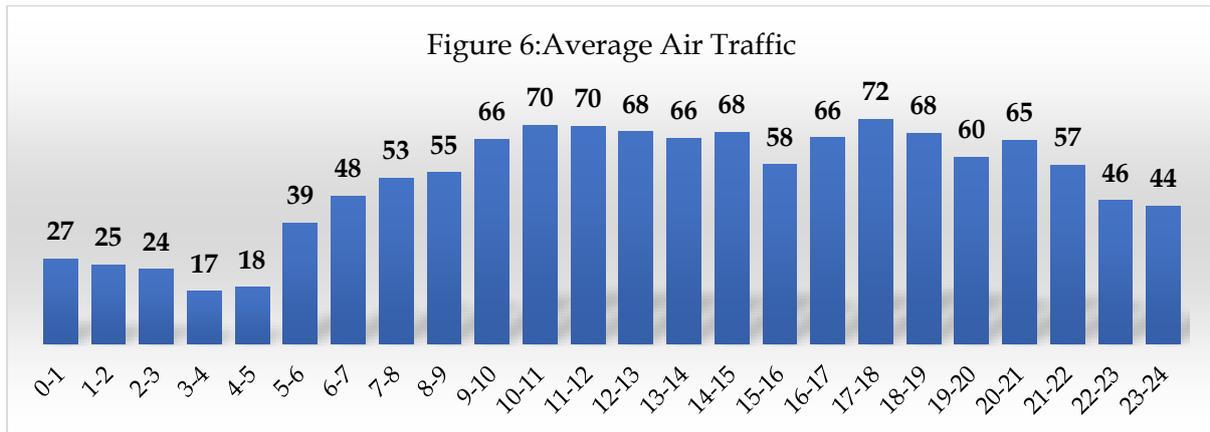
Particulars	FY-15	FY-16	FY-17	FY-18
Total ATM	3.23	3.66	4.17	4.59
Runway Capacity	5.87	5.87	5.87	6.39
Capacity Utilisation	55%	62%	71%	72%



**Disclaimer:**

The total runway capacity derived here is only for the purpose of comparing the increases in the variable cost associated to the runway’s capacity usage. These numbers aren’t representative of idle runway capacity as the slot allocation to the airlines are dependent on the requests received from such airlines. This can be represented in the below traffic analysis for the first week of January 2018.

On observing the traffic movement in 24 hours, it was noted that on an average, there were around 52 movements in an hour. Out of the 24 hours in the day, for around 15 hours the runway utilisation had been above the average of 52 movements. The average trend of hourly movements for the week is depicted in the below table. The traffic varies every hour due to the respective slot allocations requested by the airlines.



## 6.5 SUMMARY

The total passenger traffic at DIAL has achieved a CAGR of 17.03% in the Second Control Period and the growth of Air traffic is 12.39% and Cargo is 11.40%. The Passenger Terminal Capacity utilisation has increased from 62% to 100% and the Runway Capacity utilisation has increased from 55% to 72%.

## 7 BUDGETING PROCESS OF DIAL

Process followed by DIAL for preparation of their Annual Operating Plan (AOP) is as below:

- Development of AOP is initiated around three months before the commencement of the financial year,
- A Zero-based budgeting plan is prepared,
- Future estimates are based on:
  - OMDA standards,
  - Airport Service Quality (ASQ) rating requirements,
  - Airport Traffic (like number of passengers (PAX), Aircraft Movement (ATM), Cargo tonnage),
  - Inflation,
  - Deterioration in the infrastructure over the last period,
  - Additional mandates from regulatory agencies, etc.
- Corporate Strategic & Planning Department (CSPD) which is a department at the group level, meets with the all business heads for a macro level brainstorming,
- AOP process is driven by Strategic Planning Group (SPG) which is responsible for coordinating the process and to give the qualitative inputs,
- Each department shares the data in a pre-specified format under common expenditure heads,
- The expenditure is then reviewed by department heads and brainstorming takes place to rationalize and review the projections so that finalization can take place,
- Before consolidation takes place, there is a review by the CFO and CEO,
- Thereafter, there is a review by the Managing Director and Chairman,
- Finally, consolidated AOP is prepared and submitted to the Board for approval,
- The AOP is then monitored regularly by each department head, CFO, CEO and the Chairman. This also gets reviewed on a quarterly basis at the board level.

## **7.1 SUMMARY**

Standardized process is followed at DIAL for setting up budgets in the form of an Annual Operating Plan (AOP). Inputs are obtained from each department, consolidated and reviewed by the CFO, CEO, Chairman and the Board of Directors, and subsequently the AOP is finalized and reviewed on a quarterly basis.

## 8 MONITORING OF BUDGET vs. ACTUALS

DIAL prepares Management Information System (MIS) and delivers to the board at regular intervals. It provides the data/information to help board and management to monitor and control the business decisions effectively and take strategic decisions. MIS is prepared in an appropriate Presentation/Excel spreadsheet and at a given time frame as desired by the Operations and the Senior Management.

MIS is reviewed periodically at various levels of Senior Management. A comparison is made between the Annual Operating Plan (AOP) and the actual performance on the following parameters and documented in the above MIS.:

- Operational parameters for the month/ quarter and year to date (YTD)
- Financial parameters for the month/ quarter and year to date (YTD), including the variance analysis.

### 8.1 MONTHLY CEO REVIEW

Some of the activities that are part of monthly CEO review at DIAL are as below:

**Action Taken Report (ATR):** During each of the review, minutes of the meetings are recorded by Strategic Planning Group (SPG) team. SPG team filters ATRs pertaining to each of the departments. These ATRs are sent to the MIS team for action and follow up. MIS team tracks these ATRs on monthly basis and ensures that the deadlines are achieved for the respective department. Input is provided by HOD Finance and CFO DIAL in cases where they are directly involved with some of the actions. It is ensured that the deadline is achieved and if in case it is not, then the reasons for the non-achievement are documented.

**Personal Development and Performance Review (PDPR):** PDPR is a tracking system for DIAL in terms of target key performance indicators (KPIs) and actual achievement on a monthly basis. MIS team tracks these KPIs like PAT, receivable days, BLIP initiatives, Kaizen, employee engagement etc.

**Finance Department Expenses Analysis:** Finance department expense analysis is done wherein the actual expenses incurred are compared against the projected expenses. Reasons for variances if any, are documented as part of the above analysis and presented to the CEO.

**Cash Flow Statement:** Treasury team provides cash flow statement which is bifurcated in two parts i.e. Project cash flow and Operational cash flow. A summary on cash flows is presented to the CEO along with detailed back up for project and operational cash flow.

### **8.1.1 CEO REVIEW OF OPERATIONS DEPARTMENT**

- Hits and Misses
- Things that didn't go well
- Top Plan/Focus Area going forward
- Action Taken Record
- Environment Management Initiatives
- Other Business Updates
- Overall departure (On Time Performance) OTP Comparison

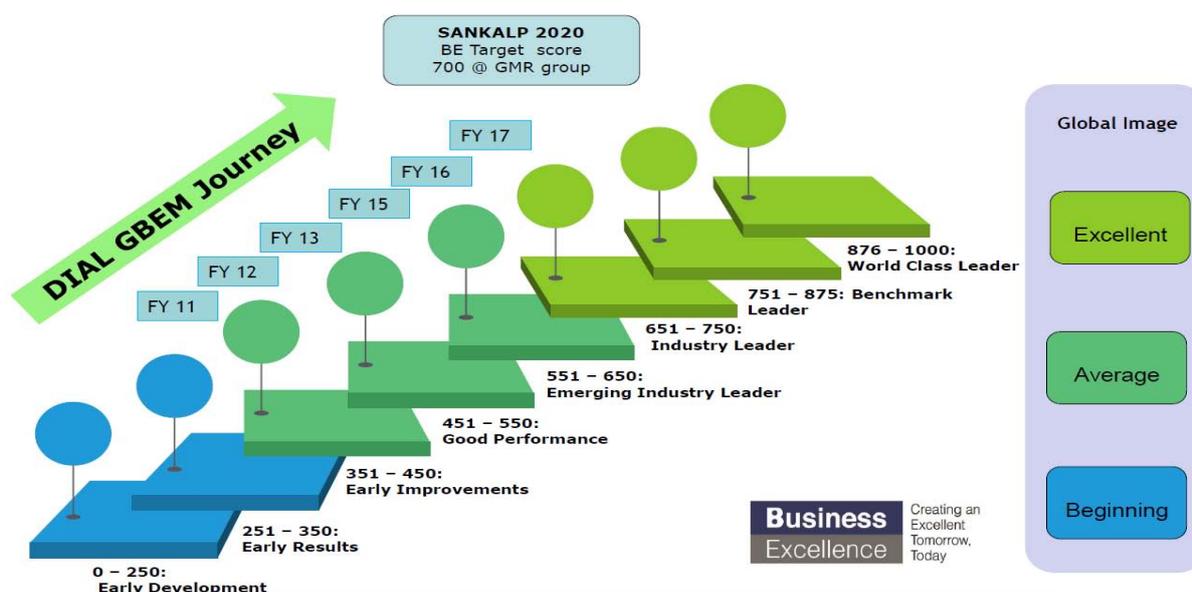
## **8.2 SUMMARY**

MIS documenting the actual performance (operational and financial) vis-à-vis the Annual Operating Plan is documented and reviewed periodically by the Senior Management. Following reports are reviewed on a monthly basis by CEO:

- Action Taken Report (ATR)
- Personal Development and Performance Review (PDPR)
- Finance Department Expenses Analysis
- Cash Flow Statement

## 9 COST REDUCTION MEASURES AND IMPROVEMENT PLANS ADOPTED BY DIAL <sup>6</sup>

In a relatively short time, DIAL has made a steady progress in the journey towards sustainable business excellence. With the Launch of the ACI-ASQ OMDA Schedule 3 Compliance Customer Response Management in 2007, DIAL has become world class leaders for Airport Operations in FY17.



Kaizens, 5S, Continuous Improvement Plans (CIPs), Bottom Line Improvement Plans (BLIP) have become part of every business process with implementation of more than 400 improvement projects across DIAL, with active participation of over 2000 employees. A summary of the process improvements undertaken at DIAL to ensure optimisation of cost and revenue generation is as below:

<sup>6</sup> Source: Management Information  
 R. Subramanian and Company LLP  
 Chartered Accountants

Table 10 Total Recurring Cost Savings During Second Control Period

(₹ crores)

Financial Year	Recurring Cost Saved (CIP/BLIP)
FY15	33.00
FY16	28.36
FY17	17.89
FY18	13.40
<b>Total</b>	<b>92.65</b>

The projects and studies undertaken by DIAL for efficiency improvements are listed below:

Table 11 Major Cost Saving Projects Undertaken by DIAL

(₹ crores)

Year	Nature of the Project	Category	Audited Value
FY15	Optimization of Power Consumption per PAX	Recurring Cost Saving	7.17
FY15	Lower Tax Deduction Certificate @ - Rate (Interest Saving due to Non-deduction of TDS on receipt from Customers)	Recurring Cost Saving	4.83
FY16	Reduction of Water Consumption at the Terminals	Recurring Cost Saving	6.90
FY16	Consolidation of Airside Maintenance Contracts	Recurring Cost Saving	1.40
FY17	One Time Cost Saving by using reutilizing of T2 assets and Innovative Artworks	One Time Cost Savings	2.00
FY17	Energy Conservation in T3 HVAC	Recurring Cost Saving	2.85

Year	Nature of the Project	Category	Audited Value
FY18	Energy Conservation in T3 HVAC	Recurring Cost Saving	8.53
FY18	Reduction of Water Consumption at the T3	Recurring Cost Saving	1.43
FY18	Life Cycle Improvement of Chillers through Zero Breakdown	One-time Cost Saving	0.074
FY18	Reduction in Energy Consumption of STP/WTP by 1000KWH/day up to Dec -17	Recurring Cost Saving	0.078

## 9.1 SUMMARY

- DIAL has made a steady progress in the journey towards sustainable business excellence.
- Kaizens, 5S, Continuous Improvement Plans (CIPs), Bottom Line Improvement Plans (BLIP) have become part of every business process with implementation of more than 400 improvement projects across DIAL, with active participation of over 2000 employees.
- The total recurring cost savings (CIP/ BLIP) for the Second Control Period is ₹ 92.65 crores.

## 10 SEGREGATION OF COSTS INTO AERONAUTICAL AND NON-AERONAUTICAL

### 10.1 SEGREGATION LOGICS ADOPTED BY DIAL

Below is the brief of the procedures applied by DIAL for allocation of the expenses:<sup>7</sup>

- a. All the expenditure attributable directly to Aeronautical Services or Non-Aeronautical Services were allocated accordingly and
- b. Segregation of the expenditure is done based on the nature of the cost centre and respective expenditure incurred in the cost centre.
- c. For the remaining costs, which cannot be directly measured, the relevant drivers were used to bifurcate such costs.
- d. The main drivers that have been used for allocating operational and administrative costs as Aeronautical and Non-Aeronautical are as follows:

*Table 12 Percentages Adopted for Segregation of Common Expenses*

Particulars	FY15	FY16	FY17	FY18
Common HR Costs	89.79%	89.79%	89.79%	89.79%
Common Terminal 1 Expense	84.00%	84.00%	84.00%	84.00%
Common Terminal 2 Expense	84.20%	84.20%	84.20%	84.20%
Common Terminal 3 Expense	82.32%	82.32%	82.32%	82.32%
Common Administrative Expense (outside of terminals)	89.27%	89.20%	89.08%	89.04%

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<sup>7</sup> Source: Concept Note of DIAL for Second Control Period  
 R. Subramanian and Company LLP  
 Chartered Accountants

The basis for determining the above percentages are discussed below:

**1. Common HR:**

AERA Vide its Decision No. 15 of the Delhi Tariff Order 03/2012-13 considered allocation ratio of 89.79% is adopted for the entire Control Period - I in Order No. 40 This driver is being used for allocation of entire employee benefit expenses, cost centres which are allocable only based on manpower deployed included in operating and administration expenditure.

**2. Common TI, T2 and T3:**

The percentages mentioned in the above table are the extract from Aeronautical Terminal Area Ratio as certified by a consultancy firm, Jacobs Consultancy on 14th June,2011. The drivers are adopted for the allocation of operational and administrative expenditure incurred for the specific terminal and are allocated based on the terminal area proportionately.

**3. Common:**

The common percentage mentioned in the above table is arrived from the Gross Fixed Assets ratio between Aeronautical and Non-Aeronautical assets. This percentage is applied for the remaining cost centres.

**4. Collection charges included in the expenses are segregated as Aeronautical:**

DIAL is paying Collection Charges to the airlines relating to the User Development Fee collected from passengers and remitted to it. This has been disclosed as reduction to revenue from Aeronautical Services in the Statement of Profit and Loss up to FY17. For FY18, such Collection Charges are disclosed under Other expenses amounting to ₹ 3.60 crores and segregated as Aeronautical expenses

**5. Others:**

- Bad debts raised during Second Control Period are completely relating to Non-Aeronautical activities, hence segregated as Non-Aeronautical.
- Foreign Exchange Loss incurred for each financial year is segregated in proportion to the Gross Fixed Asset Ratio.

## **10.2 COST CENTRE SEGREGATION METHODOLOGY**

The total Operating and Maintenance cost of DIAL were presented in the following manner:

- The Total Cost were segregated into Manpower, Operation and Maintenance, General and Administration and Corporate costs
- Each of the above category of expense were further segregated by the nature of expenditure (e.g., Repairs and Maintenance, Security, Housekeeping, etc.)
- The transactional accounting for each of the above expense were pooled into 134 different cost centers groups which were further grouped into 28 major cost center departments depending upon their nature
- For the Segregation of the total costs into Aeronautical, Common and Non-Aeronautical, the nature of each of these 134 cost center groups were analyzed and accordingly segregated into Aeronautical, Common and Non-Aeronautical
- The nature of each of 59 common cost centers out of the 134 cost centers were analyzed and a reasonable basis for segregation of the common cost centers into Aeronautical and Non-Aeronautical was derived.

Table 13 Distribution of Cost Centres at DIAL

(₹ crores)

Cost Centre Bifurcation DIAL	Amount (Up to FY18)	FY19	Total
Aeronautical Cost Centre	757.94	207.72	965.66
Common Cost Centre Outside the Terminal	955.09	285.08	1240.17
Common Cost Centre Inside the Terminal	436.69	143.21	579.9
Common HR Cost Centre	234.78	77.02	311.8
Manpower Costs	552.52	186.76	739.28
Non-Aeronautical Cost Centre	47.2	4.95	52.15
<i>Others:</i>			
Airport Operator Fee	571.5	114.9	686.4
Property Tax	29.12	7.84	36.96
Additional Property tax	38.95	0	38.95
Finance Costs	876.50	33.45	909.95
Payment of VRS	71.66	16.48	88.14
<b>Total Expenses</b>	<b>4571.95</b>	<b>1077.41</b>	<b>5649.36</b>

### 10.3 COST ACCOUNTING METHODOLOGY

As the first step toward

s segregation of costs into Aeronautical and Non-Aeronautical, it was ensured that a robust cost collecting process is in place within the organization ensuring accuracy in accounting of costs to the correct allocated cost center. In this regard, we verified the following process controls:

**Q1: Ensure every Invoice booked in SAP can only be routed through a Purchase Order. For exceptions if any, is there a separate one-time vendor code created to exercise control?**

All major Invoices booked in SAP are routed through Purchase Orders (PO) except invoices pertaining to the following nature of expenses:

Table 14 Expense accounting not routed through Purchase order

S No.	Nature expense	Examples	Control mechanism	Maker Checker Workflow
1.	Government/ Statutory Dues	Taxes, Revenue share and other payments to AAI, Airport Operator's Fee etc.	Based on Tax Laws, Valid agreement (OMDA), Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker
2.	Payments to Banks	Interest, Hedge Cost, other banking Charges etc	Based on Agreements with Banks, Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker
3.	Miscellaneous expenses and routine Petty expenses	Utility payments, Donations, Group Companies Debit Notes, membership fee and Employee Reimbursements for staff welfare, Travel, local radio taxi etc	Based on Agreements, Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker
4.	Other Urgent and One-Time vendors / Payments	Onetime, urgent and Non-Recurring Expenses	Based on Agreements, Approval as per internal DOP matrix	Routed through SAP Workflow of maker and checker

**One Time Vendor Codes:** There is a separate vendor code created for One Time Vendors.

**Q2:** Ensure the Cost Centre /Profit centre /Company Codes/GL details are all mapped to the PO on creation and are authorized by the Business Owners

Cost Centre /Profit Centre /Company Code/GLs are all mapped with the Purchase Requisition (PR) raised by the respective User Department and is linked to the Purchase Order (PO). PO is released only as per approval levels under DOP/SOP after due verification.

**Q3: Is the process of capturing of invoices details in the system automated or manual?**

Currently the process of capturing invoice details is partially manual but includes data validations from SAP. The process of matching of invoices with the relevant PO, verification and processing of invoices is completely driven by the SAP workflow and is supported by maker-checker both at Business User level and at Finance level. Further currently DIAL is exploring implementation of SAP Open Text, an inbuilt tool with OCR features for Vendor Invoice Management (VIM).

**The Process is detailed below:**

There is a Centralised Bill Inward Desk (BID) system for processing of all Vendor Invoices in DIAL. BID system is a workflow tool to manage flow of documents, approvals and storing documents in SAP. It is a customised SAP bolt on tool. This will also take care of tracking of payment status of invoices, rejection, re-submission, email alerts, auto escalations and reporting.

BID team is responsible for- Primary Verification of invoices like DIAL's address, GST format, GST No., PAN No. etc., Scanning of Invoices, Acknowledgement to Vendors, assigning of Bar Code and recording of invoice in BID system.

Post BID desk, invoices are processed through SAP Workflow and are forwarded through the above workflow to the respective Business Users, Labour Compliance Team and Finance Department along with scanned copies of invoices.

@ Business Users: Maker Checker Process ensures creation/approval of Service Entry Sheet/MIGO in SAP besides forwarding the Note for Payment (through BID).

@ Finance Department: Maker Checker Process ensures Posting in SAP and tracks the Parked Invoices

Mismatch resolution – For dealing with mismatch into rate, quantity or amount, there is a mechanism for reject, rectification and resubmission in SAP workflow system and BID process.

**Q4: If the coding on the Purchase Order needs alteration after its creation, is there an approval workflow triggered in SAP**

The unique PO No is generated for each service/Goods Receipt by the vendor and the Goods Receipt Note (GRN)/Service entry (SE) is made to the respective PO only after certification and verification of goods/services matching with PO.

The SAP-GRC access controls are maintained for each T-Code in SAP. Through this an automatic review of user access and role authorization are ensured, and risk of violations are minimised.

Thus, any amendment to PO is approved by the Procurement department (as per defined authority limits) any exceptions to the above process can be identified and monitored.

**Q5: Procedures for review of long pending open purchase orders and closure of the same.**

F&A department downloads the list of open POs from SAP then makes a table of inactive PO (based on delivery date is completed, no remaining value in PO, PO are old enough where no Service Entry or GRN is pending), that list will shared to Business Users and P&C for review/remarks. After response if any, the same will be Closed/Blocked in system.

**Q6: Approval Matrix for Manual adjustments to shift costs from one cost centre to another through a journal voucher**

Any change/shifting of expenses between cost centres is done with the concurrence of F&A along with approval of respective Business Users.

**Q7 For accrual of expenses, who authorizes the costs and cost centre of booking:**

At the period end F&A shares pre-defined templates to all major Business Users of respective cost centre's Provisions where Service Entries are not completed on PO's. The response from Business Users will be reviewed and entered in the system.

## 10.4 ANALYSIS OF COST CENTER ALLOCATION

### 10.4.1 AERONAUTICAL COST CENTRE:

The costs on the following cost centers are 100% allocated to 'AERONAUTICAL' based on the nature of costs either directly related to passenger facilities or Airside Operations

Table 15 Total Aeronautical Expenses during Second Control Period

(₹ crores)

Cost Centre Description	Up to FY18	FY19	Total
<b>UTILITIES COST</b>	<b>453.72</b>	<b>103.40</b>	<b>557.12</b>
DIAL Corporate Social Responsibility (Electricity Expenses)	0.24	0	0.24
Auxiliary Service	20.44	1.09	21.53
Technical Motor Transport	0.63	0	0.63
Not Assigned (Recoveries from the Concessionaires)	(430.65)	(138.04)	(568.69)
P&E Unbudgeted	0	2.06	2.06
Purchase Power	429.71	217.72	647.43
T1 Mechanical Maintenance	0.62	0.56	1.18
Water	18.41	18.86	37.27
T2 Electrical Maintenance	0	0.23	0.23
T3 Electrical Maintenance - Water Expenses	414.32	0	414.32
T2 Mechanical Maintenance	0	0.92	0.92
<b>AIRSIDE OPERATIONS</b>	<b>148.88</b>	<b>47.48</b>	<b>196.36</b>
Airport Operation Control Centre	1.28	0.22	1.5
Airside Air Ground Lighting	54.23	16.04	70.27
Airside Civil Maintenance	12.41	4.05	16.46
Airside Operations	35.08	12.06	47.14
Auxiliary Services	16.38	3.69	20.07
Safety & Enforcement	0.52	0.35	0.87
Slots	0.34	0.34	0.68
Sup-Aviation Services	0.58	0.01	0.59

<b>Cost Centre Description</b>	<b>Up to FY18</b>	<b>FY19</b>	<b>Total</b>
Technical Motor Transport	28.06	10.72	38.78
<b>SECURITY AND VDIALLANCE COST</b>	<b>78.16</b>	<b>21.57</b>	<b>99.73</b>
IT PSF Cost	9.7	3.09	12.79
Passenger Security Fee P&E	49.4	18.5	67.9
Security& Vigilance PSF Cost	19.06	(0.02)	19.04
<b>LANDSIDE AND ENVIRONMENT MAINTENANCE COST</b>	<b>10.58</b>	<b>3.45</b>	<b>14.03</b>
Environment Maintenance	4.52	1.03	5.55
Landside Works	6.06	2.42	8.48
<b>COMMERICAL AERONAUTICAL - MARKETING COST WITH THE AIRLINES TO INCREASE THE NUMBER OF LANDING AND PARKING OF AIRCRAFTS</b>	<b>15.21</b>	<b>2.5</b>	<b>17.71</b>
Commercial Aeronautical	14.08	2.5	16.58
Commercial Aeronautical Unbudgeted	0.71	0	0.71
Sup-Com-Airline Mar	0.42	0	0.42
<b>COST FOR EFFICIENT AIRSIDE/AIRPORT OPERATIONS</b>	<b>3.04</b>	<b>0.87</b>	<b>3.91</b>
Fire Fighting	3.04	0.87	3.91
<b>FEE COLLECTION CHARGES</b>	<b>10.61</b>	<b>9.7</b>	<b>20.31</b>
UDF Collection Charges	3.6	6.92	10.52
Finance & Accounts - IATA Collection Charges	7.01	2.78	9.79
<b>OTHER SUPPLEMENTARY COST CENTRES</b>	<b>(0.08)</b>	<b>0</b>	<b>(0.08)</b>
<b>COSTS TO BE SEGREGATED TO MIX</b>	<b>37.83</b>	<b>18.75</b>	<b>56.58</b>
Landscape Maintenance	17.92	7.94	25.86
Landscape Unbudgeted	0.78	1.19	1.97
T1 Airport Systems Maintenance	3.77	2.34	6.11
T2 Airport Systems Maintenance	4.45	3.63	8.08
Total Quality Management	10.82	3.71	14.53
Transit Houses*	0.09	(0.06)	0.03
<b>TOTAL</b>	<b>757.94</b>	<b>207.72</b>	<b>965.66</b>

\*Transit House segregation considered independently

**Notes:**

**1. Utilities Cost:**

Utilities include cost towards power and water used at DIAL. The costs included in this head are net of recoveries made by DIAL from various retail tenants operating at DIAL. Accordingly, the Non-Aeronautical component has been excluded completely from these costs

## **2. Fee Collection charges:**

*IATA Collection Charges* - DIAL appointed International Air Transport Association (IATA) for collection of the User Development fee (UDF) from Air India on its behalf. Thus, for acting as an intermediary between Air India and DIAL, administration charges are payable to IATA on a monthly basis.

*Collection Charges for Other Airlines:* The fee collection charges from FY18, are considered as operating costs instead of adjustment to the revenue in the target revenue computation.

### **Impact of change in accounting of the UDF Collection charges on the tariff calculations:**

#### **Background:**

Beginning of every control period, projection of Target Revenue comprising operating costs and regulatory asset base is made by the airport operator.

This target revenue divided by the projected passenger traffic for the First Control Periods used to arrive at a per PAX cost broken down to a rate card comprising Landing, Parking, charges etc.

Thus, at this stage of defining the tariff for the control period, we can conclude that for the control period the projected Cost + RAB and projected Aeronautical revenue from passengers will be equal.

At the end of the control period, these projections based on which the rate card was determined is compared to the actual costs incurred on operation and infrastructure and the actual revenue earned from the passenger & the air traffic. Then, an exercise of true up is carried out for the differential for the subsequent control period.

#### **Example of the true up exercise:**

The target Revenue/Cost + RAB for the control period (for example) was set at ₹ 1000 based on the projections. With an estimated traffic of 100 passengers the per PAX rate was defined as ₹ 10. Thus Rate (Fixed) X Passenger/Air Traffic (Variable) = ₹ 1000.

**Scenario 1:**

If the actual operating cost + RAB is more than 1000, say 1100 (100% Efficient cost) and revenue earned is only 1000 (Because the traffic remained at 100passengers) à Then AAI reimburses this 100(1100-1000) as a true up to the next control period

In this case say if the UDF collection charges were ₹ 20, showing them as cost or adjustment to revenue would still result in a true up of ₹ 100 only.

**Scenario 2:**

If the actual (efficient)operating cost + RAB is less than 1000, say 900, then my eligibility for revenue collection is only ₹ 900 but I collected revenue of ₹ 1100 (Higher traffic) à Then AAI deducts excess 200 from the TR of the next Control period.

In this case say if the UDF collection charges were ₹ 20, showing them as cost or adjustment to revenue would still result in a true up of ₹ 200 only

**Conclusion:**

Thus, showing UDF collection charges as cost or revenue adjustment at the end of the period has no effect on tariff computation.

**3. Aeronautical Cost Center Segregated to MIX:**

A. Since the system maintenance costs for T1 and T2 are common facilities utilized for both Aeronautical and Non-Aeronautical services, in our opinion these costs of ₹ 8.22 crores should be treated as common expenditure and allocated to Aeronautical services accordingly. This stand has also been taken to ensure parity in treatment of system Maintenance expense of all the 3 terminals. The total impact of this segregation would be a negative **₹ 2.25 crores** on Aeronautical Expenses.

B. The Landscaping costs includes costs for the entire Terminal, Approach roads to the Terminals and the admin office which serves both Aeronautical and Non-Aeronautical facilities, the costs are treated as Common. The total impact for the same is negative

**₹. 4.41 crores** on Aeronautical Expenses

C. The Total Quality Management team works towards the overall improvement of the Airport Operations and aren't specific to Aeronautical Operations. Hence the costs are segregated to Common. The total impact for the same is negative ₹ 1.59 crores on Aeronautical Expenses.

Table 16 Segregation of Expenses from Aeronautical to Common up to FY18

(₹ crores)

Particulars	Segregation of Expense	Amount	Revised Segregation Logic	Impact on Aeronautical if segregated to MIX
T1 System Maintenance	Aeronautical	3.77	Floor Space for T1	0.60
T2 System Maintenance	Aeronautical	4.45	Floor Space for T2	0.70
Landscape Maintenance	Aeronautical	17.92	Weighted Average Floor Space (84.10%)	2.85
Landscape Unbudgeted	Aeronautical	0.78	Weighted Average Floor Space (84.10%)	0.12
Total Quality Management	Aeronautical	10.82	Adjusted Gross Fixed Asset Ratio (89%) *	1.20
<b>Total Negative Impact on Aeronautical Assets</b>				<b>5.48</b>

\* Refer Table 82 for Adjusted Gross Fixed Asset Ratio

Table 17 Segregation of Expenses from Aeronautical to Common for FY19

(₹ crores)

Particulars	Segregation of Expense	Amount	Revised Segregation Logic	Impact on Aeronautical if segregated to MIX
T1 System Maintenance	Aeronautical	2.34	Floor Space for T1	0.37
T2 System Maintenance	Aeronautical	3.63	Floor Space for T1	0.57
Landscape Maintenance	Aeronautical	7.94	Weighted Average Floor Space (84.10%)	1.26
Landscape Unbudgeted	Aeronautical	1.19	Weighted Average Floor Space (84.10%)	0.19

Particulars	Segregation of Expense	Amount	Revised Segregation Logic	Impact on Aeronautical if segregated to MIX
Total Quality Management	Aeronautical	3.71	Adjusted Gross Fixed Asset Ratio (89%) *	0.40
<b>Total Negative Impact on Aeronautical Assets</b>				<b>2.80</b>

\* Refer Table 82 for Adjusted Gross Fixed Asset Ratio

## 10.4.2 COMMON COST CENTRE

### 10.4.2.1 WITHIN THE TERMINAL

For expenses incurred at the respective terminals of DIAL for jointly providing Aeronautical and Non-Aeronautical services are classified as Common Terminal expenses. We have used the floor area measurement system for allocation into Aeronautical and Non-Aeronautical activities as the presence of Non-Aeronautical activities generates an additional requirement for space and hence an additional cost.

The initial demarcated total floor area measurement for the terminals were drawn from an Independent report drafted by M/s Jacob's Consultancy dated 14<sup>th</sup> June 2011 detailing the area measurements for each component at terminal and an Aeronautical / Non-Aeronautical allocation proportion at each level for every terminal building.

However, since these proportions were drawn in the month of June based on the available data and AutoCAD drawings, adjustment for order number 28 of AERA dated 14<sup>th</sup> November 2011 eliminating 8652sqm from the gross area calculation and the total let-out area to the concessionaires at T3 was not made. Hence this adjustment was carried out for the purpose of our calculations resulting in an impact of **₹ 8.11 crores** of addition towards Aeronautical Expenses.

The reworking of the proportionate percentage is as per the below table:

Table 18 Total Demarcated Area with and without 8652Sqm in the Gross Calculations

Terminal	Financial Year	Total Space	Space Allocated to Aero	Directly Allocated to Non-Aero (Relatable to Rental Income)	Common Area allocated to Non-Retail	Total Non-Aero	Aero %	Non-Aero %
T3 Demarcated Area (including 8652Sqm)	FY11	550193	455255	61882	33056	94938	82.32%	17.68%
T3 Demarcated Area (Excluding 8652Sqm)	FY11	541541	455255	61882	24404	86286	84.07%	15.93%

Applying the revised percentage on the common costs inside T3, the impact of ₹ 8.11 crores (₹6.22 crores + ₹ 1.89 crores) is explained in the below tables (Table 19 and Table 20)

Table 19 Revision of Segregation Percentage for Expenses of T3 up to FY18 – Excluding 8,652Sqm

(₹ crores)

Particulars	Segregation of Expense	Total Expense	Allocation as per Jacob Report – June 2011(82.32%)		Allocation after considering T3 revision 84.07%	
			Aeronautical	Non-Aeronautical	Revised Aeronautical	Revised Non-Aeronautical
T3 Terminal Operations	Common T3	136.80	112.62	24.19	115.01	21.79
T3 Airport Systems Maintenance	Common T3	115.39	94.99	20.40	97.01	18.38
T3 Electrical Maintenance	Common T3	52.76	43.44	9.33	44.36	8.41
T3 Mechanical Maintenance	Common T3	34.06	28.04	6.02	28.64	5.43
T3 Civil Maintenance	Common T3	16.01	13.18	2.83	13.46	2.55
Finishes	Common T3	0.42	0.35	0.07	0.35	0.07
Sup-T3 Customer Relation	Common T3	0.01	0.00	0.00	0.00	0.00
Sup-T3 Facilities	Common T3	(0.09)	(0.07)	(0.02)	(0.08)	(0.01)
		<b>355.37</b>	<b>292.54</b>	<b>62.83</b>	<b>298.76</b>	<b>56.61</b>

Impact on Aeronautical expense ₹ 6.22 crores (₹298.76 crores - ₹292.54 crores)

Table 20 Revision of Segregation Percentage for Expenses of T3 for FY19 – Excluding 8652Sqm

(₹ crores)

Particulars	Segregation of Expense	Total Expense	Allocation as per Jacob Report - June 2011 (82.32%)		Allocation after considering T3 Revision to 84.07%	
			Aeronautical	Non-Aeronautical	Revised Aeronautical	Revised Non-Aeronautical
Finishes	Common T3	0.05	0.04	0.01	0.04	0.01
Sup-T3 Facilities	Common T3	0.14	0.12	0.03	0.12	0.02
T3 Airport Systems Maintenance	Common T3	34.99	28.80	6.19	29.41	5.57
T3 Civil Maintenance	Common T3	2.25	1.85	0.40	1.89	0.36
T3 Electrical Maintenance	Common T3	14.76	12.15	2.61	12.41	2.35
T3 Mechanical Maintenance	Common T3	10.32	8.49	1.82	8.67	1.64
T3 Terminal Operations	Common T3	45.65	37.58	8.07	38.38	7.27
<b>Total</b>		<b>108.16</b>	<b>89.04</b>	<b>19.12</b>	<b>90.93</b>	<b>17.23</b>

Impact on Aeronautical expense ₹ 1.89 crores (₹90.93 crores - ₹89.04 crores)

As part of our study we compared the above demarcated floor space for Non – Aeronautical activities with the actual area used for such activities at each terminal through the steps given below:

- Actual handed over/taken over (HO/TO) retail area were identified for the 4 financial areas through an external auditor certification
- The common areas like travellers, lifts, common seating areas outside the retail shops were apportioned to Non-Aeronautical as per the 2011 Jacob Report
- Order number 28 of AERA dated 14th November 2011 directed the elimination of 8652sqm from the gross area calculation and the total let-out area to the concessionaires at T3, which were not considered in the above Jacob's report. 8652sqm as per the order number 28 of AERA dated 14th November 2011 was eliminated from our calculation to gauge the total let-out area to the concessionaires.
- The percentages applied are the weighted average of the 4 financial years.

The impact on the Aeronautical expenses for T3 is computed from the revised percentage of 84.07% Detailed workings on the Actual area let out (HOTO) and the demarcated space, terminal wise have been provided in *Exhibit 2*.

On comparing the actual space let out for Non-Aeronautical activities with the demarcated space as per the initial floor space plan, we noted the following:

*Table 21 Actual space used for Non – Aeronautical activities as on 31st March 2018 Vis-à-vis the demarcated space as per Initial plan (2011)*

<b>Terminal</b>	<b>Total Terminal Space</b>	<b><u>Demarcated Space</u> for per the initial plan allocated for Aeronautical Activities</b>	<b><u>Actual Space</u> allocated for Aeronautical Activities</b>	<b><u>Demarcated Space</u> for per the initial plan allocated for Non- Aeronautical Activities</b>	<b><u>Actual Space</u> Let out for Non- Aeronautical Activities (based on FY 18)</b>
T1	64,146	53,820	56,591	10,326	7555
T2	54,729	46,089	51,848	8,640	2881
T3	5,41,541	4,55,255	4,70,825	86,286	79,368
<b>Total Space</b>	<b>6,60,416</b>	<b>5,55,164</b>	<b>5,79,264</b>	<b>1,05,252</b>	<b>89,804</b>

As shown in the above table, the actual space let out for Non -Aeronautical activities (89,804 sqm) is lower than the space demarcated for the same (1,05,252 sqm - as per the study done in FY11 based on CAD drawings).

For the purpose of this report, we have used the ratio of space demarcated for Aeronautical & Non-Aeronautical (as detailed in Exhibit 2) for segregating the common expenses within the terminal in to Aeronautical and Non – Aeronautical.

### 10.4.2.2 OUTSIDE THE TERMINAL

The costs collectors outside the terminal were segregated as detailed in the table below:

Table 22 Segregation of Common Expense Outside the Terminal for Second Control Period

(₹ crores)

Particulars	Total up to FY18	Total for FY19	Total	Segregation Logic by DIAL	Revised Segregation Logic
Support Business Functions of DIAL	450.69	143.03	593.72	Gross Fixed Asset Ratio	Adjusted Gross Fixed Asset Ratio (89:11)
Corporate Cost Allocation	269.34	91.44	360.78	Gross Fixed Asset Ratio	Adjusted Gross Fixed Asset Ratio (89:11)
Senior Management (Group Management)	38.06	6.35	44.41	Gross Fixed Asset Ratio	Adjusted Gross Fixed Asset Ratio (89:11)
Chartering Cost	15.72	11.33	27.05	Gross Fixed Asset Ratio	50:50 Proportion
Transit Houses	32.8	12.16	44.96	Gross Fixed Asset Ratio	50:50 Proportion
Legal	44.12	9.74	53.86	Gross Fixed Asset Ratio	Aeronautical/Non-Aeronautical Case Wise
IT JV	73.89	0	73.89	Gross Fixed Asset Ratio	IT JV Asset Base Proportion
Charity and Donations	7.09	1.07	8.16	Gross Fixed Asset Ratio	100% Disallowed
CSR	23.75	9.97	33.72	Gross Fixed Asset Ratio	None
<b>Total</b>	<b>955.46</b>	<b>285.08</b>	<b>1240.55</b>		

\*Refer Table 82 for Adjusted Gross Fixed Assets Ratio

### 10.4.3 SUPPORT BUSINESS FUNCTIONS AND SENIOR MANAGEMENT OFFICE

The following cost centers related the support business functions and the office of the senior management are segregated into Aeronautical/Non-Aeronautical based on the proportion of Aeronautical/Non-Aeronautical closing Gross Fixed asset base of the company.

However, owing to the revised segregation logics for assets related the New Udaan Bhavan, the office development of BCM and GCM and the common guest houses, there has been a change in the proportion of the Aeronautical/Non-Aeronautical asset base to the total asset base. This change in proportion had been applied on the common costs of the company incurred outside the terminal and this resulted in decrease in Aeronautical costs to the tune of ₹ 2.04 crores (₹ 1.64 crores for period up to FY 18 + ₹ 0.40 crores for FY 19) (Refer table 23 & 24).

Table 23 Segregation of Corporate Cost, Support Business Function and Senior Management Office up to FY18

(₹ crores)

Particulars	Total	Allocation based on Gross Fixed Asset Ratio by DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio (based on this Report)	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
<b>CORPORATE COST</b>	<b>269.34</b>	<b>240.06</b>	<b>29.28</b>	<b>239.50</b>	<b>29.87</b>
Corp. Cost	262.95	234.37	28.58	233.82	29.16
Information Technology Department	6.39	5.69	0.7	5.68	0.71
<b>SENIOR MANAGEMENT GROUP</b>	<b>38.06</b>	<b>33.93</b>	<b>4.14</b>	<b>33.84</b>	<b>4.22</b>
Business Chairman	22.91	20.43	2.48	20.37	2.54
Business Chairman Unbudgeted	1.23	1.1	0.13	1.09	0.14
CCMO	12.74	11.35	1.39	11.33	1.41
GCM Office	0.01	0.01	0	0.01	0
Group Chairman Office	1.17	1.04	0.13	1.04	0.13
<b>SUPPORT BUSINESS FUNCTIONS</b>	<b>450.69</b>	<b>401.74</b>	<b>48.94</b>	<b>400.75</b>	<b>50.52</b>
Allocation Buss Support	0.04	0.03	0	0.04	0
CAG-Common	0.03	0.03	0	0.03	0
Central Stores Department	0.82	0.73	0.09	0.73	0.09
Chief Executive Officer's Office	1.17	1.05	0.13	1.04	0.13
Chief Executive Officer's Office Unbudgeted	0	0	0	-	0
Chief Operating Officer Unbudgeted	4.72	4.21	0.52	4.20	0.52
Chief Operating Officer's Office	1.15	1.02	0.13	1.02	0.13
Commercial Aeronautical	0	0	0	-	0
Corporate Common	0.01	0.01	0	0.01	0
Corporate Communication	14.93	13.31	1.62	13.28	1.66
Corporate Communication Unbudgeted	10.19	9.08	1.11	9.06	1.13
Corporate Relations	5.11	4.55	0.55	4.54	0.57
DIAL Corporate Social Res. Unbudgeted	0	0	0	-	0
DIAL Corporate Social Responsibility	0.61	0.54	0.07	0.54	0.61
ED Cost Centre	0.03	0.03	0	0.03	0
Facilities & Administration	19.36	17.26	2.1	17.21	2.15

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Particulars	Total	Allocation based on Gross Fixed Asset Ratio by DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio (based on this Report)	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
Facilities & Administration Unbudgeted	4.13	3.68	0.45	3.67	0.46
Finance & Accounts	35.41	31.56	3.85	31.49	3.93
Finance & Accounts - Project Finance	50.15	44.73	5.42	44.59	5.56
Finance & Accounts Secretarial	1.37	1.23	0.15	1.22	0.15
Finance & Accounts Unbudgeted	3.84	3.43	0.42	3.41	0.43
Finishes	10.46	9.33	1.14	9.30	1.16
GCCL Corporate Development	0.03	0.03	0	0.03	0
GCCL GBC HR	0	0	0	-	0
GCCL-Learning and Development	0	0	0	-	0
Guest Relations	10.85	9.67	1.18	9.65	1.2
Human Resource (HOD)	0.06	0.05	0.01	0.05	0.01
Information Technology Department	125.04	111.46	13.58	111.19	13.87
Information Technology Dept. Unbudgeted	6.51	5.8	0.71	5.79	0.72
Information Technology Joint Venture	0.08	0.07	0.01	0.07	0.01
Management Assurance Group	1.85	1.65	0.2	1.65	0.21
Management Assurance Group Unbudgeted	0.1	0.09	0.01	0.09	0.01
Marketing Communication	0	0	0	-	0
Not Assigned	2.43	2.16	0.26	2.16	0.27
NUB & Project Office	0.83	0.74	0.09	0.74	0.09
P&E Unbudgeted	44.13	39.34	4.78	39.24	4.89
Procurement	0.99	0.89	0.11	0.88	0.11
Property Development	0	0	0	-	0
Purchase Power	0.02	0.02	0	0.02	0
Security & Vigilance	91.21	81.29	9.92	81.10	10.12
Security & Vigilance Unbudgeted	0	0	0	-	0
Solar Power	0.44	0.39	0.05	0.39	0.05
Strategic Planning for Group	0.34	0.3	0.04	0.30	0.04
Strategic Planning for Group Unbudgeted	0.5	0.45	0.05	0.44	0.06
Sup -Corporate Chartering	0	0	0	-	0
Sup-Corporate It	0.14	0.12	0.01	0.12	0.02

Particulars	Total	Allocation based on Gross Fixed Asset Ratio by DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio (based on this Report)	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
Sup-Terminal	1.23	1.1	0.13	1.09	0.14
Sup-Terminal Standard	0.01	0.01	0	0.01	0
Total Quality Management	0	0	0	-	0
Total Quality Management Unbudgeted	0.36	0.32	0.04	0.32	0.04
<b>TOTAL</b>	<b>758.09</b>	<b>675.73</b>	<b>82.36</b>	<b>674.09</b>	<b>84.62</b>

Decrease in Aeronautical expenses for period up to FY18 is ₹ 1.64 crores (A-C above)

Table 24 Segregation of Corporate Cost, Support Business Function and Senior Management Office for FY19

(₹ crores)

Particulars	Total Expense	Allocation based on Gross Fixed Asset Ratio - DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
<b>CORPORATE COST ALLOCATION</b>	<b>91.44</b>	<b>81.69</b>	<b>9.75</b>	<b>81.53</b>	<b>9.90</b>
<b>SUPPORT BUSINESS FUNCTION</b>	<b>143.03</b>	<b>127.78</b>	<b>15.25</b>	<b>127.54</b>	<b>15.49</b>
Central Stores Department	0.33	0.29	0.03	0.29	0.04
Chief Executive Officer's Office	0.33	0.29	0.03	0.29	0.04
Chief Operating Officer Unbudgeted	10.29	9.19	1.10	9.18	1.11
Chief Operating Officer's Office	0.37	0.33	0.04	0.33	0.04
Corporate Common	0.02	0.01	0.00	0.01	0.00
Corporate Communication	6.33	5.66	0.68	5.65	0.69
Corporate Communication Unbudgeted	2.54	2.27	0.27	2.27	0.28
Corporate Relations	1.62	1.45	0.17	1.44	0.18
DIAL Corporate Social Responsibility	0.11	0.10	0.01	0.10	0.01
ED Cost Centre	0.25	0.22	0.03	0.22	0.03
Facilities & Administration	6.49	5.79	0.69	5.78	0.70
Facilities & Administration Unbudgeted	0.62	0.56	0.07	0.56	0.07
Finance & Accounts	2.31	2.06	0.25	2.06	0.25

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Particulars	Total Expense	Allocation based on Gross Fixed Asset Ratio - DIAL		Allocation based on Adjusted Gross Fixed Asset Ratio	
		Aeronautical (A)	Non-Aeronautical (B)	Aeronautical (C)	Non-Aeronautical (D)
Finance & Accounts - Project Finance	6.70	5.99	0.71	5.98	0.73
Finance & Accounts Secretarial	0.32	0.29	0.03	0.29	0.03
Finance & Accounts Unbudgeted	0.15	0.13	0.02	0.13	0.02
Finishes	6.48	5.79	0.69	5.78	0.70
Guest Relations	4.41	3.94	0.47	3.93	0.48
Information Technology Department	40.46	36.15	4.31	36.08	4.38
Information Technology Dept. Unbudgeted	1.05	0.94	0.11	0.94	0.11
Information Technology Joint Venture	0.41	0.36	0.04	0.36	0.04
Management Assurance Group	0.74	0.66	0.08	0.66	0.08
NUB & Project Office	0.13	0.12	0.01	0.12	0.01
P&E Unbudgeted	4.41	3.94	0.47	3.93	0.48
Procurement	0.23	0.21	0.02	0.21	0.03
Security & Vigilance	44.83	40.05	4.78	39.98	4.86
Security & Vigilance Unbudgeted	0.63	0.56	0.07	0.56	0.07
Solar Power	0.15	0.14	0.02	0.14	0.02
Strategic Planning for Group	0.10	0.09	0.01	0.09	0.01
Sup -Corporate Chartering	0.00	0.00	0.00	0.00	0.00
Sup-Airport Sector	0.00	0.00	0.00	0.00	0.00
Total Quality Management Unbudgeted	0.31	0.28	0.03	0.28	0.03
Recoveries	-0.10	-0.09	-0.01	-0.09	-0.01
<b>SENIOR MANAGEMENT - GROUP</b>	<b>6.35</b>	<b>5.68</b>	<b>0.68</b>	<b>5.66</b>	<b>0.69</b>
Business Chairman	4.57	4.08	0.49	4.07	0.49
CCMO	0.51	0.46	0.05	0.45	0.06
Group Chairman Office	1.28	1.14	0.14	1.14	0.14
<b>TOTAL</b>	<b>240.82</b>	<b>215.14</b>	<b>25.67</b>	<b>214.74</b>	<b>26.08</b>

Decrease in Aeronautical expenses for FY19 is ₹ 0.40 crores (A-C above)

#### 10.4.4 CHARTERING COST SEGREGATION

Flying charges of charter used by the BCM and GCM of DIAL have been segregated based on the revenue share of DIAL to GIL. Since the purpose of use of these chartering services cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the chartering services are used by the senior management in a 50:50 proportion for Aeronautical and Non-Aeronautical services. The total impact of the same is decrease in Aeronautical expenses by **₹ 10.61 crores (Refer Table 25)**.

Table 25 Segregation of Chartering Cost Expenses for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	15.72	11.33	27.05
Segregation Logic of DIAL (Average Fixed Asset Ratio)	Aeronautical (A)	14.01	10.12	24.13
	Non-Aeronautical	1.71	1.21	2.92
Segregation on a 50:50 Proportion	Aeronautical (B)	7.86	5.66	13.52
	Non-Aeronautical	7.86	5.66	13.52
<b>Difference in Aeronautical Allocation</b>	<b>Aeronautical (A-B)</b>	<b>6.15</b>	<b>4.46</b>	<b>10.61</b>

#### 10.4.5 TRANSIT HOUSE EXPENSES SEGREGATION

DIAL has also taken on lease 10 guest houses in Delhi for use by the transiting corporate members of the company and for various meetings of the senior management. At these guest houses, DIAL has incurred **₹ 45.68 crores** for Second Control Period on rental and maintenance of the transit house.

Since the purpose of use of these guest houses cannot be accurately segregated to Aeronautical and Non-Aeronautical services, it is assumed that the guest house is used in a 50:50 Proportion for Aeronautical and Non-Aeronautical services. The total impact of the same is decrease in aeronautical expenses by **₹ 17.91 crores**.

Table 26 Segregation of Transit House Expenses for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	33.52	12.16	45.68
Segregation Logic of DIAL (Average Fixed Asset Ratio)	Aeronautical (A)	29.89	10.86	40.75
	Non-Aeronautical	3.63	1.3	4.93
Segregation on a 50:50 Proportion	Aeronautical (B)	16.76	6.08	22.84
	Non-Aeronautical	16.76	6.08	22.84
<b>Difference in Aeronautical Allocation</b>	<b>Aeronautical (A-B)</b>	<b>13.13</b>	<b>4.78</b>	<b>17.91</b>

## 10.4.6 DISALLOWED EXPENSES

### 10.4.6.1 CHARITIES AND DONATIONS

As these expenses are not related to passenger or airline services, these costs are segregated as 100% Non-Aeronautical. The impact of the above segregation results in decrease of Aeronautical expenses by ₹ 7.27 crores.

Table 27 Disallowance of Charities and Donations for Second Control Period.

(₹ crores)

		FY15 to FY18	FY19	Total
	Total Cost	7.09	1.07	8.16
Gross Fixed Ratio by DIAL	Aeronautical (A)	6.32	0.95	7.27
	Non-Aeronautical	0.77	0.12	0.89
100% Disallowed Costs	Aeronautical (B)	0	0	0
	Non-Aeronautical	7.09	1.07	8.16
<b>Difference in Aeronautical Allocation</b>	<b>Aeronautical (A-B)</b>	<b>6.32</b>	<b>0.95</b>	<b>7.27</b>

### 10.4.6.2 CSR EXPENSES

It is noted that the total CSR costs of ₹ 33.72 crores has been incurred by the company as mandated by the Companies Act 2013 and the same is segregated on basis of the Gross Fixed Asset Ratio by DIAL. The Authority may take its own view in this regard.

Table 28 Segregation of CSR Expenses for Second Control Period

(₹ crores)

		FY15 to FY18	FY19	Total
	Total Cost	23.75	9.97	33.72
Gross Fixed Ratio by DIAL	Aeronautical (A)	21.16	8.91	30.07
	Non-Aeronautical	2.59	1.06	3.65

### 10.4.7 LEGAL COSTS

We reviewed case wise legal costs incurred during the Second Control Period (of ₹ 44crores incurred up to FY18) and noted that out of the above total legal costs, 19% (₹ 8.52 crores) pertained to cases were 100% Non-Aeronautical in nature. The remaining cases were either Aeronautical or Common in nature.

The common legal costs were allocated in the ratio of adjusted gross fixed asset (89:11) and the revised value of Aeronautical and Non-Aeronautical cases were worked out which were in the proportion of 74.84% and 25.16% respectively (refer Table 29 for detailed workings).. The above percentage derived (74.84%: 25.16%) were applied on the total legal costs incurred for FY19 (₹ 9.74 crores). The total impact of the same is decrease in Aeronautical expenses by ₹ 7.71 crores as per Table 30 below

Table 29 Segregation of Value of Legal Cases during Second Control Period

(₹ crores)

Particulars	Total	Proportion	Aeronautical	Non-Aeronautical
Accounting for Provisions	(5.89)	(13.34%)	(5.23)	(0.65)
Value of Aeronautical Cases	12.33	27.96%	12.33	0.00
Value of Common Cases	29.15	66.08%	25.92	3.23
Value of Non-Aeronautical Cases	8.52	19.31%	0.00	8.52
Total	44.12		33.02	11.10
<b>Proportion of Cases</b>			<b>74.84%</b>	<b>25.16%</b>

Table 30 Segregation of Legal Expenses on basis of the Aeronautical/Non-Aeronautical cases for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	44.12	9.74	53.86
Gross Fixed Asset Ratio	Aeronautical (A)	39.32	8.7	48.02
	Non-Aeronautical	4.8	1.04	5.84
Proportion of Aeronautical/Non-Aeronautical Cases	Aeronautical (B)	33.02	7.29	40.31
	Non-Aeronautical	11.1	2.45	13.55
Difference in Aeronautical Allocation	<b>Aeronautical (A-B)</b>	<b>6.3</b>	<b>1.41</b>	<b>7.71</b>

#### 10.4.8 COMMON HR COSTS/MANPOWER COST

On basis of the manpower strength/head count of each department as on March 31<sup>st</sup>, 2014, an allocation percentage has been derived for allocation of costs in to Aeronautical and Non-Aeronautical (which is in the ratio of 89.79% and 10.21% respectively).

Table 31 Segregation of HR Cost Departments into Aeronautical and Non-Aeronautical

Department/Function	Basis of allocation
Operations	Direct allocation to Aeronautical activities
APDE (Maintenance)	Pro rata to assets
IT	Pro rata to assets
Legal	Pro rata to assets
Finance & Accounts	Pro rata to assets
HR	Based on average deployment of other departments
Quality	Direct allocation to Aeronautical activities
Internal Audit	Pro rata to assets
Corporate Communication.	Pro rata to assets
Corporate Relations	Pro rata to assets
Commercial	50% manpower is assumed for airlines marketing and recoveries.
CEO	Pro rata to assets
Security	Direct allocation to Aeronautical activities
Property	Direct allocation to Non- Aeronautical activities

The above segregation percentage is derived by segregating the manpower count per department into Aeronautical and Non-Aeronautical. However, since the segregation on the basis of the manpower count per department aren't representative to the proportion of the associated cost of the department (Example: the headcount in operations may be higher to the head count of the Senior management office but the costs of the latter would be higher), the segregation logic has been revisited to ensure more accuracy in the segregation of the costs into Aeronautical and Non-Aeronautical.

The segregation was revised to the proportion of Aeronautical Gross Fixed Asset to the Total Gross Fixed Asset. The impact of the above revised segregation in costs is decrease in Aeronautical expenses by **₹ 5.97 crores** (Refer Table 32)

Table 32 Segregation of Manpower Costs of DIAL for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	552.52	186.76	739.28
Proportion of Aeronautical/Non-Aeronautical HR Department	Aeronautical (A)	496.11	167.69	663.8
	Non-Aeronautical	56.41	19.07	75.48
Adjusted Gross Fixed Asset Ratio	Aeronautical (B)	491.30	166.53	657.83
	Non-Aeronautical	61.22	20.21	81.43
Difference in Aeronautical Allocation	<b>Aeronautical (A-B)</b>	<b>4.81</b>	<b>1.16</b>	<b>5.97</b>

Applying the same logic as above to the other HR related costs (including consultancy services) at DIAL resulted in decrease in Aeronautical costs by **₹ 2.51 crores** (Refer Table 33).

Table 33 Segregation of Other HR Costs- Excluding Transit houses and CSR Costs for Second Control Period

(₹ crores)

		Up to FY18	FY19	Total
	Total Cost	233.8	76.95	310.75
Proportion of Aeronautical/Non-	Aeronautical (A)	209.93	69.09	279.02
	Non-Aeronautical	23.87	7.86	31.73

		Up to FY18	FY19	Total
Aeronautical HR Department				
Adjusted Gross Fixed Asset Ratio	Aeronautical (B)	207.90	68.61	276.51
	Non-Aeronautical	25.90	8.33	34.23
<b>Difference in Aeronautical Allocation</b>	<b>Aeronautical (A-B)</b>	<b>2.03</b>	<b>0.48</b>	<b>2.51</b>

## 10.4.9 SEGREGATION OF EXPENSES CLAIMED ON PAYMENT BASIS

### 10.4.9.1 Payment to AAI for VRS

As per clause 6.1.1 of OMDA, the operation support period of 3 years has expired on 02.05.2009. AAI permitted DIAL to pay the retirement compensation in respect of employees who have not opted for absorption in terms of OMDA spread over a period of ten years from 1<sup>st</sup> May 2009. Accordingly, AAI had raised two invoices towards the total retirement compensation of ₹ 288.83 crores.

Table 34 Payment to AAI for VRS

(₹ crores)

Details	Reference	Amount
AAI supplementary Bill for retirement compensation claim - <b>ONE TIME</b>	Bill Number DIAL/co-ord. cell/VRS/2011-12/01 dated 0804-2011	103.39
Retirement Compensation Claim- Details of <b>MONTHLY CLAIM- DIAL</b>	Letter Number AAI/MC/JVC/14/VRS/2011-12/1267 dated 19 <sup>th</sup> July 2011	186.58
	<b>Total</b>	<b>289.97</b>
<b>Less:</b>	Amount Contested by DIAL	1.40
<b>Amount capitalized in books of account</b>		<b>288.83</b>
- Capitalised as on the 31.03.2011	₹ 250.88	

- Capitalised during second half year end 30.09.2011	₹ 37.94	
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Table 35 Actual Payment schedule

(₹ crores)

Particular	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	Total
Payment to AAI	80.00	32.72	48.18	19.38	19.07	18.72	18.26	17.61	17.07	16.48	1.36	288.83
Aeronautical Allocation (89.79%)	71.83	29.38	43.26	17.40	17.12	16.81	16.39	15.81	15.32	14.79	1.22	259.34

The invoice value of ₹ 288.83 crores had been recorded as an Intangible asset in FY12 and is amortised on straight- line basis over the extended period of OMDA (i.e. 60 years) in the financial books of DIAL.

However, for regulatory purpose, 89.79% of this invoice value was claimed for the purpose of target revenue computation on actual payment basis. The payment schedule of the invoice and the amount claimed in the MYTP submission of DIAL as is as per the below table.

The above segregation percentage is derived by segregating the manpower count per department into Aeronautical and Non-Aeronautical. However, since the segregation on the basis of the manpower count per department aren't representative to the proportion of the associated cost of the department (Example: the headcount in operations may be higher to the head count of the Senior management office but the costs of the latter would be higher), the segregation logic has been revisited to ensure more accuracy in the segregation of the costs into Aeronautical and Non-Aeronautical. The segregation was revised in the ratio of Adjusted Gross Fixed Asset Ratio (88.92%). The total impact of this revision in the allocation percentage is ₹ 0.72 crores.

Table 36 Segregation of Payments made to AAI for VRS for Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	FY19	Total
Payment to AAI	18.72	18.26	17.61	17.07	16.48	88.14
Aeronautical Allocation (89.79%)	16.81	16.40	15.81	15.33	14.80	79.14
Revised Aeronautical Allocation	16.65	16.24	15.66	15.18	14.70	78.42
Impact on Aeronautical	0.16	0.16	0.15	0.15	0.10	0.72

### 10.4.9.2 Airport Operator Fee

Under the terms of the OMDA, Schedule 8, DIAL was required to put in place an Airport Operator Agreement to ensure DIAL operates, maintains and manages the Airport in order to meet the stated service standards. The scope of services includes general services, manager services and consultancy services, that are related to the operation and maintenance of Aeronautical and Non-Aeronautical assets. Since the services of the Airport Operator are being used for the airport and not for specific sections or functions of the airport, there is no clear basis available for allocation of costs. Therefore, 3% of the total Aeronautical Revenue paid towards Airport Operator's fee is accounted as Aeronautical expense and 3% of total Non- Aeronautical revenue paid towards Airport Operator's fee is accounted as Non - Aeronautical expense.

Table 37 Segregation of Airport Operator Fee for Second Control Period

(₹ crores)

FY15			FY16			FY17			FY18			FY19		
Total	Aero	Non-Aero	Total	Aero	Non-Aero	Total	Aero	Non-Aero	Total	Aero	Non-Aero	Total	Aero	Non-Aero
119.90	80.15	39.75	128.68	84.56	44.12	151.05	97.97	53.08	171.87	113.33	58.54	114.9	51.16	63.74

### 10.4.9.3 Property Tax

DIAL is required to pay a property tax to Municipal Corporation of Delhi (MCD) on the entire airport property including land and buildings. This expense has been allocated on the basis of proportion of the asset base. However due to the changes in the segregation logics for the assets held outside the Terminal, the proportion of Aeronautical assets to the total assets changed resulting in an adjustment to the Aeronautical costs pertaining to property tax. The impact of the above change is shown in Table 38.

Table 38 Segregation of Property Tax Expenses for Second Control Period

(₹ crores)

	Overall Expense Ratio		Adjusted Overall Expense Ratio		Impact		
	Up to FY18	FY19	Up to FY18	FY19	Up to FY18	FY19	Total
<b>Aeronautical</b>	60.94	7.09	60.00	6.93	0.94	0.16	1.1
<b>Non-Aeronautical</b>	7.13	0.75	8.07	0.91			
<b>Total</b>	68.07	7.84	68.07	7.84			

### 10.4.9.4 Finance Charges

The following finance costs being one-time funding expenses and not a recurring cost of debt along with any foreign exchange losses incurred on actual repayment of foreign currency borrowings are claimed as Operation and Maintenance costs.

- Break Costs for IRS and ECB Loans
- Prepayment Charges on Rupee Term Loan
- Bank Charges
- Upfront and Processing Fees
- Foreign Exchange loss on repayment of External Borrowing

Since these costs are incurred for funding the capital investments of the company, the gross fixed ratio towards Aeronautical and Non-Aeronautical was adopted to segregate these costs.

However due to the changes in the segregation logics for the assets held outside the Terminal, the proportion of Aeronautical assets to the total assets changed resulting in an adjustment to the Aeronautical costs pertaining to these finance costs. The impact of the above change is shown Table 39.

Table 39 Segregation of Finance Costs for Second Control Period

(₹ crores)

Particular	Total Cost					Gross Fixed Asset Ratio		Adjusted Gross Fixed Assets Ratio (89:11)		Impact
	FY15	FY16	FY17	FY18	Total	Aero	Non-Aero	Aero	Non-Aero	
Refinance cost	101.05	0	48.97	0	150.02	133.74	16.28	133.40	16.62	0.35
Amortisation cost	27.15	14.17	38.10	8.83	88.25	78.67	9.58	78.47	9.78	0.20
Bank Charges	4.65	2.42	3.91	2.87	13.85	12.35	1.50	12.32	1.53	0.03
Forex Loss*	529.01	13.92	81.91	-0.47	<b>624.37</b>	556.63	67.74			
<b>Total</b>	<b>661.86</b>	<b>30.51</b>	<b>172.89</b>	<b>11.23</b>	<b>876.49</b>	<b>781.39</b>	<b>95.10</b>	<b>224.07</b>	<b>27.93</b>	<b>0.58</b>

\* The Authority may take its own view with respect to the above forex loss of ₹ 624.37 crores.

The finance charges for FY15 are comparatively higher than the other FY's of the control period due to the repayment of USD 350 million loan. Since foreign currency fluctuations are claimed for regulatory purposes only on payment basis, on repayment of foreign borrowings in FY15, the claim for ₹ 529.01 crores were made. The working for the same are as per the table given below:

Table 40 Foreign currency Fluctuations as per Financial statements and claimed for Tariff

Computation for FY15

(₹ crores)

Particulars	Payable for FY15 at original borrowing rate	Forex Reinstatement for FY15- Capitalised with asset account (Not considered in RAB)	Repayment at actual INR value during FY15	Exchange difference on actual payment for FY15 (Claimed as Expense for Regulatory Purpose)
ECB- USD 350 Million				

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Particulars	Payable for FY15 at original borrowing rate	Forex Reinstatement for FY15- Capitalised with asset account (Not considered in RAB)	Repayment at actual INR value during FY15	Exchange difference on actual payment for FY15 (Claimed as Expense for Regulatory Purpose)
Opening as on 1st April 2014	1,412.72			
Repayment during period	(1,412.72)		1,912.58	499.86
Forex-restatement-AS11 for FY15		33.60		
Closing as on 31st March 2015	(0.00)			
Interest for the period	76.44		103.88	27.44
<b>ECB- USD 100 Million</b>				
Opening as on 1st April 2014	551.93			
Repayment during period	(11.97)		12.48	0.51
Forex-restatement-AS11 for FY15		23.70		
Closing as on 31st March 2015	539.96			
Interest for the period	28.59		29.81	1.22
<b>Bond - USD 288.75 Million</b>				
Opening as on 1st April 2014	NIL			
Borrowing during year	1,778.77			
Forex-restatement-AS11 for FY15		42.09		
Closing as on 31st March 2015	1,778.77			
Interest for the period	18.67			
<b>Total Forex</b>	<b>-</b>	<b>99.39</b>		<b>529.02</b>

## 10.5 SUMMARY

- At DIAL, there are 28 major departments/cost centers. These major cost centers are further divided into Sub-Cost Center and the segregation of all operation and maintenance costs into Aeronautical and Non-Aeronautical is based on the nature of the sub cost center.
- Common costs incurred within the Terminal have been segregated in the ratio of space demarcated within the terminals for Aeronautical/ Non-Aeronautical activities as per initial floor space plan, as it was noted that the actual space let out for Non - Aeronautical activities (89,804 sqm) is lower than the space demarcated for the same (1,05,252 sqm).
- For common costs incurred outside the Terminal such as Support Business Function costs, Corporate costs, Chartering, Legal costs etc. a reasonable basis (such as Adjusted Gross Fixed Assets ratio) has been determined for its appropriate segregation in to Aeronautical and Non - Aeronautical categories.

## 11 TREND ANALYSIS OF INFLATION ADJUSTED EXPENSES

To have a fair Trend Analysis, we have calculated and analysed the expenses after adjusting the nominal amount by general price level changes over time to remove inflationary effect.

Real amount of expenses can be derived by dividing the relevant nominal amount of expenses by the appropriate price index of the current year in relation to the price index of base year. By doing this, we get the amount of expenses net of any changes in the general price level and real increase or decrease in expenses over the period from the base year (base year taken FY15) can be worked out.

Wholesale Price Index (WPI) is used as the price index for this purpose and it is taken from the website of Office of the Economic Adviser - Government of India, Ministry of Commerce & Industry.

Formula for calculating the real amount (inflation adjusted) of expenses is mentioned below:

**Formula for calculating inflation adjusted expense:**

$$= \frac{\text{Nominal Expense of Current Year}}{\text{WPI of Current Year}} \times \text{WPI of Base Year}$$

The Index for the Years used are as under:

Table 41 Index used for adjustment of Inflation

Particulars	FY-15	FY-16	FY-17	FY-18
Index for the Year	100	109.7	111.6	114.9

The following work steps have been followed for this exercise:

1. The increase in the annual expense for the second control period was compared to the increase in the scale of operations to eliminate its effect in the increase of total spend

2. The per PAX/per ATM costs year on year were then compared and for any increase/decrease beyond 25% of the immediate previous year, a root-cause analysis was performed to assess other factors like improvement plan implementation, increase in wage rates, one-time expenses, etc attributing to the upward trend or downward trend in expenses if any.

## **11.1 SUMMARY**

- For a fair trend analysis, the expenses have been adjusted with any general price level changes over time to remove inflationary effect.

## 12 REVIEW OF THE ACTUAL EXPENSES INCURRED BY DIAL FOR SECOND CONTROL PERIOD

The actual expenses incurred by DIAL for the second control period, was analyzed at the MIS grouping and Profit and Loss grouping level.

### 12.1 MANPOWER COST

The total manpower count at DIAL per department is detailed in the below table:

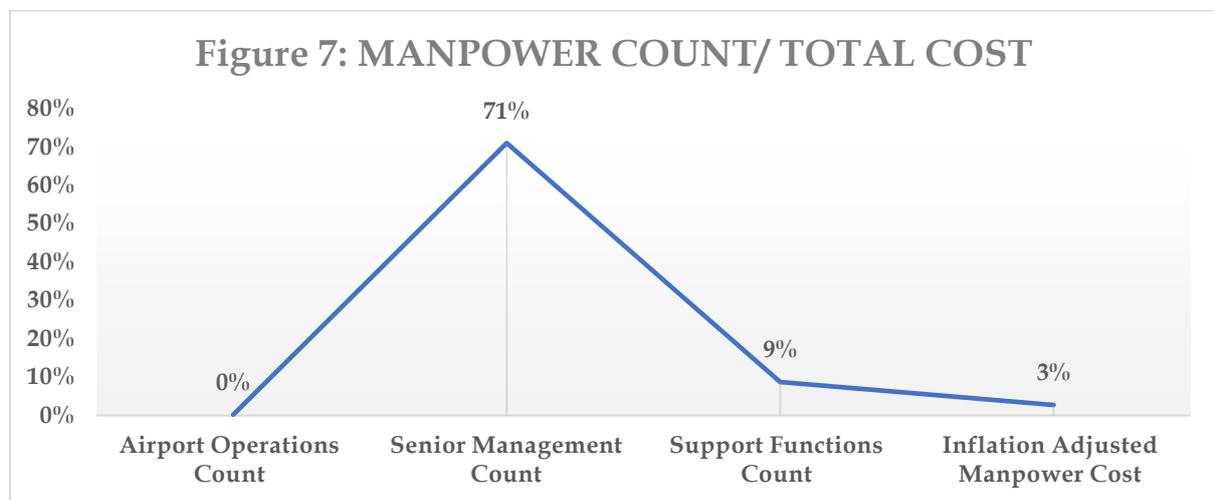
*Table 42 Manpower Count for DIAL during Second Control Period*

S. No	Department	Functions	FY15	FY16	FY17	FY18
1	Operations (DIAL)	Airport Operations	465	437	471	570
2	BCM/CEO Office	Senior Management	12	12	32	60
3	Commercial (Aeronautical & Non-Aeronautical)	Support Functions	88	82	81	89
4	Corporate Communication	Support Functions	12	11	10	14
5	Corporate Relations	Support Functions	24	21	20	21
6	SPG/Business Integration & Planning	Support Functions	20	20	20	20
7	Ethics & Intelligence & GMRVF	Support Functions	26	27	33	37
8	Finance & Accounts	Support Functions	62	69	73	107
9	Human Resources & FMS	Support Functions	34	35	31	73
10	Guest Relations	Support Functions	25	24	23	21
11	IT	Support Functions	19	12	7	6
12	Legal	Support Functions	15	13	13	21
13	MAG	Support Functions	6	5	7	16
14	Project & Engineering	Airport Operations	27	23	21	18
16	Quality, Service & Delivery	Airport Operations	15	14	11	13
17	Baggage Screeners	Airport Operations	438	422	316	319
18	Security	Airport Operations	85	87	91	106
19	Trolley retriever	Airport Operations	215	204	220	226
<b>Total Manpower (Excluding CPD)</b>			<b>1,588</b>	<b>1,518</b>	<b>1,480</b>	<b>1,737</b>

Table 43 CAGR Growth of Manpower Count and Cost during Second Control Period

Functions	FY15	FY16	FY17	FY18	CAGR
Airport Operations Count	1245	1187	1130	1252	0.19%
Senior Management Count	12	12	32	60	71.00%
Support Functions Count	331	319	318	425	8.69%
Total Manpower Cost (In Cr)	132.12	125.34	130.58	164.48	
Inflation Adjusted Cost *	132.12	114.26	117.01	143.15	2.71%

\*Refer Table 44 for Inflation Index



From the above, it can be noted that the manpower costs have increased at CAGR 2.71% and the total manpower count for DIAL has increased at an average CAGR of all departments at 26.62%. This increase can be attributed to increase in the operations of DIAL to ensure highest quality services are provided to its passengers.

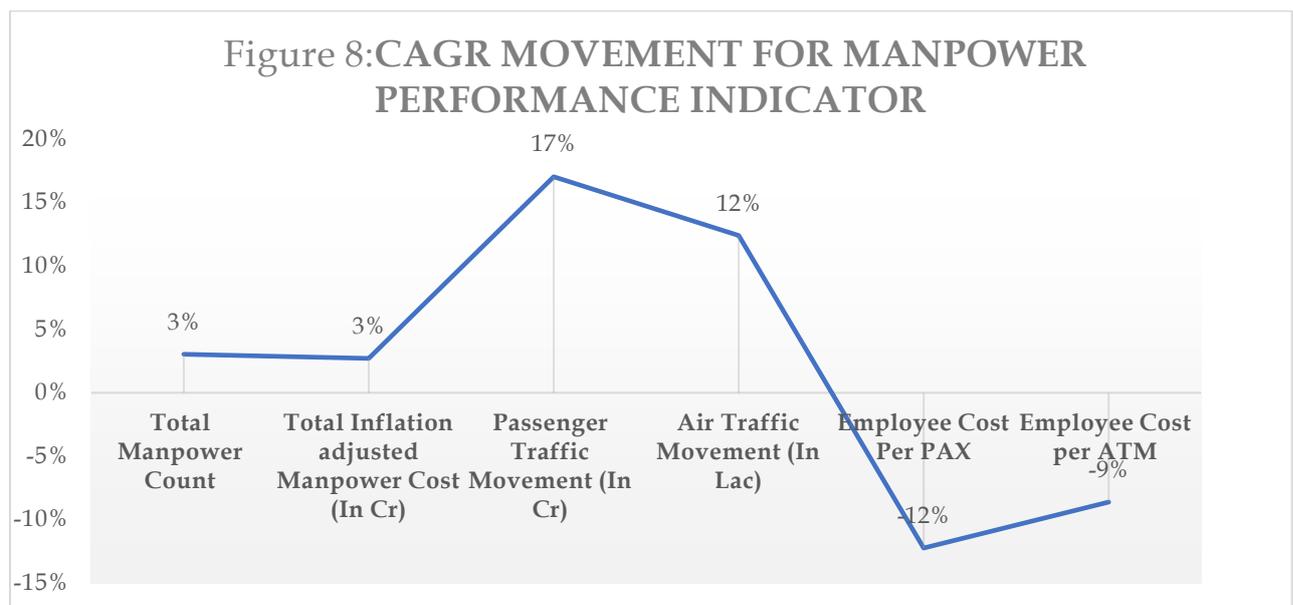
Out of the overall increase of 26.62% of the manpower count, it was seen that the increase in the count of senior management contributed 71% CAGR and the support function staff at 8.69% comparing the increase for the operational staff at only 0.19%

## MANPOWER PERFORMANCE INDICATORS:

Table 44 Cost computation per PAX and per ATM for Manpower during Second Control Period

Functions	FY15	FY16	FY17	FY18	CAGR
Total Manpower Count	1588	1518	1480	1737	3.03%
Total Inflation adjusted Manpower Cost (In Cr) *	132.12	114.26	117.01	143.15	2.71%
Passenger Traffic Movement (In Cr)	4.10	4.84	5.77	6.57	17.03%
Air Traffic Movement (In Cr)	0.0323	0.0366	0.0417	0.0459	12.39%
Employee Cost Per PAX	32.24	23.60	20.28	21.79	(12.24%)
Employee Cost per ATM	4084.71	3124.37	2803.78	3117.10	(8.62%)

\* Refer Table 40 for Inflation Index



The above table shows that the increase in cost of manpower catering to passengers/ air traffic movements (ATM) is attributable to the corresponding increase in number of PAX and ATM. Further, it is to be noted that the cost of employee Per PAX and Per ATM shows a decreasing trend thereby emphasizing efficiency in the airport operations at DIAL.

## 12.2 TERMINAL OPERATING COSTS

Table 45 Total Terminal Operating Cost of DIAL during Second Control Period

(₹ crores)

Description of the Operating Expenses	FY15	FY16	FY17	FY18
Utilities Cost	112.32	121.66	106.54	113.20
Total Consumables	7.87	8.85	11.30	12.73
GADL Manpower Outsourcing Expenses	33.34	36.56	40.20	45.11
Housekeeping and Manpower	44.87	49.01	55.58	80.86
Insurance	10.51	9.15	7.16	6.63
R&M - Runways, Taxiway & Internal Roads	7.70	8.85	11.55	10.57
R&M-Building	15.22	23.92	15.46	21.78
R&M-Others	4.50	6.00	9.13	10.45
R&M-IT	21.45	28.95	32.08	35.32
R&M-Plant & Machinery	78.34	83.82	95.20	108.27
Security & Landside Expenses	9.50	9.89	13.61	23.06
IT JV Payment	53.00	18.14	2.75	0.00
<b>Total</b>	<b>396.62</b>	<b>404.80</b>	<b>400.57</b>	<b>467.99</b>

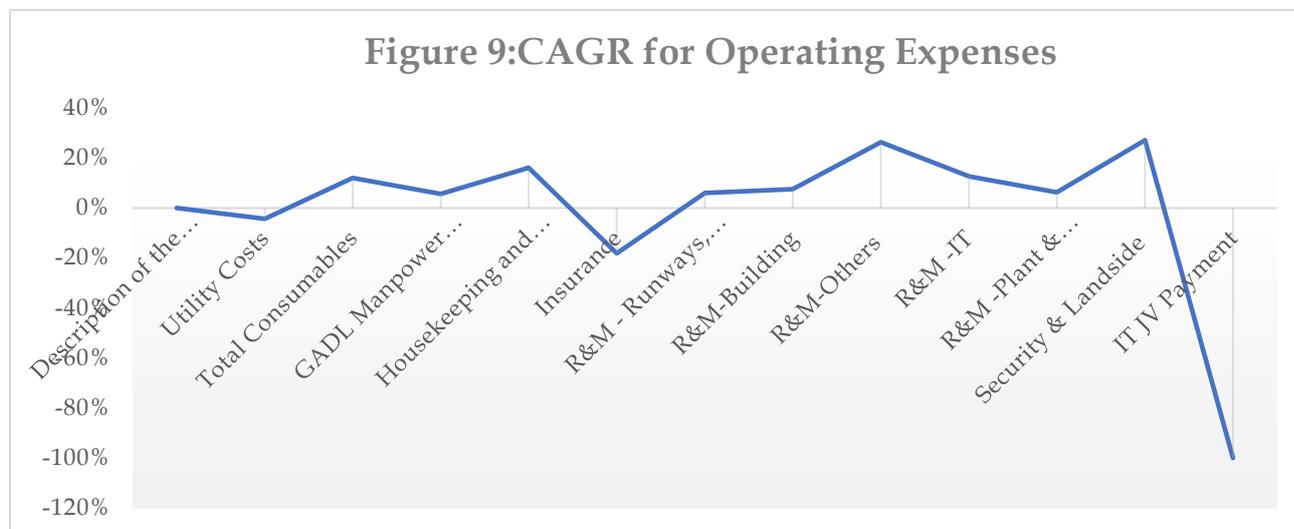
## INFLATION ADJUSTED TERMINAL OPERATING COST

Table 46 Total Inflation adjusted Terminal Operating Cost of DIAL for Second Control Period \*

(₹ crores)

Description of the Operating Expenses	FY15	FY16	FY17	FY18	CAGR
Utility Costs	112.32	110.90	95.47	98.52	(4.27%)
Total Consumables	7.87	8.06	10.13	11.08	12.07%
GADL Manpower Outsourcing Expenses	33.34	33.33	36.03	39.26	5.60%
Housekeeping and Manpower	44.87	44.68	49.81	70.38	16.19%
Insurance	10.51	8.34	6.41	5.77	(18.09%)
R&M - Runways, Taxiway & Internal Roads	7.70	8.07	10.35	9.20	6.10%
Repairs & Maintenance-Building	15.22	21.81	13.85	18.96	7.59%
Repairs & Maintenance-Others	4.50	5.47	8.19	9.09	26.40%
Repairs & Maintenance-IT	21.45	26.39	28.74	30.74	12.74%
Repairs & Maintenance-Plant & Machinery	78.34	76.41	85.31	94.23	6.35%
Security & Landside Expenses	9.50	9.01	12.19	20.07	27.17%
IT JV Payment	53.00	16.54	2.46	0.00	(100.00%)
<b>Total</b>	<b>398.62</b>	<b>369.00</b>	<b>358.93</b>	<b>407.30</b>	<b>(2%)</b>

\*Refer Table 41 for Inflation Index



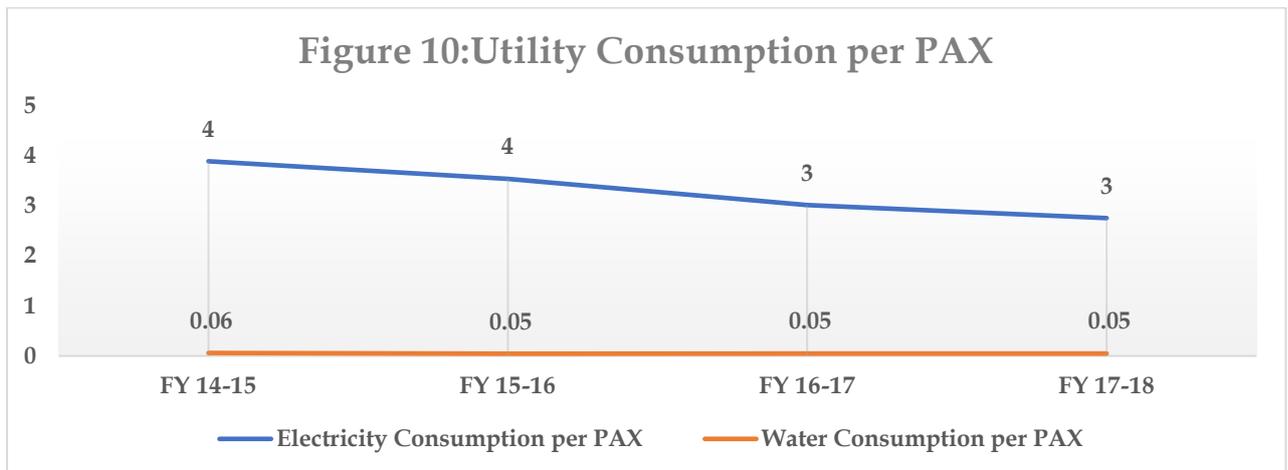
## 12.3 UTILITY COSTS

Table 47 Water and Electricity Consumption Pattern at DIAL during Second Control Period

Particulars	FY-15	FY-16	FY-17	FY-18
Electricity unit consumption	21,97,95,000	22,40,55,000	22,57,21,000	23,75,26,000
Solar power consumption	31,86,000	48,14,000	95,95,000	1,03,80,000
Recovery from Retailers	7,95,27,864	8,39,82,097	8,94,09,000	8,89,71,020
<b>Total unit consumption</b>	<b>14,34,53,136</b>	<b>14,48,86,903</b>	<b>14,59,07,000</b>	<b>15,89,34,980</b>
<b>Total Inflation Adjusted Cost of Electricity (₹ crores) *</b>	<b>110.30</b>	<b>105.42</b>	<b>93.51</b>	<b>101.84</b>
Water Consumption	17,36,280	13,21,917	15,25,012	18,61,712
Recovery from Retailers	4,62,509	5,53,230	7,01,202	8,56,388
<b>Net Consumption by Passengers</b>	<b>12,73,771</b>	<b>7,68,687</b>	<b>8,23,810</b>	<b>10,05,324</b>
<b>Total Inflation Adjusted Cost of Water (₹ crores) *</b>	<b>2.02</b>	<b>5.48</b>	<b>1.96</b>	<b>(3.31) *</b>

\*Refer Table 41 for Inflation Index

\*The costs for FY18 net of recoveries included recoveries made for previous financial years including for costs related to Second control period



With a passenger growth percentage of 17.03% during Second Control Period, it is to be noted that the consumption per PAX had dropped by 10.7% for electricity and 20.4% for water.

The reduction in energy consumption despite steady increase in PAX is due to the continuous improvement and various cost saving measures undertaken at DIAL. Few major innovations have been listed below:

Table 48 Utility Cost Saving Initiatives at DIAL

Innovation	Total Investment	Total Savings	Energy Saving	Replication Possibility
Switch off Runway Lights whenever Runway Visual Range (RVR) is greater than 3000m with the coordination of the Stakeholders	-	₹ .15 crores Per Year	20,000 Units	100%
Head of Pump was reduced by trimming the impeller by 2.5mm and this has reduced the power consumption of condenser pump	₹ .031 crores	₹ .18 crores Per Year	20,000 Units	100%
T3 has PTB and two pier Gate allocation is done by AOCC through automated software. However, all other services like lighting, HVAC, VHT, PBB, etc. are controller by BMS. Integration of the two software has ensured based on the gate allocation; the necessary	-	₹ 3.6 crores Per Year	40,00,000 Units	100%

Innovation	Total Investment	Total Savings	Energy Saving	Replication Possibility
services are switched on and remaining areas remains switched off				
Energy Saving through DIAL Lighting Control and Monitoring System	-		174,960 Units Per Year	
Other Various Energy Efficiency measures like: <ul style="list-style-type: none"> <li>- Energy efficient Chillers</li> <li>- VFD's in secondary pump and CT Fans</li> <li>- Tempered Cooling Systems</li> <li>- Low U- Value Building Envelope and Roof</li> <li>- VVFD and Radar Sensor based Travellator and Escalator</li> </ul>				
Water Saving Initiatives Include: <ul style="list-style-type: none"> <li>- Water Efficient Plumbing, Irrigation and Air-Conditioning System</li> <li>- Rainwater Harvesting and Reuse of treated Water</li> <li>- Customized Urinal Sensors for washroom to avoid frequent failures</li> <li>- Reduction in water consumption and process time in backwash water process</li> </ul>				

## 12.4 COST OF TOTAL CONSUMABLES

The total consumable cost for Second First Control Periods ₹ 40.75 crores and it comprises of the following components:

Table 49 Total Consumables at DIAL during Second Control Period

(₹ crores)

Consumables	FY15	FY16	FY17	FY18	Total
Fuel - Diesel	2.40	1.74	1.56	1.70	7.40
House Keeping - Material	3.33	5.37	3.86	4.21	16.77
Other Consumables	2.14	1.74	5.88	6.82	16.57
<b>Total Cost</b>	<b>7.87</b>	<b>8.85</b>	<b>11.30</b>	<b>12.73</b>	<b>40.75</b>
<b>Inflation Adjusted Cost*</b>	<b>7.87</b>	<b>8.06</b>	<b>10.13</b>	<b>11.08</b>	<b>37.14</b>

\*Refer Table 41 for Inflation Index

The consumables are majorly used at the:

- Main and Secondary power substations at T1 and T3
- Air ground Lighting and other electrical installations at the airside
- Water and sewage Treatment Plants
- HVAC (Chillers, Cooling towers, Pumps, fans, softeners, etc.
- Fire Detection and protection system (Fire Pumps, detectors, Hydrant boxes, etc.)
- Hydro Pneumatic Pumps, bore wells, Sump Pumps and Panels, RO, etc.

Fuel is majorly consumed by the DG sets and vehicles operated daily by the fire department such as Crash Fire Tenders (CFTs), Sweeping machines, Runway Marking Machines, Guest Relations and Other miscellaneous.

## TOTAL CONSUMABLES PERFORMANCE INDICATOR

Marking the increase in cost of these consumables at a CAGR of 17.38% to the increase in operations marked by increase in PAX by 17.03% and ATM by 12.39% during the control period, it is noted that the costs have been stable to the increase in operations signifying efficient control over consumption.

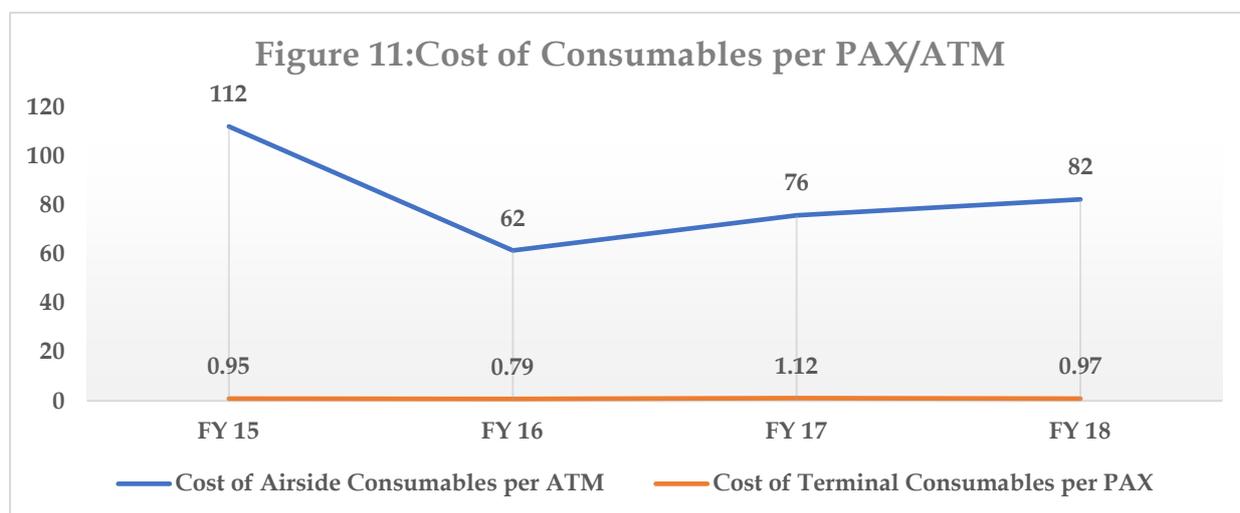
Table 50 Cost Computation per PAX and per ATM for the total Consumables at DIAL during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Inflation adjusted Airside Cost (In Cr) *	3.63	2.25	3.17	3.79
Inflation adjusted Terminal Cost (In Cr) *	3.91	3.83	6.48	6.40
Total Passenger Traffic (In Cr)	4.10	4.84	5.77	6.57
Total Air Traffic (In Cr)	0.03	0.04	0.04	0.05
Cost of Airside Consumables per ATM	112.23	61.52	75.90	82.45
Cost of Terminal Consumables per PAX	0.95	0.79	1.12	0.97

\*Refer Table 41 for Inflation Index

The trend line of costs per unit increase in operations also seemed stable for the control period



#### 12.4.1 GADL MANPOWER OUTSOURCING COST

GMR Airport Developer Limited (GADL) has outsourced technical skills to DIAL for execution of various services like:

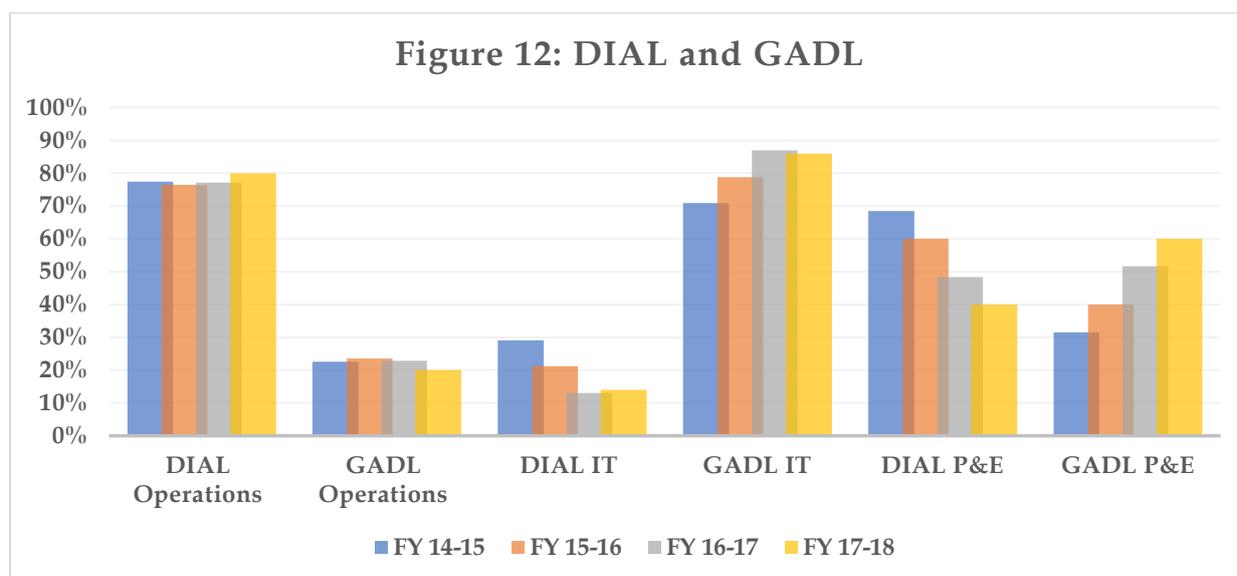
- Operations and Maintenance of all mechanical and electrical facilities required for terminal operations.

- Operation and maintenance of various other airport facilities like Baggage handling, PIDS, STP/WTP, etc. as listed in annexure A of the service level agreement with GADL.

On comparing the proportion of the services outsourced by DIAL vis-à-vis the operations undertaken by DIAL, basis the below table and chart, it was observed that the proportion of the GADL services for the P&E department increased in FY18 due to initiation of Phase 3 project proposed as per the Master Plan 2016.

*Table 51 GADL Vis-à-vis DIAL Manpower Count during Second Control Period*

<b>Department</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>	<b>FY18</b>
DIAL Operations	465	437	471	570
GADL Operations	135	135	140	143
<b>Total Manpower for Airport Operations</b>	<b>600</b>	<b>572</b>	<b>611</b>	<b>713</b>
DIAL IT	19	12	7	6
GADL IT	46	45	47	37
<b>Total Manpower for IT Operations</b>	<b>65</b>	<b>57</b>	<b>54</b>	<b>43</b>
DIAL P&E	27	23	21	18
GADL P&E	12	15	22	27
<b>Total Manpower for P&amp;E Operations</b>	<b>39</b>	<b>38</b>	<b>43</b>	<b>45</b>



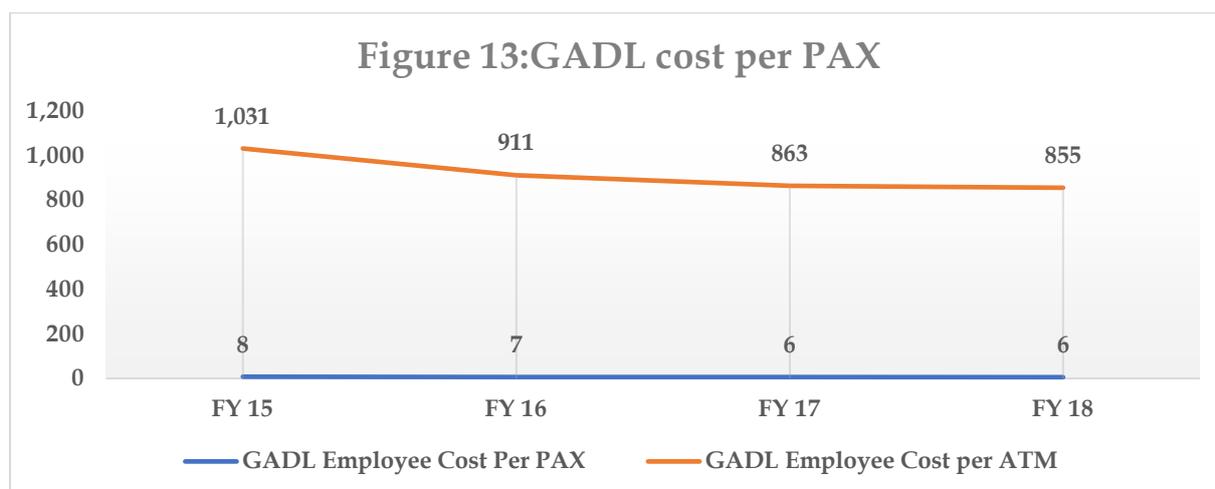
**PERFORMANCE INDICATOR:**

*Table 52 GADL Cost Computation per PAX and per ATM during Second Control Period*

Functions	FY15	FY16	FY17	FY18
Total GADL Manpower Count	202	203	220	217
Total Inflation Adjusted GADL Manpower Cost (In Cr) *	33.34	33.33	36.03	39.26
Passenger Traffic Movement (In Cr)	4.10	4.84	5.77	6.57
Air Traffic Movement (In Cr)	0.0323	0.0366	0.0417	0.0459
GADL Employee Cost Per PAX	8.13	6.88	6.24	5.98
GADL Employee Cost per ATM	1,030.77	911.46	863.27	854.87

*\*Refer Table 41 for Inflation Index*

The below chart denotes that the cost of outsourcing per PAX/ATM has remained stable despite steady increase in operations.



## 12.4.2 HOUSEKEEPING AND MANPOWER COSTS

The operations of the airport require deployment of housekeeping services at three different locations, a) Passenger Terminal Building b) Airside and c) Other Landside/Cityside Buildings. For Second Control Period, the company had incurred ₹ 228.75 crores towards housekeeping services availed from major vendors at various locations are as below:

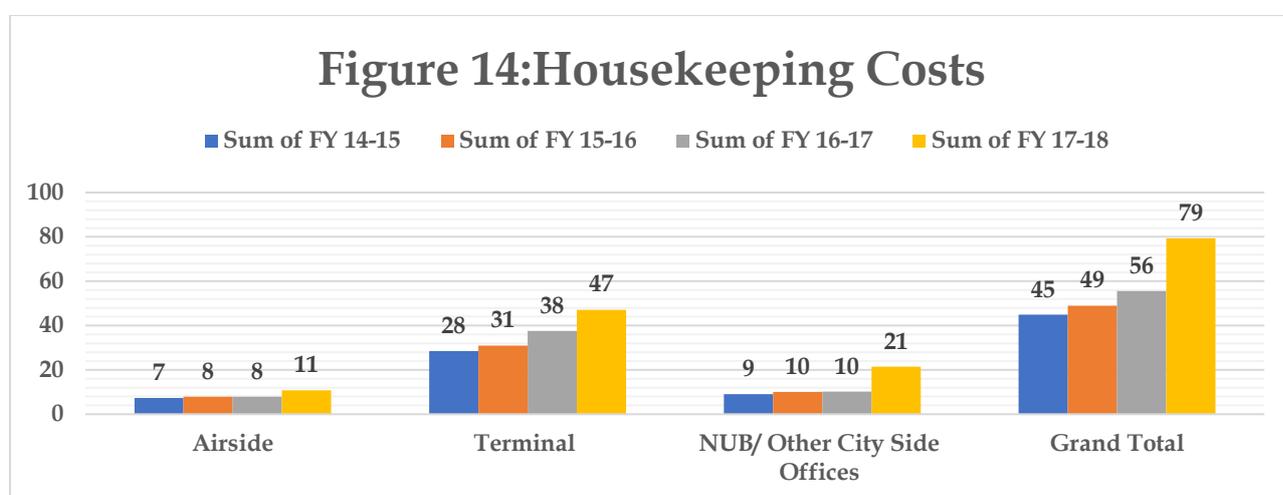
Table 53 Major Housekeeping Services engaged at DIAL

Location	Description of The Activities
Airside Operations	Bird Chasers, Supervisor and Wild-Life Control Services at T3
	Airside Pavement Cleaning for Taxiways Etc.
Terminal Operations	Comprehensive Housekeeping Services at terminals including carpet cleaning, pest control, washroom cleaning, canopy cleaning, etc.
Facilities & Administration	Environmental Services and Office Support Staff for NUB
	House Keeping Services Land/ City Side
	Support Staff for Senior Management Guest House

Table 54 Total Housekeeping costs incurred at DIAL during Second Control Period

(₹ crores)

Location	FY15	FY16	FY17	FY18	CAGR
Airside	7.33	7.89	7.85	10.76	13.64%
Terminal	28.48	31.00	37.55	47.13	18.28%
NUB/ Other City Side Offices	9.05	10.13	10.15	21.44	33.30%
Total	44.87	49.01	55.54	79.34	20.93%



It is to be noted from the above table, the costs in general were higher for FY18 as compared to the previous financial year. The key contributor to this increase in housekeeping cost for FY18, was account of revision of contracts to inbuild increase in minimum wages enforced by Ministry of Labour and Employment. The minimum wages for cleaning services was ₹ 374 per day till 31<sup>st</sup> October 2016 which was increased to ₹ 523 effective 1<sup>st</sup> January 2017.

Further, in addition to the increase in wages, additional cleaning and housekeeping services were deployed at the Airside, terminal and the administrative offices effective FY18. The details for the same are given below

**At Airside**

- Due to increase in operations, additional manpower was deployed towards airside pavement cleaning, bird chaser, security alerts and other airside operations

**Terminal:**

- ₹ 2.89 crores incurred for One-time expense of the T2 Cleaning.
- ₹ 4.25 crores incurred towards recurring expenditure effective FY18 on account of housekeeping contract of the new operational T2.

**Outside the Terminal:**

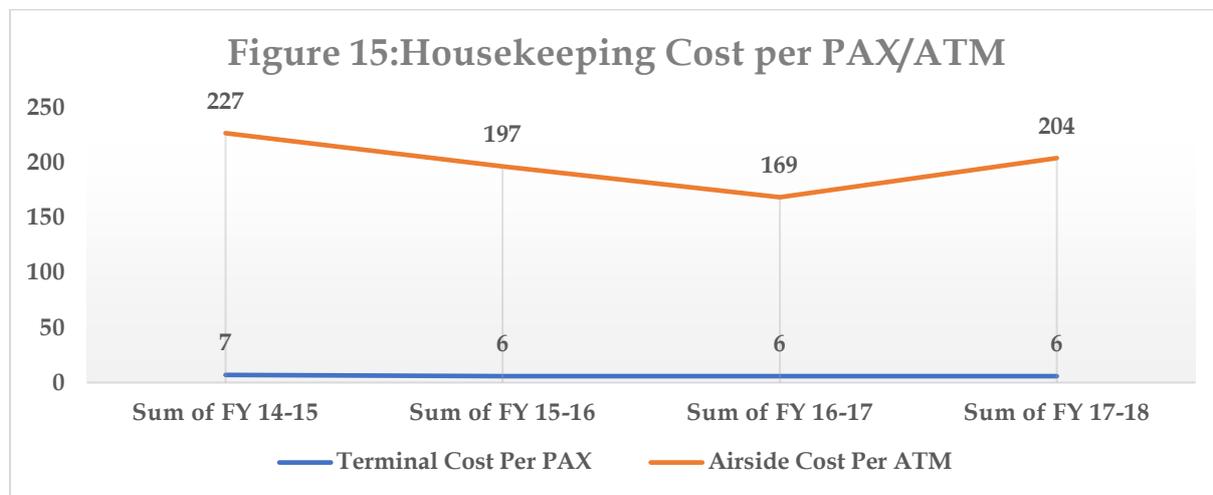
- ₹ 3.6 crores additionally incurred effective FY18 for additional manpower deployed at administrative offices and the new transit house taken on lease in FY18.

**PERFORMANCE INDICATOR:**

*Table 55 Cost Computation per PAX and per ATM during Second Control Period*

Location	FY15	FY16	FY17	FY18
Inflation adjusted Airside Costs (In Cr)	7.33	7.19	7.03	9.37
Inflation adjusted Terminal Cost (In Cr)	28.48	28.26	33.64	38.50*
Inflation adjusted NUB/ Other City Side Offices (In Cr)	9.05	9.23	9.09	18.66
Inflation adjusted Total Cost	44.87	44.68	49.77	66.53
Passenger Traffic Movement (In Cr)	4.10	4.84	5.77	6.57
Air Traffic Movement (In Cr)	0.0323	0.0366	0.0417	0.0459
Terminal Cost Per PAX	6.95	5.84	5.83	5.86
Airside Cost Per ATM	226.75	196.60	168.51	203.99

\* The terminal cost for FY17-18 has been adjusted for the one-time cleaning cost of ₹2.89crores for T2 to arrive at the base line cost.



### 12.4.3 INSURANCE COST

Table 56 Total Insurance Cost at DIAL during Second Control Period

(₹ crores)

Type of Policy	FY15	FY16	FY17	FY18	CAGR
Airport Operator (vendor) Liability policy	1.82	1.85	1.57	1.34	(9.68%)
Assets - Vehicles Policy	2.70	0.87	0.15	1.12	(25.34%)
Industrial All Risk Policy	5.59	6.09	5.10	3.87	(11.54%)
Other Insurance Policies	0.05	0.06	0.09	0.01	(35.23%)
Special Contingency Insurance	0.34	0.28	0.25	0.28	(5.94%)
<b>Total</b>	<b>10.51</b>	<b>9.15</b>	<b>7.16</b>	<b>6.63</b>	<b>(14.21%)</b>

DIAL in accordance with the OMDA has undertaken three major policies. These are Industrial All Risk, Airport Operator Liability Policy and Terrorism Policy. From the summary of costs above, it can be noted that the Insurance cost to the company has decreased at a CAGR of 14.21%. The decrease is due to:

a) In FY15 the premium was higher due to claim lodged in May,2014 on account of T1D roof damage caused by unprecedented winds under Industrial all risk policy and FY16 due to higher risk perception considered by Insurance companies in domestic market and reinsurer in International market.

b) The insurance premium got reduced in coming years on account of no claim history since FY14 and better negotiation of premium by DIAL in both domestic and international reinsurance market.

c) The rates got further reduced in FY17 and FY18 due to the risk mitigation process undertaken by DIAL and same has been well accepted by the Insurance companies during several risk assessment of DIAL done through Independent surveyors. Also, no claim history post FY14 gave an edge to DIAL to negotiate the best premium.

## 12.4.4 REPAIRS AND MAINTENANCE COSTS

### 12.4.4.1 INFORMATION TECHNOLOGY

Table 57 Total Repair and Maintenance cost for Information Technology at DIAL during Second Control Period

(₹ crores)

IT Infrastructure	FY15	FY16	FY17	FY18
Hardware Repair and Maintenance	6.53	12.74	16.79	19.67
Licence Renewal Fee	3.31	3.36	3.77	3.54
Software Repair and Maintenance	11.61	12.84	11.52	12.11
<b>Actual Cost - R&amp;M- IT</b>	<b>21.45</b>	<b>28.95</b>	<b>32.08</b>	<b>35.32</b>

The Repair and Maintenance of the IT Systems include:

- AMC for UFIS Integration
- CMC services for Audio-Visual and associated works
- Helpdesk Monitoring System
- AMC for SAP Hardware

- FIDS AMC
- PIDS AMC
- Renewal of AMC/CMC of TMRS and Main switching office
- CMC Of Alcatel Telephony at NUB, Project Office and Guest House and warranty services for Telephony.
- License Renewal includes enterprise IT license such as Oracle, Qlik-view, etc.

## PERFORMANCE INDICATOR

Table 58 Baseline Cost Computation per PAX during Second Control Period

Description of the Operating Expenses	FY14	FY15	FY16	FY17	FY18
<b>Actual Cost per PAX (A)</b>		<b>5.23</b>	<b>5.98</b>	<b>5.56</b>	<b>5.38</b>
Inflation adjusted Hardware Repair and Maintenance (In Cr) *		6.53	11.62	15.04	17.12
Inflation adjusted Software Repair and Maintenance and Licence Renewal Fee (In Cr) *		14.92	14.77	13.70	13.62
<b>Total Inflation Adjusted Cost*</b>		<b>21.45</b>	<b>29.24</b>	<b>31.65</b>	<b>-</b>
Total PAX (In Cr)		4.10	4.84	5.77	6.57
Inflation Adjusted Cost per PAX – Hardware*		1.59	2.40	2.61	2.61
Inflation Adjusted Cost per PAX – Software*		3.64	3.05	2.37	2.07
<b>Total cost per PAX</b>		<b>5.23</b>	<b>5.45</b>	<b>4.98</b>	<b>4.68</b>
Closing Net Block Computing Equipment (In Cr)	30.28	38.90	44.28	45.26	50.31
Closing Net Block Capitalised Software (In Cr)	30.80	36.55	44.28	45.26	50.31
% Increase - Computing Equipment		0.22	0.12	0.02	0.10
% Increase - Capitalised Software		0.16	0.17	0.02	0.10
Hardware Repair and Maintenance cost per PAX adjusted to growth rate of net value of Computing Equipment		1.59	1.79	1.83	2.01

Description of the Operating Expenses	FY14	FY15	FY16	FY17	FY18
Software Repair and Maintenance and Licence Fee cost per PAX adjusted to growth rate of net value of Capitalised Software		3.64	4.21	4.95	5.06
<b>Total cost per PAX as adjusted by increment to the Gross Block (B)</b>		<b>5.23</b>	<b>6.00</b>	<b>6.78</b>	<b>7.07</b>

*\*Refer Table 40 for Inflation Index*

After adjustment for inflation to the total costs incurred on the repair and maintenance of the IT assets, the normalized cost per PAX were computed to eliminate the effect of increase in costs due to increase in operations.

Since the cost of Repair and Maintenance is affected with additions to assets with the increase in operations and ageing of assets, the growth percentage in the net block of the assets being the best indicator of the above two factors were applied to the normalized cost per PAX. The increase in cost after adjustment for the increase in net block would therefore indicate the optimum cost levels.

When comparing the optimum cost level (Indicated at B in the above table) to the actual cost per PAX (Indicated at A in the above table), it was noted that the actual cost level of the company was lower than the optimum level denoting efficiency in management of costs.

#### **12.4.4.2 BUILDINGS**

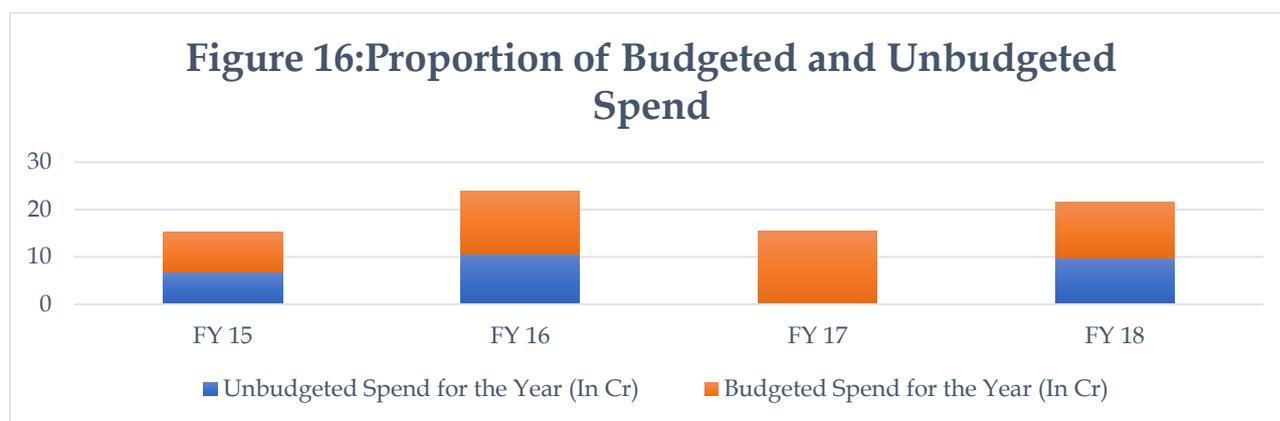
For Second Control Period, the total expenditure by DIAL on the repairs and maintenance of various buildings at the airside and landside was ₹ 76 crores.

The above spend includes a one-time expenditure of total sum of ₹ 27.5 crores not included in the estimated annual budgeted of the company, incurred by DIAL for various services across the control period. The details for the same are as given below:

Table 59 Total Repair and Maintenance cost for Buildings at DIAL during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18
Unbudgeted Spend for the Year	6.77	10.72	0.17	9.85
Budgeted Spend for the Year	8.42	13.21	15.29	11.82
Total Spend for the Year	15.20	23.92	15.46	21.67
Proportion of Unbudgeted Spend	44.57%	44.79%	1.07%	45.45%



### Details of the Unbudgeted Expenses incurred during Second Control Period for the maintenance of Buildings

Table 60 Details for the Unbudgeted Repairs and Maintenance for Buildings during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18
Repair of road network around NUB and various adjoining roads		0.06		
Construction of connection road from New Custom House to Central Spine Road	-	0.00	-	-
Civil and Finishing items for Landside Buildings and Infrastructure	-	-	0.00	-

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Description	FY15	FY16	FY17	FY18
Supply of 4 nos. prefab Porta Cabins for security team	-	0.00	-	-
Repair of road network around NUB and various adjoining roads	-	1.87	-	-
Creation of Alternate Seating Facility at ASB and T-3	-	0.00	-	-
Work Order for Civil, Building and Road rehabilitation works	-	-	-	9.74
Refurbishment of Senior Management Guest House at Gurgaon	-	-	0.07	0.06
Construction of connection road from New Custom House to Central Spine Road	0.08	0.09	-	-
Civil and Finishing items for Landside Buildings and Infrastructure	-	-	0.09	0.05
Controlled dismantling of the connection bridge structure between NUB and Project office near Terminal-3,	0.14	-	-	-
Supply of 4 nos. prefab Porta Cabins for security team	0.03	(0.00)	-	-
The ARC contract was awarded for various services required to be executed on a regular basis at DIAL. The requirements are based on security requirements, visits of VVIPs, fire threat / security threat etc. The works also involve various grass/bush/jungle cutting and removal of the waste material and disposal 20 km away from the site at authorized dumping grounds. Cleaning of open drains, traffic safety related works, temporary barricading, earthwork including other items as necessary etc,	6.52	8.70	-	-

Description	FY15	FY16	FY17	FY18
The scope include both airside as well as landside.				
<b>Total</b>	<b>6.77</b>	<b>10.72</b>	<b>0.17</b>	<b>9.85</b>

## PERFORMANCE INDICATOR

Table 61 Baseline Cost Computation for Repair and Maintenance cost of Buildings during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18
Total Cost on R&M - Building	15.20	23.92	15.46	21.66
Less: Unbudgeted Expenses	6.77	10.72	0.17	9.85
<b>Total Recurring Cost (A)</b>	<b>8.42</b>	<b>13.21</b>	<b>15.29</b>	<b>11.82</b>
<b>WPI Index</b>	100	109.7	111.6	114.9
Base Year Assignment	0	1	2	3
Total Inflation Adjusted Recurring Cost*	8.42	12.04	13.70	10.28
Closing Net Block of Assets	855.08	1,042.17	1,225.56	1,407.00
<b>% Increase</b>		18%	15%	13%
<b>Increase in cost adjusted to Increase in Net Block of Assets (B)</b>	<b>8.42</b>	<b>9.94</b>	<b>11.42</b>	<b>12.90</b>

\*Refer Table 41 for Inflation Index

As the repair and maintenance cost are not variable to the operations of the airport, the baseline costs aren't analyzed on a per PAX level.

Since the cost of Repair and Maintenance is affected with additions to assets and ageing of assets, the growth percentage in the net block of the assets being the best indicator of the above two factors were applied to the total normalized cost. The increase in cost after adjusting for the increase in net block would therefore indicate the optimum cost levels.

When comparing the optimum cost level (As indicated in B of the above table) to the actual cost (As indicated to A), it was noted that the actual cost level of the company was lower than the optimum level denoting efficiency in managing costs for FY18.

### 12.4.4.3 PLANT AND MACHINERY

DIAL incurred ₹365 crores across Second Control Period for the repair and maintenance of its plant and machinery operated at various locations within the airport.

Of the overall costs, the total costs for T2 were noted to have increased three times in FY18 compared to the other years, as the terminal started its operations effective October 2017. For the other locations the growth rate remained stable across the financial years.

Table 62 Total Repair and Maintenance cost for Plant and Machinery at DIAL during Second Control Period

(₹ crores)

Location	FY15	FY16	FY17	FY18
Airside	25.82	29.07	29.87	35.76
T1	4.21	4.62	5.88	7.09
T2	2.27	2.44	2.41	6.76
T3	42.14	45.01	54.13	56.22
NUB/Other Cityside P&M	1.92	2.08	2.84	2.43
<b>Total</b>	<b>76.36</b>	<b>83.21</b>	<b>95.13</b>	<b>108.25</b>

Table 63 Breakup of Major Repair and Maintenance Services engaged at DIAL

Description
Operation & Maintenance Contract for Main Receiving Sub-Station (MRSS)
Annual Maintenance Services of Visual Docking Guidance System
Comprehensive Maintenance Contract for Baggage Handling System
Comprehensive Maintenance Contract for Passenger Boarding Bridges
Operation & Maintenance Contract for Public Health Equipment (PHE)
Operation & Maintenance Contract for Heating, Ventilation and Air Conditioning units (HVAC)
Comprehensive Maintenance Contract of Threat Containment Vehicle (TCV) and Suspect Luggage Containment Vehicle (SLCV)
Comprehensive Maintenance Contract for Computer Tomography Xray (CTX) Machine

Description
Comprehensive Maintenance Contract of Hold Baggage Screening and Passenger Screening Equipment
Comprehensive Maintenance Contract for Vertical Horizontal Travellator (VHT)
Comprehensive Maintenance Contract for Air Ground Lighting

The performance of these critical vendors for the CMC and AMC for the various equipment operated at the airport are measured through the below parameter

**The availability of the equipment required to provide the services (X) Percentage of the Running hours excluding breakdown\***

\*The Percentage of running hours is derived as:

$(\text{Hours} - \text{Time for Preventive} - \text{Time for Breakdown}) / (\text{Hours} - \text{Time for Preventive})$ .

Through a daily monitoring mechanism, above computation is based the:

- Availability of the required equipment, tools, spares and consumables for the operations
- Monthly Running Time
- Complete and Timely Preventive Maintenance is done as per the plan
- Incidents reported, Breakdown time and response time.

**PERFORMANCE INDICATOR**

*Table 64 Baseline Cost Computation Per PAX for R&M Expenses on Plant and Machinery during Second Control Period*

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Airside Costs (In Cr)	11.09	12.88	12.74	17.44
Total Terminal Cost/Landside Cost (In Cr)	65.27	65.49	67.59	68.30
Total Cost (In Cr)	76.36	79.77	81.33	86.81
Total Air Traffic Movement (In Cr)	0.03	0.03	0.04	0.04

Particulars	FY15	FY16	FY17	FY18
Total Passenger Traffic (In Cr)	4.10	4.84	5.77	6.57
Airside Cost per ATM	342.80	352.21	305.28	379.84
Landside Cost per PAX	15.93	13.52	11.71	10.40
<b>Total Cost per PAX (A)</b>	<b>358.72</b>	<b>365.74</b>	<b>317.00</b>	<b>390.24</b>
WPI Index	100	109.7	111.6	114.9
Inflation adjusted Airside Cost per ATM*	342.80	321.07	273.55	330.59
Inflation adjusted Landside Cost per PAX*	15.93	12.33	10.50	9.05
Closing Net Block of Asset (In Cr)	700.99	936.77	1,169.67	1,403.44
Reclassification from the Gross block	(18.66)	(18.66)	(0.72)	(0.72)
Net Closing Block of Assets	682.33	918.12	1,168.95	1,402.72
% Increase		25.68%	21.46%	16.67%
Adjusted Airside Cost per PAX to aged assets	342.80	430.84	523.29	610.49
Adjusted Terminal Cost per PAX to aged assets	15.93	20.02	24.31	28.36
<b>Total Adjusted Cost per PAX (B)</b>	<b>358.72</b>	<b>450.85</b>	<b>547.60</b>	<b>638.85</b>

\*Refer Table 40 for Inflation Index

The normalized cost per PAX for Landside assets and normalized cost per ATM for Airside assets were identified to eliminate the effect of increase in operations.

Since the cost of Repair and Maintenance is affected with additions to assets and ageing of assets, the growth percentage in the net block of the assets being the best indicator of the above two factors were applied to the total normalized cost. The increase in cost after adjusting for the increase in net block would therefore indicate the optimum cost levels.

When comparing the optimum cost level (As indicated in B of the above table) to the actual cost (As indicated to A), it was noted that the actual cost level of the company was lower than the optimum level denoting efficiency in managing costs.

#### 12.4.5 LANDSCAPING COSTS

Table 65 Total Landscaping Costs at DIAL during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Total Cost for FY	3.25	4.01	6.34	7.62

The increase in total costs for FY18 is attributed majorly to increase in the minimum wages and increase in area of landscaping due to commissioning of T2 and the Centre Spine Road. Further the aging of existing landscape and infrastructure facility like green houses, irrigation system etc. also contributed towards increase in landscape cost.

Table 66 Major Landscaping Service Contracts engaged at DIAL

Description
Indoor Plant Maintenance within the terminals including the Security held areas
Indoor Plant Maintenance at the Administrative Office
External Landscape Maintenance at the Approach Roads to the Terminals, administrative office and the associated areas

#### 12.4.6 SECURITY EXPENSES

The number of manpower deployed around the airport for ensuring safety at various locations are given as below:

Table 67 Count of Manpower Services deployed by DIAL- Location and Contractor Wise

SL. No	Duty Post	Total	
		RAXA Manpower	Peregrine Manpower
1	T3 Landside	102	95
2	T1 Landside	78	15
3	CARGO Terminal	55	0
4	CDU	6	0
5	Vital Installations	70	0
6	New Udaan Bhawan	38	0
7	T2 Landside	69	0
	<b>Total</b>	<b>418</b>	<b>110</b>
	Leave Reserve/Weekly off (24% for RAXA and 16% for Peregrine)	99	18
8	Officers	13	0
9	EPGs (5) & Gunmen (4)	9	0

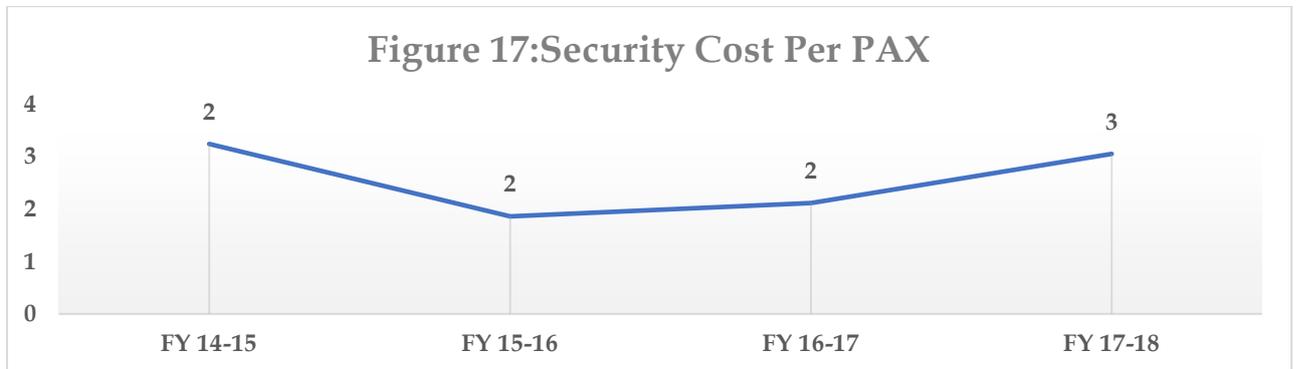
SL. No	Duty Post	Total	
		RAXA Manpower	Peregrine Manpower
10	New Duty Points 43+ (24% of 43)	53	0
11	Guest Houses	21	0
12	BDDS	18	0
	<b>Total</b>	<b>631</b>	<b>128</b>

Table 68 Total Security and Vigilance Expenses at DIAL

(₹ crores)

Particulars	FY15	FY16	FY17	FY18
Total Manpower Services	9.50	9.89	13.61	23.06
WPI	100.00	109.7	111.6	114.9
Adjusted Cost of Manpower	9.50	9.01	12.19	20.07
Total Passenger Traffic	4.10	4.84	5.77	6.57
Inflation Adjusted Cost Per PAX*	2.32	1.86	2.11	3.06

\*Refer Table 40 for Inflation Index



The increase in the security cost per PAX is attributed to the increase in minimum wages from ₹ 414 to ₹ 637 per day and the operation of T2 which necessitated additional manpower in FY18 (Peregrine Manpower).

## 12.5 SUMMARY

Trend analysis of following Terminal Operating costs showed:

- Utility costs: With a passenger growth of 17.03% during Second Control Period, the consumption per PAX had dropped by 10.7% for electricity and 20.4% for water, due to continuous improvement and various cost saving measures undertaken at DIAL.
- Consumables: Cost of Airside consumables per ATM and Terminal Consumable per Pax showed a stable trend for the Second Control Period
- GADL Manpower outsourcing costs: The cost of outsourcing per PAX/ATM has remained stable despite steady increase in operations.
- Housekeeping costs: These costs were higher for FY18 as compared to previous financial years, due to revision of contracts to inbuild increase in minimum wages enforced by Ministry of Labour and Employment.
- Insurance costs: This has decreased at a CAGR of 14.21%, due to reduced premium on account of no claim history, risk mitigation measures coupled with better negotiation of premium by DIAL in domestic and international market.
- Repairs and Maintenance costs: The actual costs of the company were lower than the optimum level denoting efficiency in managing costs.
- Landscaping costs: Costs for FY18 was higher than the other years, majorly due to increase in the minimum wages and increase in area of landscaping due to commissioning of T2 and the Centre Spine Road.
- Security costs: The increase in the security cost per PAX in FY 18 is attributed to the increase in minimum wages from ₹ 414 to ₹ 637 per day and the operation of T2 which necessitated additional manpower.

## 13 ADMINISTRATIVE AND GENERAL EXPENSES

Table 69 Total Administrative and General expenses at DIAL during Second Control Period

(₹ crores)

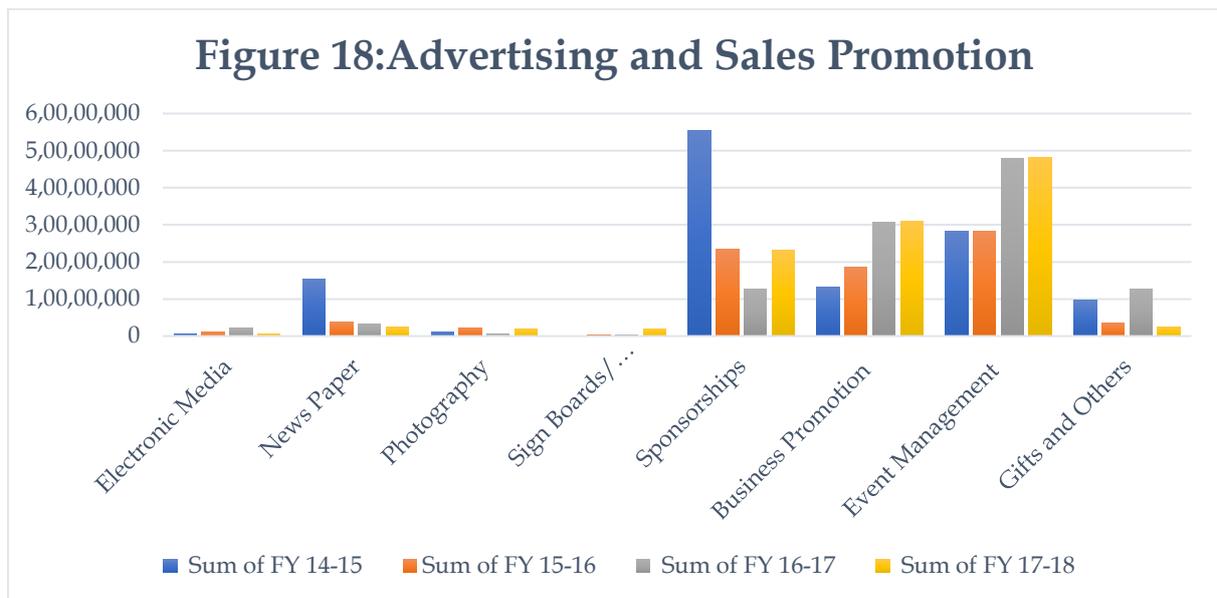
Particulars	FY15	FY16	FY17	FY18	Total
Advertising and Sales Promotion	12.37	8.09	11.01	11.18	42.66
Charities & Donations	0.26	1.51	2.67	2.65	7.09
Collection Charges	-	-	-	3.60	3.60
Communication Exp	1.86	1.62	1.70	2.09	7.28
Corporate Social Responsibility	0.89	4.21	7.73	10.92	23.75
Consultancy and other Professional charges	50.67	48.76	47.19	73.06	219.68
Fixed Assets written off	2.18	0.18	1.59	0.07	4.02
Foreign Exchange Gain/loss	-	0.86	0.44	1.12	2.42
Medical Expenses for Hospitals operated at terminals	0.99	1.00	1.42	1.43	4.84
Office Maintenance	6.56	4.33	6.40	5.38	22.68
Other Admin expenses	5.51	7.95	7.30	8.65	29.41
Printing and Stationary	1.17	1.33	0.98	1.50	4.99
Provision for Bad debts	9.21	0.46	1.73	0.30	11.71
Rates and taxes	2.37	2.45	1.25	1.10	7.17
Rent (including lease rentals)	7.42	9.68	9.44	10.10	36.65
Travelling and Conveyance	9.62	10.67	12.85	13.35	46.50
Chartering Cost	4.30	3.47	3.67	4.28	15.72
<b>Total Administrative Cost</b>	<b>115.39</b>	<b>106.59</b>	<b>117.38</b>	<b>150.79</b>	<b>490.16</b>
Corporate Cost Allocation	54.20	54.20	75.92	85.02	269.34
<b>Total Inclusive Corporate Cost</b>	<b>169.59</b>	<b>160.79</b>	<b>193.30</b>	<b>235.81</b>	<b>759.50</b>

### 13.1 ADVERTISING AND SALES PROMOTION

Table 70 Total Advertising and Sale Promotion Expenses at DIAL during Second Control Period

(₹ crores)

Particulars	FY14	FY15	FY16	FY17	Total
Electronic Media	0.05	0.11	0.23	0.06	0.44
News Paper	1.54	0.38	0.33	0.24	2.49
Photography	0.12	0.22	0.05	0.20	0.58
Sign Boards/ Hoardings	0.00	0.02	0.03	0.20	0.25
Sponsorships	5.54	2.34	1.26	2.31	11.45
Business Promotion	1.22	1.85	3.07	3.10	9.25
Event Management	2.83	2.81	4.79	4.82	15.26
Gifts and Others	0.96	0.35	1.25	0.25	2.82
<b>Total</b>	<b>12.26</b>	<b>8.09</b>	<b>11.01</b>	<b>11.18</b>	<b>42.55</b>



### 13.1.1 ADVERTISEMENT THROUGH SPONSORSHIP

In FY15 the sponsorship expenses incurred by the company was ₹ 5.54 crores which was higher than the other financial years when the expenses were at an average of ₹ 2 crores. This incremental expense for FY15 were due to the following:

- Rs 2.88 crores paid to TV18 Broadcast Limited Sponsorship charges for CNN IBN Indian of the Year (IOTY) and India Business Leader of the year (IBLA).
- Rs 1.40 crores paid to HT Media Limited Sponsorship HT leadership Summit presentation.
- Rs 0.55 crores paid to Business Standard Ltd sponsorship for Business Standard awards.

### 13.1.2 EVENT MANAGEMENT

DIAL organizes various events relating to different stakeholders. These include IGIA awards felicitating the exception work done by airport community, world route conferences, ACI events and various aviation industry events and seminars

An average of ₹ 4.80 crores in FY17 and FY19, around 2 times more than the cost of FY15 and FY16 was incurred at DIAL. This increase in cost was attributed to the increase in the scale of IGIA award and the Sky-Olympics which includes the entire airport community such as the Airlines, Cargo, Ground handling and all others stakeholders involved in the airport operations, sponsorship of GAD Asia event in India and DIAL 10th Anniversary celebration.

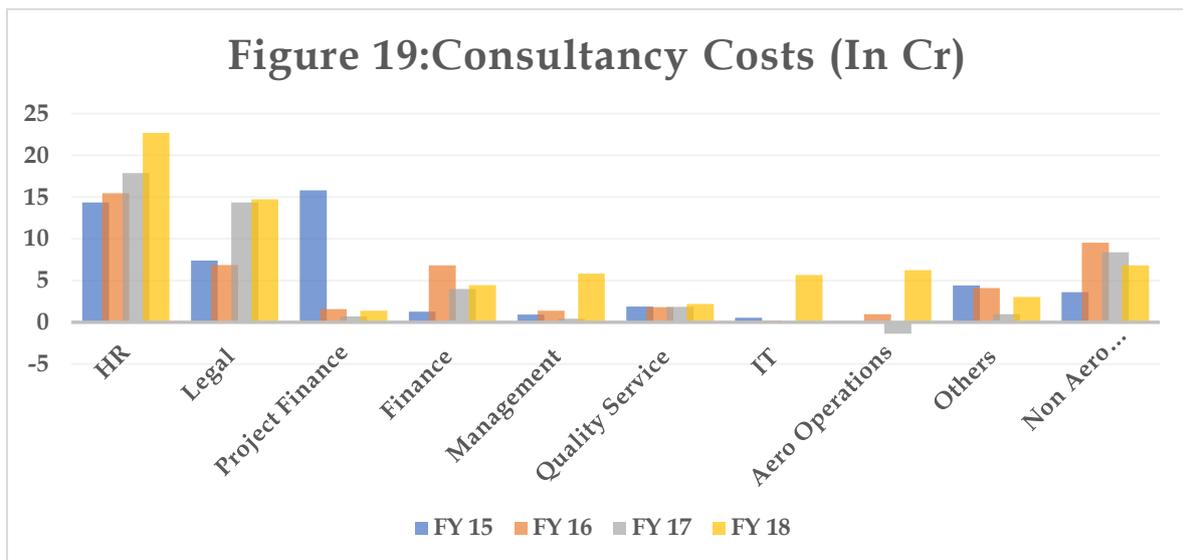
## 13.2 CONSULTANCY COSTS

Table 71 Total Consultancy Cost at DIAL during Second Control Period

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	Total
HR	14.37	15.47	17.86	22.69	70.39
Legal	7.39	6.87	14.34	14.75	43.34
Project Finance	15.82	1.57	0.70	1.39	19.48
Finance	1.29	6.82	4.00	4.47	16.58

Particulars	FY15	FY16	FY17	FY18	Total
Management	0.92	1.37	0.42	5.82	8.54
Quality Service	1.88	1.82	1.84	2.19	7.73
IT	0.54	0.21	0.05	5.66	6.46
Aeronautical Operations	0.04	0.97	-1.37	6.24	5.88
Others	4.42	4.11	0.96	3.04	12.54
Non-Aeronautical operations	3.61	9.54	8.37	6.81	28.34
<b>Total</b>	<b>50.27</b>	<b>48.76</b>	<b>47.19</b>	<b>73.06</b>	<b>219.28</b>



### 13.2.1 HR CONSULTANCY

#### 13.2.1.1 RETAINER FEE:

DIAL had obtained services from seasoned professionals with domain expertise and several years of experience. The field of these expert includes project management, design consultant, security expert, construction & engineering, training, legal etc. The breakup for such costs per department is as under:

Table 72 Retainer Fee per Department at DIAL during Second Control Period

(₹ crores)

Department	FY15	FY16	FY17	FY18	Total
Airline Marketing	1.22	0.55	0.00	0.00	1.77
Commercial	0.62	0.43	0.41	0.12	1.58
Corporate Relation	0.54	0.40	0.42	0.51	1.86
ALD	0.06	0.19	0.31	0.75	1.32
F&A	0.42	0.23	0.08	0.15	0.88
HR	1.23	0.64	0.48	0.24	2.59
IT	0.00	0.00	0.00	0.27	0.27
Legal	0.97	0.84	1.07	1.05	3.93
Operation	0.00	0.18	0.26	0.29	0.73
Planning	0.51	0.56	0.61	0.58	2.27
Project	2.12	2.12	2.30	2.42	8.96
Secretarial	0.00	0.13	0.00	0.00	0.13
Security	1.22	1.07	1.38	1.28	4.95
Strategy	0.00	0.25	0.60	0.60	1.46
<b>Total</b>	<b>8.90</b>	<b>7.60</b>	<b>7.92</b>	<b>8.26</b>	<b>32.68</b>

### 13.2.1.2 HR CONSULTANCY - OTHERS

Other major HR consultancy costs include

Table 73 Major HR Consultancy Services Engaged by DIAL during Second Control Period

(₹ crores)

Description	FY15	FY16	FY17	FY18	Total
Outsourcing Manpower development	2.72	2.98	2.87	0.78	9.35
Engagement of support staff for Senior Management Guest House	0	1.1	2.34	0.2	3.64
Consultancy for Strategic advice	0	0.3	1.21	1.2	2.71
Consultant-Infrastructure	0	0.35	0.6	0.6	1.56
Managerial Consultancy Services for DIAL	0	0	0.6	0.6	1.2
Consulting services for Organisation development and institution building	0	0	0	1.47	1.47
Increase in Admin Support Staff due to increase in business at various locations	0	0	0	1.02	1.02
Consulting services for strategy, planning and operational excellence	0	0	0	1.09	1.09
<b>Total</b>	<b>2.72</b>	<b>4.73</b>	<b>7.62</b>	<b>6.96</b>	<b>22.04</b>

### **13.2.2 PROJECT FINANCE:**

₹15 crores was spent in FY15 as DIAL in its endeavor to optimize its loan portfolio had considered ICICI bank to undertake various roles including but not limited to the underwriter and sole lead arranger, facility agent, working capital, ECB and hedge facility provider along with task of interacting with other lenders and regulatory authorities, legal counsel, lender engineer and insurance consultants. The year FY15 was the last year of these advisory services and post FY15 DIAL has refinanced its existing loan via bond.

### **13.2.3 MANAGEMENT EXPENSES:**

These are consultancy services availed by senior management for assisting them in business decision making. For FY18, the major constituents of these expenses are services for enhancement of airside capacity which amounts to ₹ 3.29 Cr, senior management leadership development ₹ 0.64Cr and one-time consultancy services undertaken from Fraport for ground operation safety manual, dual & triple taxi movements, amounting to ₹ 0.43 Cr.

### **13.2.4 IT (₹ 6.5 crores):**

In FY18, Consultants were appointed to evaluate the Collaborative Decision-Making Module (CDM), carry out gap analysis, sustainability of the existing CDM vis-a-vis improving technologies and suggest improvement measures. This amounted to ₹ 4.95 crore for FY18.

Engagement of Consultant for Implementation of Digital literacy across employees for DIAL amounted to ₹0.37 crores in FY18.

### **13.2.5 AERONAUTICAL OPERATIONS**

#### **One-time Civil Maintenance at T3 (₹ 6 Cr) classified under Aeronautical Operations:**

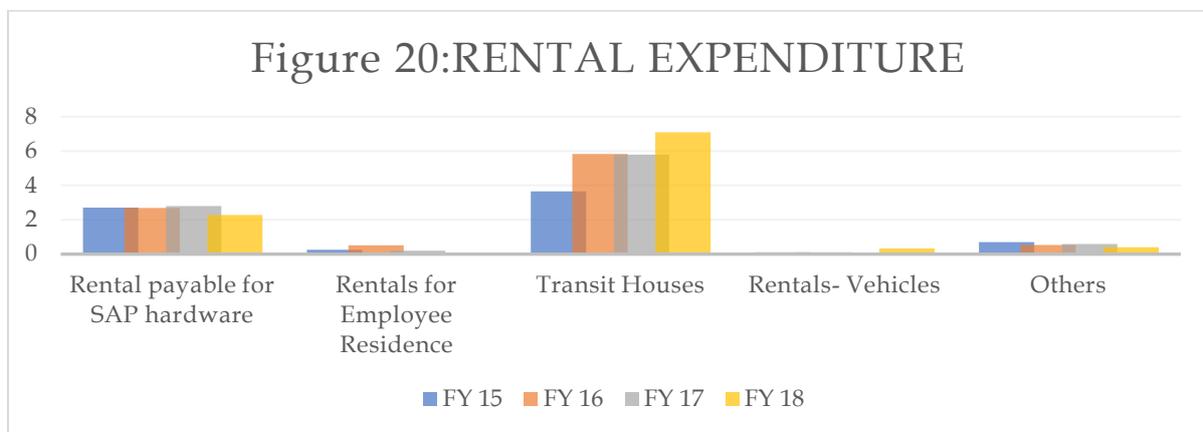
Cost incurred towards one-time consultancy service in FY18 for optimization of energy and water management at DIAL.

## **13.3 RENTAL EXPENDITURE**

*Table 74 Total Rental Expenses at DIAL during Second Control Period*

(₹ crores)

Particulars	FY15	FY16	FY17	FY18	Total
Rental payable for SAP hardware	2.71	2.68	2.80	2.27	10.47
Rentals for Employee Residence	0.25	0.52	0.21	0.00	0.97
Transit Houses	3.66	5.84	5.79	7.08	22.36
Rentals- Vehicles	0.11	0.12	0.06	0.33	0.62
Others	0.70	0.53	0.58	0.41	2.23
<b>Total</b>	<b>7.42</b>	<b>9.68</b>	<b>9.44</b>	<b>10.10</b>	<b>36.65</b>



From the above chart, we note that the company expends comparatively higher towards the rentals of the transit houses. For FY18, there was a 20% increase in the rental expenditure from FY17 which was attributed to an additional property “The Greens” taken out on lease. The details of the other properties held by DIAL for use by its visiting corporate guests and meetings are as under:

*Table 75 Details of the Guest Houses taken on rent by DIAL*

S. No	Location of the Guest House	Purpose of the Guest House
1	Pushpanjali farmhouse	Executive Chairman residence post 1st April'2018
2	Aurangzeb Lane guest house	This is a guest house used for business meetings, specifically blocked for meetings and conferences of MD - DIAL with delegates from India and abroad
3	Heritage city guest house	Guest house used by DIAL senior management for transit and stay, this has been surrendered effective June'2018.

S. No	Location of the Guest House	Purpose of the Guest House
4	Golf link guest house	Used for MD for transit and stay of business guest. This has been vacated.
5	Caitriona guest house	Guest house is utilized for the temporary stay of newly appointed employees, stay of advisors, consultant, trainers etc
6	Greens	Guest house blocked for stay of MD including business guests
7	Safdarjung Enclave	Held for business meeting and guests. This guest house has been surrendered effective July'2019
8	National Media Caitriona Guest House	The guest house is utilized for the temporary stay of newly appointed employees, stay of advisors, consultant, trainers etc
9	Abdul Kalam	This is a guest house transformed into a meeting room. This is specifically blocked for meetings and conferences of CEO DIAL & Directors
10	Lucknow Office	This is a business office used for airport work as DIAL.

### 13.4 CORPORATE SOCIAL RESPONSIBILITY EXPENSE

As mandated under section 135 of the Companies Act 2013, Every Company with:

- Net worth of ₹ 500 crores or more or
- Turnover of ₹ 1000 crores or more or s
- Net Profit of ₹ 5 crores or more

during the immediately preceding financial year shall ensure that the company spends, in every financial year, at least 2% of the average net profits of the company made during the 3 immediately preceding financial year, in pursuance of its CSR Policy. In accordance with the above requirement, DIAL had spent ₹ 33.72 crores on CSR (for FY 15 - FY 19) and claimed ₹ 30.07 crores as Aeronautical Expenses in the ratio of Gross Fixed Assets of the Company. The Authority may take its own view in this regard.

The actual amount spent (till FY18) in accordance with the above requirements under the Companies Act, 2013 has been detailed out in Table 76 below:

Table 76 Actual CSR Costs Vis-à-vis Maximum Cost mandated under the Companies Act, 2013

(₹ crores)

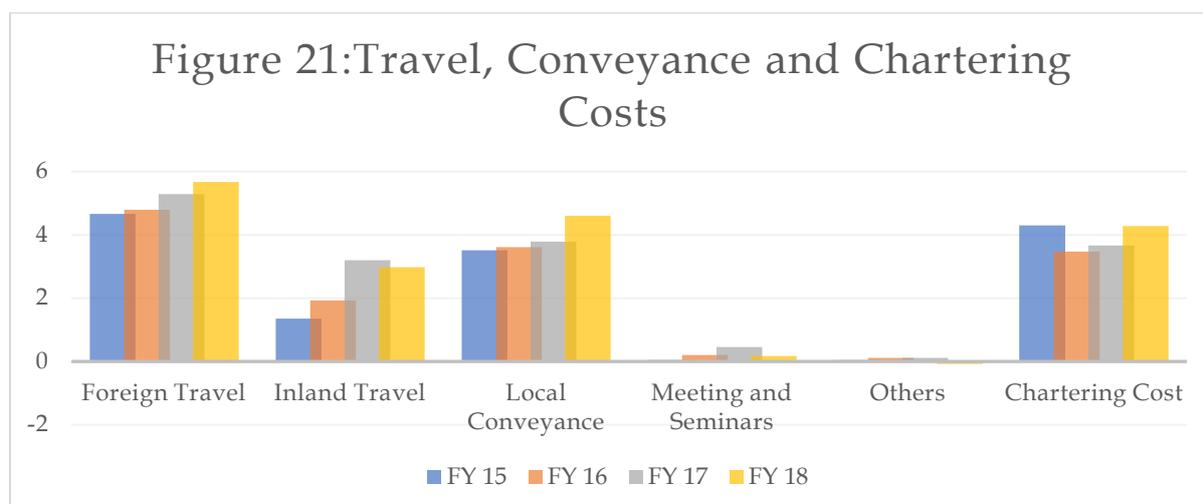
Particular	FY13	FY14	FY15	FY16	FY17	FY18
PBT for computation of CSR Cap	69.30	412.54	212.13	632.74	929.67	(138.78)
Average of previous 3 FY's	-	-	-	-	419.14	591.51
2.00% of the average PBT (A)	-	-	-	4.63	8.38	11.83
Actual Spent (B)	-	-	-	4.21	7.51	11.14
Additional Spent (A-B)	-	-	-	-	-	-

### 13.5 TRAVEL, CONVEYANCE AND CHARTERING COSTS

Table 77 Total Travel, Conveyance and Chartering Cost at DIAL during Second Control Period

(₹ crores)

Travel Type	FY15	FY16	FY17	FY18	Total
Foreign Travel	4.67	4.80	5.29	5.67	20.42
Inland Travel	1.35	1.93	3.20	2.98	9.47
Local Conveyance	3.52	3.62	3.79	4.60	15.52
Meeting and Seminars	0.04	0.21	0.45	0.18	0.88
Others	0.04	0.12	0.11	-0.07	0.20
Chartering Cost	4.30	3.47	3.67	4.28	15.72
<b>Total</b>	<b>13.92</b>	<b>14.15</b>	<b>16.51</b>	<b>17.63</b>	<b>62.21</b>



### 13.5.1 CHARTERING COSTS

In accordance with the approval by the Board of Directors of DIAL, the Senior Management of the company are eligible for Flying charges of charter for business travel mainly for the purpose of meetings, seminars, marketing & business development. ₹ 15.7 crores have been incurred by DIAL for Second First Control Period relation to such flying charges.

### 13.5.2 TRAVELING AND CONVEYANCE COSTS:

#### 13.5.2.1 LOCAL CONVEYANCE:

Out of the ₹15.5 crores spent by DIAL across Second Control Period, ₹ 8.36 crores have been incurred towards the cost of free inter-terminal shuttle services provided to the passengers. These inter-terminal services include services from T3-PTC-T3, T1 to T3, T3 to T1, T3 to T2 & T2 to T3 by Delhi Transport Corporation & Purple UMTC Transport Pvt Ltd and VIP Ferry Vehicles at Airside T3 and T1 by Deneb Pollux Tours & Travels.

#### 13.5.2.2 INLAND AND FOREIGN TRAVEL

Of the ₹ 29.89 crores incurred by DIAL across Second Control Period towards foreign and inland travel on account of business activities (Conferences & Events), Marketing (New Route Developments), attending the ASQ Award ceremonies, Employee Trainings & Meeting

customers, Other stakeholder engagements etc, ₹ 21.82 crores were incurred by the Senior Management of the Company including the Business and Group chairman, the COO, CEO and CCMO.

Table 78 Approval matrix for Travel

Travel Type	Purpose of Visit	Approval Matrix
Foreign Travel	Business - such as export promotion, technical and/or commercial discussions, etc	If the travel is as per AOP, CEO/GCXO to approve. If the travel is not as per AOP, BCM to approve
Foreign Travel	Training / Seminar / Conference	Approval by Business Chairman based on the Training. Need and overall Foreign Training Policy agreed with PHR/BCM
Inland Travel	Travel requests up to 15 days	The travel requests are auto approved with an email trigger to the immediate supervisor. The Expenses should be approved by minimum LD/PD Level.
Inland Travel	Travel requests exceeding 15 days/In deviation to the Travel Policy	The travel request should be approved by the HOD. The Expenses are to be approved at the second level to the LD/PD.

## 13.6 CORPORATE COST DISTRIBUTION

Table 79 Total Corporate costs allocated to DIAL during Second Control Period

(₹ crores)

Financial Year	Corporate Cost Allocation	Corporate Cost Allocation	Total Cost Allocation
	GMR Airport Limited	GMR Infrastructure Limited	
FY15	17.53	36.67	54.20

FY16	20.59	33.47	97.59
FY17	37.79	37.70	75.49
FY18	64.12	20.85	41.43
<b>Total</b>	<b>140.02</b>	<b>128.69</b>	<b>268.71</b>

GMR Infrastructure Limited (GIL), part of the GMR Group, is a global infrastructure holding company formed to invest in various infrastructure projects in the Group's Energy, Highways, Airports and Urban infrastructure businesses. GMR Airports Ltd (GAL), which is a fully owned subsidiary of GIL, is an airport holding company for the airport companies such as Delhi International Airport Private Limited (DIAL), GMR Hyderabad International Airport Limited (GHIAL) etc.

Both GIL and GAL has a set of corporate departments which supports their airport companies/ SPVs and charges them for use of resources (involved in carrying out these activities) based on a methodology developed in 2011-12 by Deloitte.

For each of the departments (or a group of similar departments), potential list of individual cost drivers (basis for charging) was identified. Cost drivers were identified based on standard practice followed in the industry. Refer Table 80 for the basis of cost allocation.

### 13.6.1 GMR AIRPORTS LIMITED

Table 80 Cost Objected allocated from GAL to DIAL

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
1	GCM Office	Fully Chargeable	Weighted Average Ratio of Assets <sup>#</sup>
2	BCM Office	Fully Chargeable	Weighted Average Ratio of Assets
3	CEO Office	Fully Chargeable	Weighted Average Ratio of Assets
4	Stakeholder Management	Fully Chargeable	Weighted Average Ratio of Assets

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
5	Commercial and BD	Semi- Chargeable*	Weighted Average Ratio of Assets
6	Legal	Fully Chargeable	Weighted Average Ratio of Assets
7	Sector HR	Semi- Chargeable*	Weighted Average Ratio of Assets
8	Sector IT	Semi- Chargeable*	Weighted Average Ratio of Assets
9	Strategic Planning Group	Fully Chargeable	Weighted Average Ratio of Assets
10	Finance and Accounts	Semi- Chargeable*	Weighted Average Ratio of Assets
11	Regulatory	Fully Chargeable	Weighted Average Ratio of Assets

\*Semi- Chargeable: A portion of the activities carried out by these departments are to provide support to Fraport AG which is the airport operator for DIAL. Hence, the portion of the cost which is attributable to the support provided to Fraport AG is retained with GAL based on a driver which reasonably represents the effort spent by the department.

#Weighted average ratio of assets was determined by the external consultant Deloitte.

### 13.6.2 GMR INFRASTRUCTURE LIMITED

Table 81 Cost Objects of GIL allocated to DIAL

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
1	GCM office	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
2	Group Corporate Finance	Fully Chargeable	Based on the Funds Generated
3	CCM Office	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
4	BCM IB&G	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
5	Strategy and Corporate Development	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
6	Management Assurance Group	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
8	Budget Assurance and Cost Control	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
9	Corporate Communication and Corporate Relations	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
10	Corporate Procurement Department and Insurance	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
11	Corporate Legal	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
12	GIL Consolidated Finance and Accounts	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
13	Direct Taxation	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.

S.NO	DEPARTMENT COST CHARGED	COST TYPE	BASIS OF APPORTIONMENT
14	Indirect Taxation	Fully Chargeable	Costs are split between Operating and Project companies based on asset size and charged based on revenue for Operating companies and assets for Project companies.
15	SSC	Fully Chargeable	Number of FTE/Manpower
16	HR	Fully Chargeable	Number of FTE/Manpower
17	FMS	Fully Chargeable	Number of FTE/Manpower
18	IT	Fully Chargeable	Number of FTE/Manpower

### 13.7 SUMMARY

- Administration costs includes expenses such as Advertising and Promotion, Consultancy, Travelling & Conveyance, Chartering costs, Rent, Taxes, Corporate cost etc. Total administration costs incurred during FY15-FY18 was ₹ 759.50 crores.
- GMR Infrastructure Limited (GIL), is a global infrastructure holding company formed to invest in various infrastructure projects in the Group's Energy, Highways, Airports etc. GMR Airports Ltd (GAL), which is a fully owned subsidiary of GIL, is an airport holding company for the airport companies such as DIAL and GHIAL.
- Both GIL and GAL have a set of corporate departments which supports their airport companies/ SPVs and charges them for use of resources. The methodology for appropriate apportionment of Corporate costs was developed in 2011-12 by an External Consultant.

## 14 FINAL GROSS FIXED ASSET ALLOCATION RATIO AFTER THE ABOVE ADJUSTMENTS (UPTO FY19)

Table 82 Final Gross Fixed Asset Allocation Ratio for FY19

(₹ crores)

Particulars	Aeronautical	Non- Aeronautical	Total
<b>Net Closing Gross Block (As on 31<sup>st</sup> March 2019)</b>	<b>12,436.69</b>	<b>1483.86</b>	<b>13,920.56</b>
Gross Fixed Asset before Adjustment	89.34%	10.66%	
Adjustments - Gross Block			
EPOS System (Integrated with CCTV, shifted from Aeronautical to Non-Aeronautical)	-6.00	6.00	
NUB Improvements (Adjusted based on Let out space in the Building)	-3.59	3.59	
BCM and GCM Office (Revenue Share of the Group Companies)	-3.61	3.61	
Common Transit Houses (50% Aeronautical and 50% Non-Aeronautical)	-7.95	7.95	
Movement from Common to 100% Aeronautical (Correction of errors)	0.31	-0.31	
Movement from Aeronautical to Common	-2.76	2.76	
<b>Gross Block After Adjustments</b>	<b>12,413.09</b>	<b>1,507.46</b>	<b>13,920.56</b>
Proportion considered for apportionment of Aeronautical and Non- Aeronautical expenses	89%	11%	

## **BENCHMARKING OF INTERNATIONAL AND DOMESTIC AIRPORTS**

We have conducted a study based on documents available at various forums and have undertaken a two-pronged approach of benchmarking the Delhi and Mumbai airports:

- (1) Internal Benchmarking (or Self Benchmarking), wherein the Airport's operating metrics are analysed over a period; and
- (2) External Benchmarking (or Peer Benchmarking), wherein the Airport's operating performance has been compared to similar data from other airports, either at a single point in time or over a period.

## **15 INTERNAL BENCHMARKING**

Under the Internal Benchmarking methodology, an Airport's operating metrics is evaluated over a time period. The Internal Benchmarking approach is less complex to analyse and comprehend because the number of variables that change at an airport over the period is limited.

### **15.1 INTERNAL BENCHMARKING AT DIAL**

The following costs of DIAL were analyzed over the time period within DIAL

- Total Terminal Maintenance Cost comprising
  - Utilities Cost
  - Repair and Maintenance Cost
  - Payments to WAISL
  - Housekeeping and Manpower Services
  - Insurance Costs
  - Cost of Consumables
  - Manpower Hire Charges
  - Security Expenses
- Total Administrative and General Expense comprising
  - Rent, Rates and Taxes (Excluding Property Tax)
  - Professional and Consultancy expenses
  - Printing and Stationery Expenses
  - Travelling, Conveyance and Chartering Costs
  - Communication Costs
  - Office Maintenance
  - Advertising and Sales Promotion
  - Loss on sale of assets
  - Provision for Bad and Doubtful Debts and Advances
  - Corporate Cost Allocation
  - Donations and CSR Costs
  - Other Admin Expenses

- Total Manpower Cost of DIAL

The following Work steps were used for the purpose of Internal benchmarking at DIAL.

1. Data for First Control Period was collated from the ICWA Report on “Assessment of Efficiency of Operating and Maintenance Cost of Aeronautical Operations during the First Control Period”
2. Data for Second Control Period were collated from the respective years Audited Financial Statements of DIAL.
3. The percentage change in costs over First & Second Control Periods were analyzed and the probable factors affecting the change in costs were noted.
4. Conclusions were drawn based on the above analysis as to whether DIAL’s costs are in line with the probable factors determined as above.

Table 83 Movement of Terminal Operating Cost and Administrative and General Expenses at DIAL

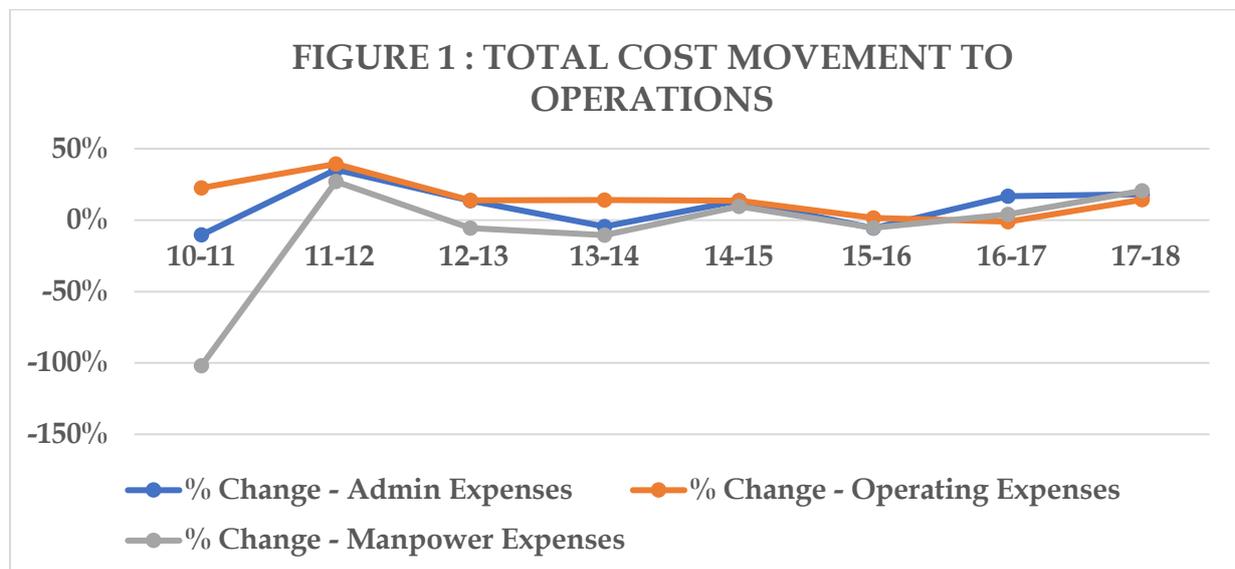
(₹ crores)

Particulars	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Administrative and General Expenses <sup>8</sup>	94.23	85.44	132.23	153.14	146.48	169.60	160.79	193.30	235.81
Terminal Operating Expenses <sup>9</sup>	119.55	154.31	254.59	295.83	344.43	398.58	404.80	400.57	467.99
Manpower Cost <sup>10</sup>	205.26	101.66	139.34	131.88	119.39	132.12	125.34	130.58	164.48
% Change - A&G Expenses		-10%	35%	14%	-5%	14%	-5%	17%	18%
% Change - Terminal Operating Expenses		23%	39%	14%	14%	14%	2%	-1%	14%
% Change - Manpower Expenses		-102%	27%	-6%	-10%	10%	-5%	4%	21%

<sup>8</sup> Source: Table 15 of ICWA Report for data up to FY14 and Management Information for data up to FY18

<sup>9</sup> Source: Table 10 of ICWA Report for data up to FY14 and Management Information for data up to FY18

<sup>10</sup> Source: Table 10 of ICWA Report for data up to FY14 and Management Information for data up to FY18



These costs are further analysed based on the following factors in order to determine the root cause of the trends of movement year-on-year and justify if the change in costs were in line to the change in the following factors:

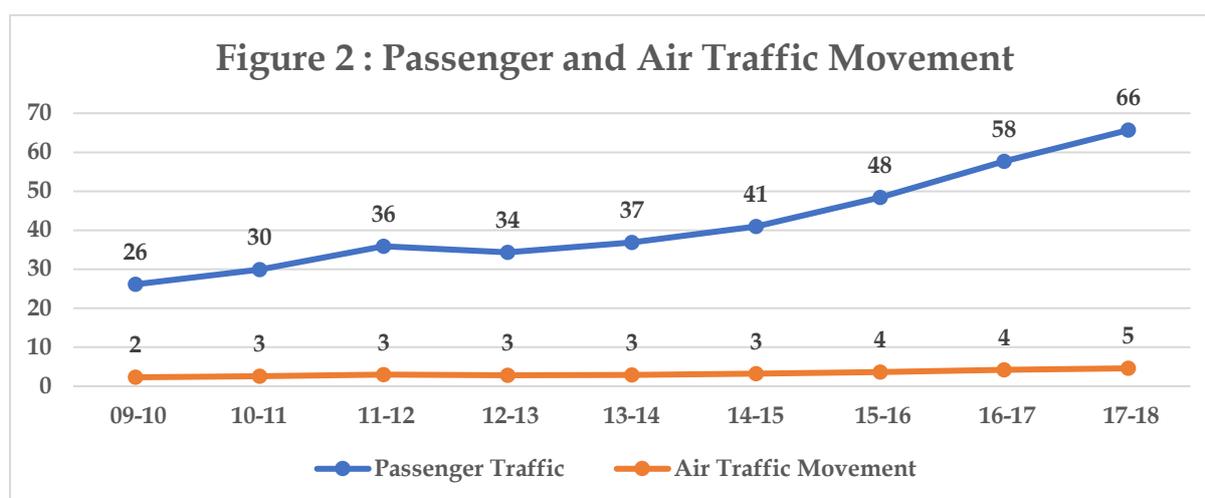
- Passenger traffic
- Air traffic movement
- Terminal and runway capacity utilisation
- Proportion of domestic and international passenger traffic
- Management structure and contract outsourcing practices
- Extent of Non-Aeronautical revenues

**Passenger traffic and Air traffic movement**

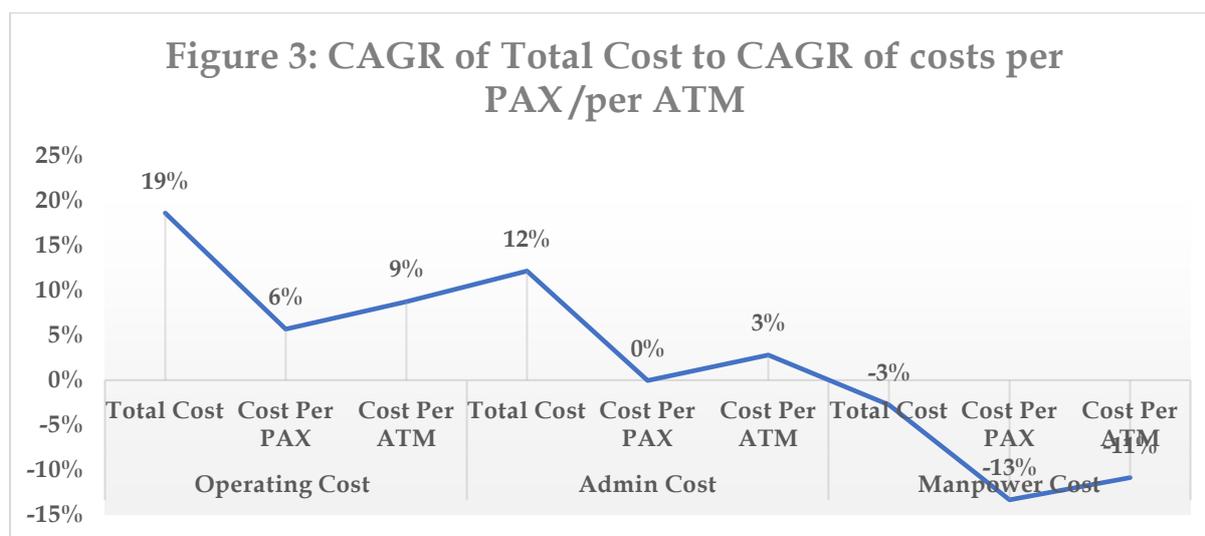
As per the information gathered, the number of passengers and air traffic operations have increased substantially over the past year and reasonably the airport has maintained a flexible cost structure to balance the need to serve the airlines and passengers while ensuring that its high ASQ rating is maintained (as per Figure 3).

Table 84 Movement of Passenger and Air Traffic at DIAL

Particulars	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Passenger Traffic (In Million)	26.13	29.94	35.88	34.37	36.88	40.99	48.42	57.70	65.69
Air Traffic Movement (In Lakhs)	2.29	2.56	2.95	2.81	2.91	3.23	3.66	4.17	4.59



The below figure 3 shows the CAGR movement of the total cost of DIAL versus the CAGR of the cost per PAX and per ATM at DIAL. The figure depicts that the growth of costs per PAX and ATM were at a lower rate comparing the growth rate of the total costs justifying the impact for the growth in operations.

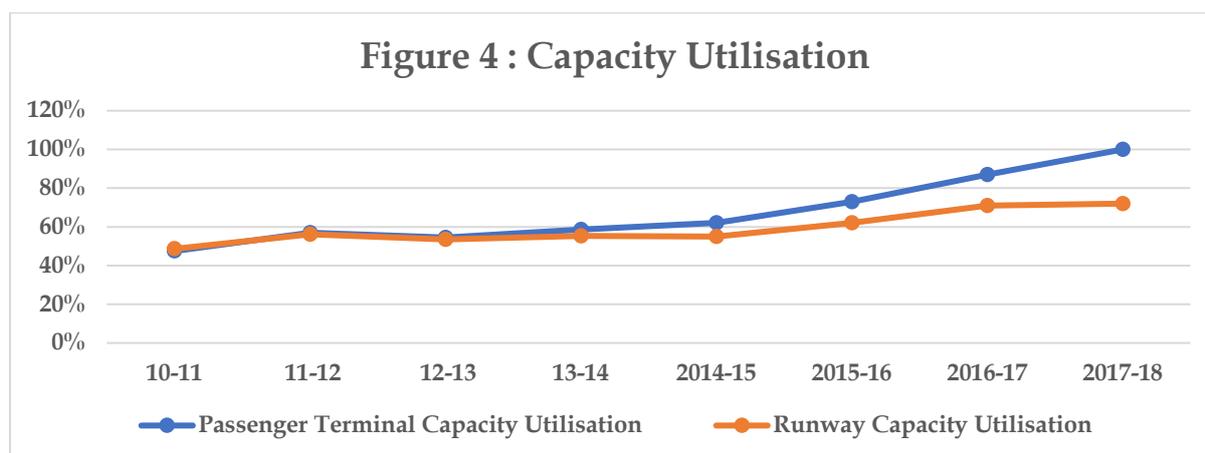


### Terminal and runway capacity utilisation

Increase in the airport capacity utilization also substantially increases the fixed cost of airport operations, especially relating to Terminal and Airside maintenance costs, electricity, and administrative manpower costs. The chart below shows that:

- DIAL's runway capacity utilisation has increased from 45% in FY11 on a runway capacity of 60 movements during the peak hour to approximately 75% in FY18 on a runway capacity of 72 movements during the peak hours.
- Increase from 48% in FY11 on the terminal capacity of 63 million passengers per annum to 100% in FY18 on the terminal capacity of 66 million passengers per annum.

This increase in capacity utilisation could be attributed to the operating and admin expenses growth rate from FY11 to FY18 of 19% and 12% respectively (*Refer Figure 3 above to see the CAGR of the period for operating and admin expenses*)

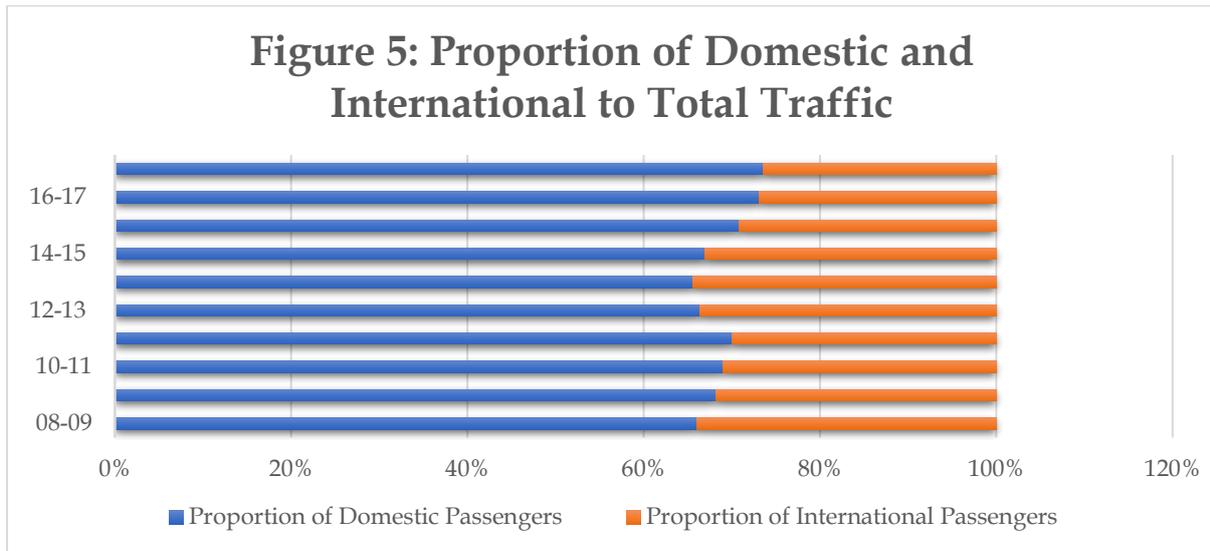


**Proportion of domestic and international passenger traffic**

It is generally reckoned that domestic passengers’ movements are managed on a relatively low-cost, no-frills and higher gate utilisation model, whereas international passenger movements involve relatively high-cost and amenities, and lower gate capacity utilisation. Therefore, a higher international passenger traffic involves higher cost of operations as well. The chart below provides data on the domestic and international passenger mix over a period. It may be concluded based on this data that since the proportion of international passengers have trended downwards from FY09 to FY18, justifying the movement change in the operating costs from an average 25% to 14%.

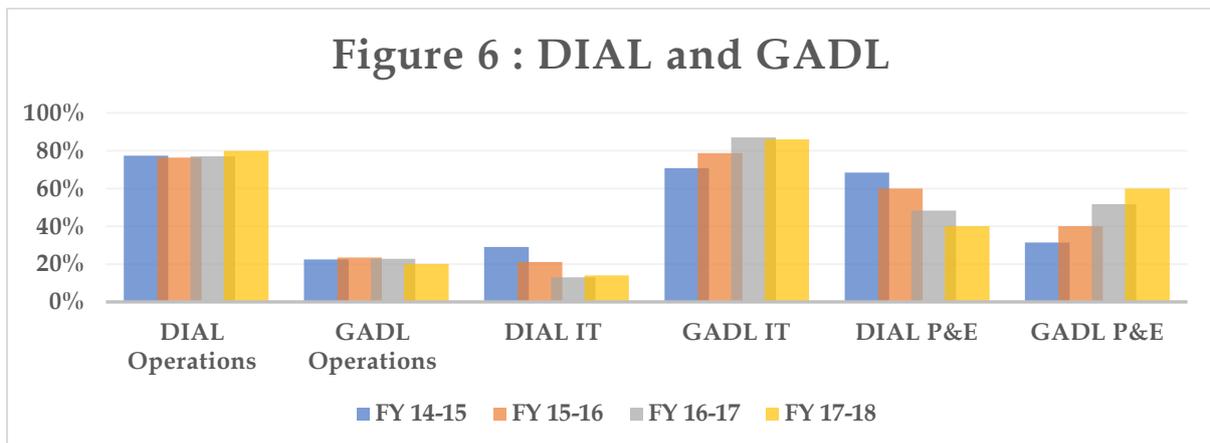
*Table 85 Proportion of International and Domestic Passengers*

	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Domestic Passengers	66%	68%	69%	70%	66%	66%	67%	71%	73%	74%
International Passengers	34%	32%	31%	30%	34%	34%	33%	29%	27%	26%



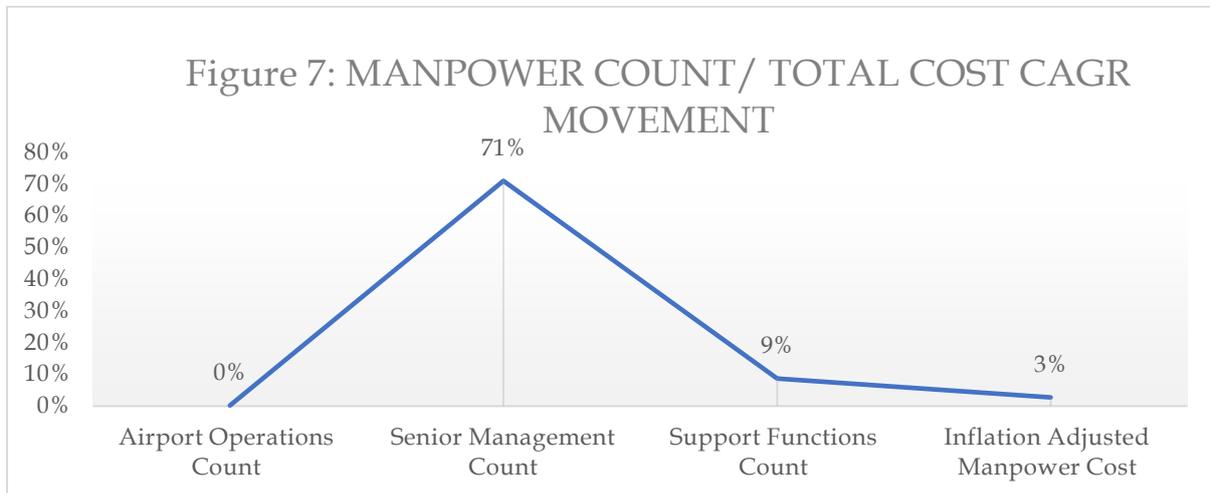
**Management structure and contract outsourcing practices**

- It was noted that the airport management have outsourced additional functions in FY18 bringing in expertise for the commencement and execution of the Phase-3 Project at the Airport. This cost of outsourcing has increased the operational costs for the airport for FY18. This increase is depicted in the bar diagram below along with the operating trend lines from FY17 to FY18 in the above figure 1



- During our study on employee costs, it was noted that with the increase in the overall operations at the airport, manpower count at DIAL has steadily increased over the period. The trend analysis expresses a considerable increase in the count for the senior management office reflected in the CAGR of the employee count from FY15 to FY18. As

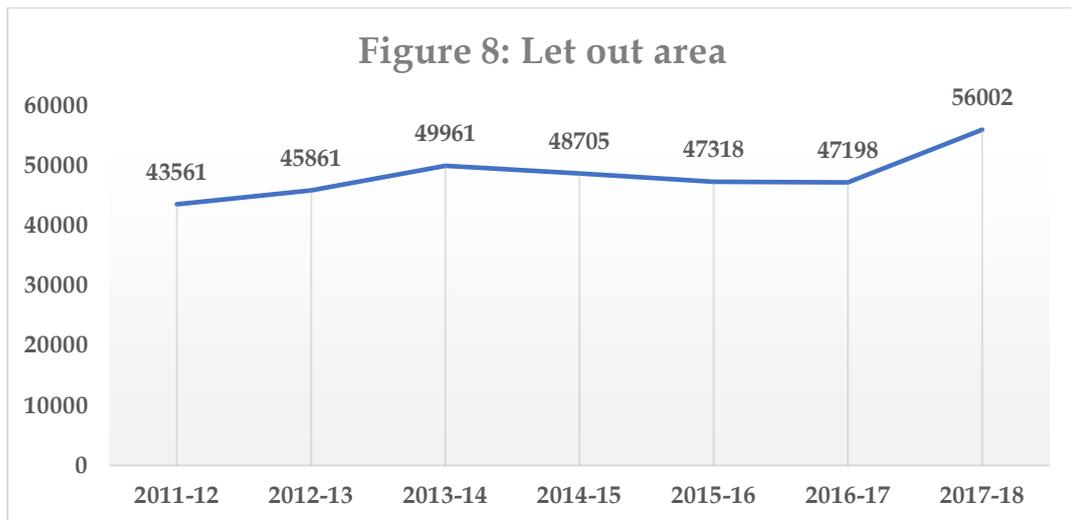
the cost of senior management office is comparatively higher than the cost of other operational and supporting departments, a 21% increase in manpower cost for FY18 is justified.



#### Extent of Non - Aeronautical Revenue

DIAL has witnessed a predictable trend in the total let out space at the terminal enabling recovery/distribution of Aeronautical operating costs like housekeeping and maintenance, utility, etc to the concessionaires.

Further, the study indicates that the increase in retail space also leads to increased generation of Non-Aeronautical revenue subsidizing the total costs at the airport. The Non-Aeronautical operations indicate such a trend in DIAL, as illustrated in the chart below:



## 15.2 SUMMARY

Referring to the growth pattern in various operating factors over the period like steady increase in Passenger traffic from 26.13 million in FY10 to 65.69 Million in FY18 (please refer Table 84 of the detailed report) and extensive utilisation of DIAL's runway capacity (from 45% in FY11 to 75% in FY18) we contend that the airports must expand its operational capacity to accommodate the increased workload, which invariably will lead to increased operating cost for Airport Operator.

However, with expansion, Airports benefit from economies of scale (i.e. expenditure per PAX) by enhancing the efficiencies in the operating and spreading out of the overhead costs along with marginal increase in cost due to administrative complexities. Refer figure 3 of this section which reflects that the CAGR of the total costs from FY10 to FY18 is higher than the CAGR of the costs per PAX/ATM from FY10 to FY18.

## 16 EXTERNAL BENCHMARKING

External Benchmarking (where the Airports under study are compared with other comparable airports) involves consideration of several factors that affect the configuration, operating structure and cost basis of an airport. Considering such multiple dynamic variables, it is a comparatively more complex exercise than Internal Benchmarking. Accordingly, in order to make useful comparisons among airports, it is essential to compare similar sets of businesses operating in similar environments. When comparing one airport to another, some of the influencing factors for benchmarking include<sup>11</sup>

- Passenger volume
- Capacity constraints
- Mix of international and domestic traffic
- Mix of local and transit passengers
- Mix of passenger carrier service (network, low-cost, chartered)
- Type of aircraft
- Mix of passenger versus cargo activity
- Degree of outsourcing
- Range of services provided by the airport (including aircraft stands, Aero bridges)
- Weather conditions (temperature and humidity)
- Geographic location
- Physical size of the airport
- Public transportation access and usage
- Local labour conditions
- Ownership and Governance structure
- Regulatory factors

Beyond the core airside operational functions, different airports have little in common and largely vary from each other in many of the above parameters. The costs of operation,

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<sup>11</sup> Source: ACI Guide to Airport Performance Measures (February 2012)  
R. Subramanian and Company LLP  
Chartered Accountants

maintenance and administration of one airport vis-à-vis another can also be additionally affected by the following factors<sup>12</sup>:

- Certain airports are required to build facilities that keep arriving and departing international passengers sterile from one another, whereas other airports may not have such requirements and thus can build less complicated terminals with lower capital and operating costs.
- Certain airports operators like BIAL and HIAL (Green-Field) do not have to invest in purchasing or leasing the land on which they build their infrastructure and commence operations whereas other airport operators like DIAL and MIAL (Brow-Field) acquire or lease their land and pay for legacy government investment in basic infrastructure.
- Typically, single-till regulated airports have comparatively lower operating costs than dual-till regulated airports. Single-till regulation allows profits derived from airport concession services generating Non-Aeronautical revenue to cover its infrastructure cost. This set off is not permitted under dual-till regulation. DIAL and MIAL are hybrid-till regulated airports where the Non-Aeronautical revenues are partially allowed to be adjusted to the operating costs.

Post consideration to the above varying factors, it can be concluded that airports are diverse and there is no 'typical' or perfectly comparable airport. With difficulties in identifying a perfect set of comparable airports and certain common concerns like data availability and consistency of the available data, care must be taken when interpreting the results of benchmarking.

With establishing the framework for the external benchmarking exercise undertaken as part of RFP 03/2018-19, the report is detailed in two parts:

1. Domestic Benchmarking where DIAL was compared to other privatised airports within India
2. International Benchmarking where DIAL was compared to Airports outside India

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<sup>12</sup> Source: Intervista Consulting Inc., 2018  
R. Subramanian and Company LLP  
Chartered Accountants

## 16.1 DOMESTIC BENCHMARKING

- i. The initial selection criterion for comparable airports was to consider the other privatised airports existing in India. Considering this, we have chosen four other privatised airports in India as set out in the table below:

*Table 86 List of Airports for Domestic Benchmarking*

S. No	Airports	Major Shareholder	Date of Commencement	Type of Airport Project
1	Cochin International Airport Limited (CIAL)	Government of Kerala	June 1999	Green-Field Project
2	Bengaluru International Airport Limited (BIAL)	Fairfax Financial Holdings Limited	May 2008	Green-Field Project
3	Hyderabad International Airport Limited (HIAL)	GMR Airports Limited	March 2008	Green-Field Project
4	Mumbai International Airport Limited (MIAL)	GVK Airports Limited	April 2006	Brown-Field Project
5	Delhi International Airport Limited (DIAL)	GMR Airports Limited	April 2006	Brown- Field Project

- ii. For benchmarking of the Domestic airports, the total Operation and Maintenance costs are compared from FY15 to FY18. These Operation and Maintenance costs are inclusive of the Airport Operator Fee paid by the respective airports however excludes the following cost objects:

- Annual Airport Concession Fees paid to AAI
- Finance Costs
- Depreciation and Amortization cost
- Loss on scrapping of assets

Additionally, to the total operation and maintaining costs, the below significant components included in the above operation and maintenance costs were also independently compared for the five Airports.

- Employee costs (Support Staff and Operating staff)
- Rental costs

- Utility costs (Power and fuel)
  - Repair and Maintenance costs
- iii. The data for the purpose of benchmarking the above costs for the five airports were obtained from the Annual Reports of the respective airports for relevant financial years drawn from their official website.
- iv. The benchmarking results are expressed:
- on per Passenger basis; and
  - on per ATM basis

Passenger and air traffic movement at the comparable set of airports for the four years are tabulated below:

*Table 87 Passenger Traffic at the Comparable Airports in India*

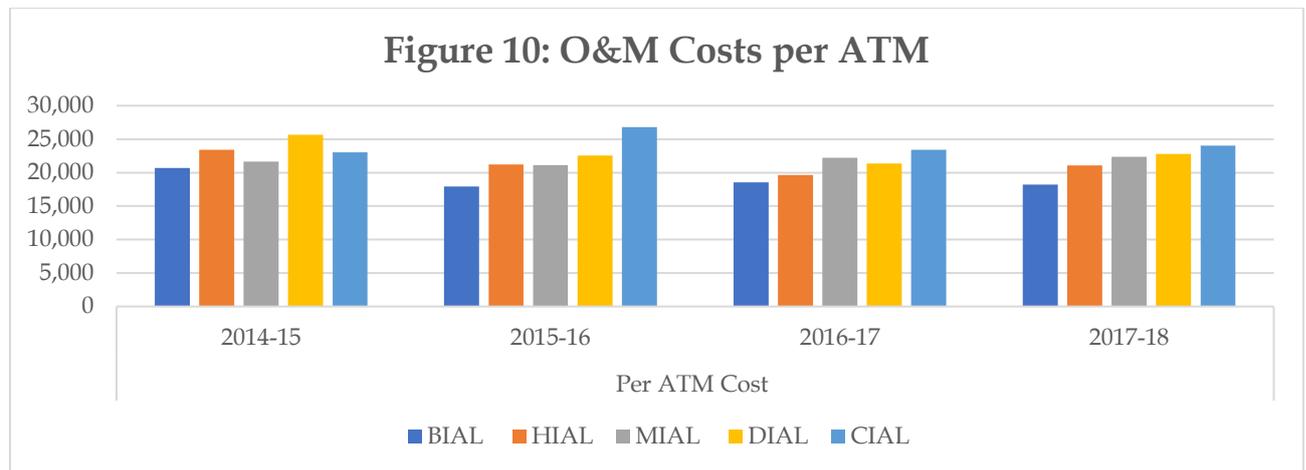
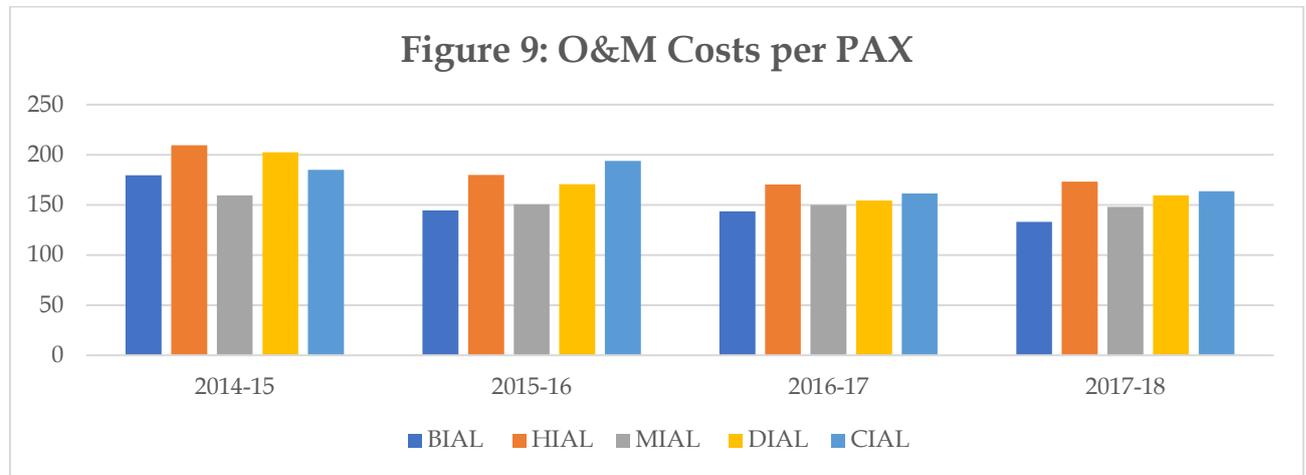
(₹ crores)

Airport	Passenger Traffic			
	FY15	FY16	FY17	FY18
BIAL	1.54	1.90	2.29	2.69
HIAL	1.05	1.25	1.51	1.82
MIAL	3.66	4.17	4.52	4.85
DIAL	4.10	4.84	5.77	6.57
CIAL	0.64	0.78	0.89	1.01

*Table 88 Air Traffic Movement at Comparable Airports*

Particulars	Air Traffic Movement			
	FY15	FY16	FY17	FY18
BIAL	133500	153100	177300	196600
HIAL	94100	105800	130700	149600
MIAL	269456	296634	305465	320689
DIAL	323450	365696	417319	459243
CIAL	51500	56200	61700	68800

### 16.1.1 OPERATION AND MAINTENANCE COSTS COMPARISON



**Notes:**

1. The metric of total cost per PAX and per ATM include both Aeronautical and Non-Aeronautical costs. Comparing two airports with different Non-Aeronautical activity would not be feasible as the Non-Aeronautical costs could be higher due to additional retail activity whilst the Aeronautical costs per PAX/ATM may be same.
2. Since all these costs at the airport are driven by various factors like physical size of the airport, passenger mix, capacity constraints, weather conditions, etc., comparison of operating and maintenance costs between airports may be misleading, considering the complex mix of elements between airports.

The below table reflects how various costs have different cost drivers and how these cost drivers can vary between airports.

Table 89 Cost Objects and Cost Drivers

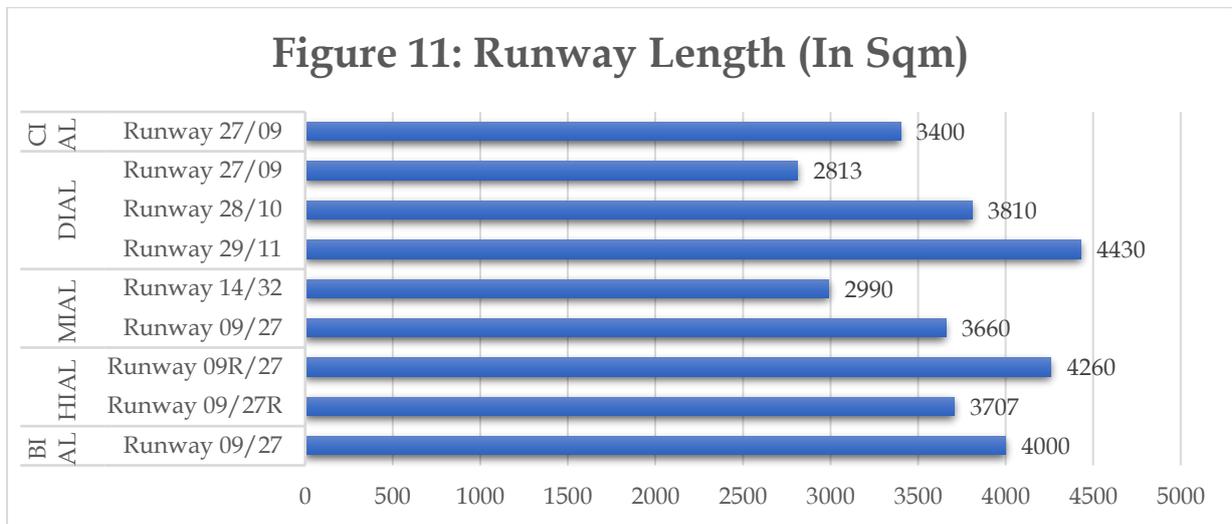
Cost	Cost Driver
Employee Costs	<ul style="list-style-type: none"> <li>• Airside and Terminal Capacity</li> <li>• Air Traffic and Passenger Traffic movement</li> <li>• Local Labour Costs</li> <li>• Local Regulatory Conditions</li> <li>• Degree of Outsourcing</li> </ul>
Rental Costs	<ul style="list-style-type: none"> <li>• Leasehold Property (Including Guest Houses)</li> </ul>
Utility Costs (Power, Fuel and Water)	<ul style="list-style-type: none"> <li>• Physical Size and number of the Runway and Passenger Terminal Buildings</li> <li>• Air Traffic and Passenger traffic movement</li> <li>• Local Regulatory Conditions</li> <li>• Weather Conditions (Temperature and humidity)</li> <li>• Source of Procurement of Power</li> </ul>
Repair and Maintenance Costs	<ul style="list-style-type: none"> <li>• Physical Size and number of the Runway and Passenger Terminal Buildings</li> <li>• Air Traffic and Passenger traffic movement</li> <li>• Range of Services provided by the Airport</li> <li>• Aging of the assets operated at the airport</li> <li>• Degree of Outsourcing of engineering services</li> </ul>
Airside Operating and Management Cost	<ul style="list-style-type: none"> <li>• Physical Size and number of the Runway (Code F Compliant Runway Operations)</li> <li>• Air Traffic Movements</li> <li>• Range of Equipment operated</li> <li>• Degree of Outsourcing of engineering services</li> <li>• Airport Congestion</li> <li>• Local Regulatory Conditions</li> </ul>

Cost	Cost Driver
	<ul style="list-style-type: none"> <li>• Technology Absorption</li> </ul>
Terminal Management Costs	<ul style="list-style-type: none"> <li>• Passenger Mix (Domestic and International)</li> <li>• Physical Size and number of the Terminal</li> <li>• Air Traffic and Passenger traffic movement</li> <li>• Range of Services provided by the Airport</li> <li>• Degree of Outsourcing of engineering services</li> <li>• Local Regulatory Conditions (Example: Security)</li> <li>• Airport Congestions</li> <li>• Technology Absorption</li> </ul>
Insurance Costs	<ul style="list-style-type: none"> <li>• Physical Size and number of the Runway and Passenger Terminal Buildings</li> <li>• Premium costs are dependent on number and severity of Incidents Reported</li> <li>• Age of the Assets Operated</li> <li>• Local Regulatory Conditions</li> <li>• Range of the Equipment Operated</li> </ul>
Administrative and General Expenses	<ul style="list-style-type: none"> <li>• Ownership and Governance Structure</li> <li>• Physical Size and number of the Runway and Passenger Terminal Buildings</li> <li>• Total Runway and Terminal Capacity</li> <li>• Air Traffic and Passenger traffic movement</li> </ul>

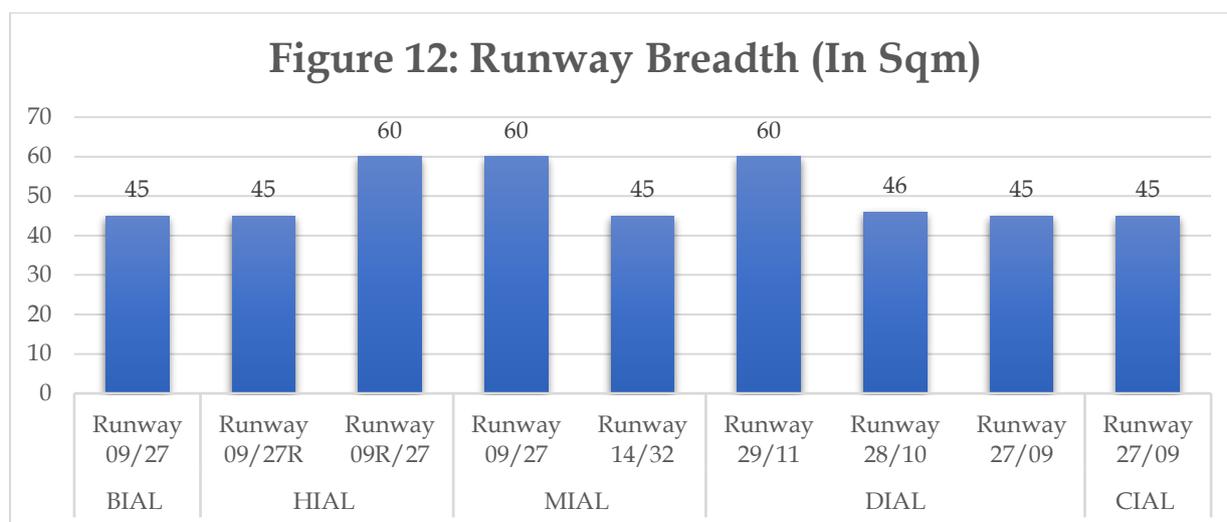
To demonstrate the above at the chosen airports, data was collated on few of these cost drivers to understand how each of these airports vary from one to another.

**16.1.1.1 NUMBER OF RUNWAYS AND SIZE OF THE RUNWAYS: <sup>13</sup>**

Based on available information, it was noted that Mumbai, Delhi and Hyderabad airports out of the five chosen airports operate more than one runway at the airport and are comparatively lengthier and code F compliant (The Width of the Runway can support A380 aircrafts with wingspan more than 80 metres). Since airside management costs like Airside lighting, cleaning and maintenance costs, ground transportation costs, firefighting and safety costs are variable to length and breadth of the runway, costs at Delhi, Mumbai and Hyderabad are expected to be comparatively higher.



<sup>13</sup> Source: Wikipedia  
 R. Subramanian and Company LLP  
 Chartered Accountants



### 16.1.1.2 PASSENGER TRAFFIC AND AIR TRAFFIC MOVEMENT<sup>14</sup>

Top 10 busiest airports in India include the chosen airports at the respective ranks and the percentage of growth year on year is as per the below table: <sup>15</sup>:

Table 90 Passenger Traffic Growth % at Comparable Airports

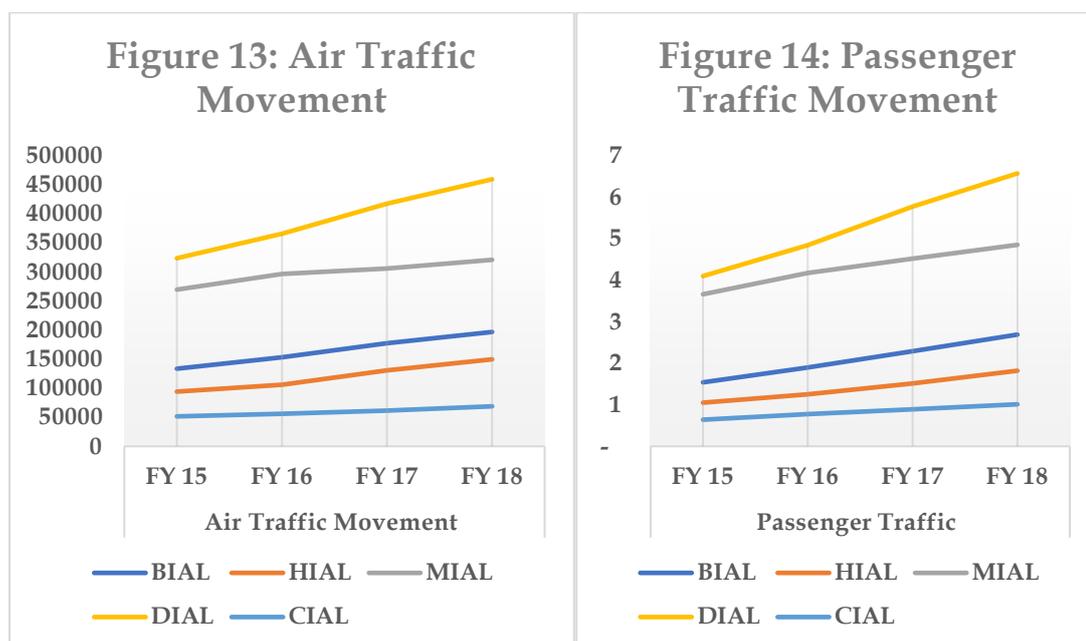
Rank	Airport	City	% Change in FY18	% Change in FY17	% Change in FY16	% Change in FY15
1	Indira Gandhi International Airport	Delhi	13.8	19.2	18.1	11.1
2	Chhatrapati Shivaji Maharaj International Airport	Mumbai	7.4	8.4	13.7	13.7
3	Kempegowda International Airport	Bengaluru	24.1	20.6	23.2	19.7

<sup>14</sup> Source: apaindia.com

<sup>15</sup> Source: Wikipedia

Rank	Airport	City	% Change in FY18	% Change in FY17	% Change in FY16	% Change in FY15
6	Rajiv Gandhi International Airport	Hyderabad	20.2	21.9	19.1	20.2
7	Cochin International Airport	Kochi	13.6	16.4	21.0	19.2

The continuous growing trends in air traffic and passenger traffic have significant consequences on passenger satisfaction and airport attractiveness. As passenger convenience factors like comfort, processing time, availability of staff, information visibility, security, etc affecting the overall airport service quality score is considered as a priority in the agenda of the airport management, increasing traffic have a significant bearing on the costs related to airside and terminal management for maintaining the required passenger satisfaction level.

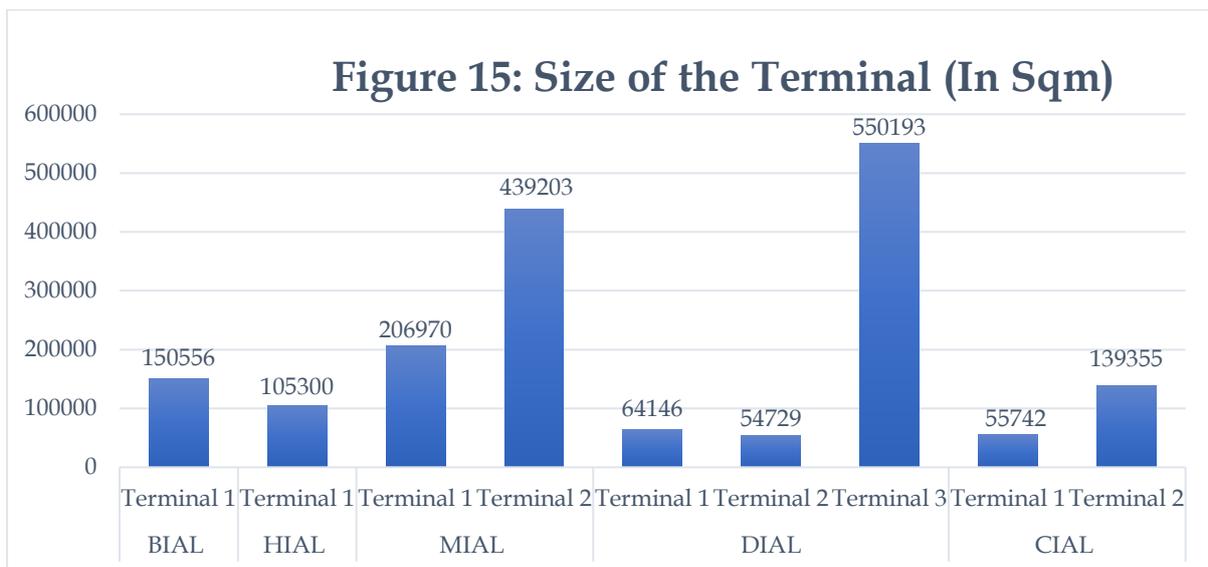


### 16.1.1.3 NUMBER OF TERMINALS AND SIZE<sup>16</sup>

The number and size of the terminal affects various terminal management costs like

- Direct costs of Local Rates and Taxes related the property in use
- Costs to maintain the technical discipline across the terminals for information technology, security systems, people mover systems like the travellers and escalators, the heating ventilation and air conditioning systems
- Maintenance and Cleaning Costs
- Wayfinding and Terminal Signage costs
- Ground Transportation costs
- Airport Security costs, etc

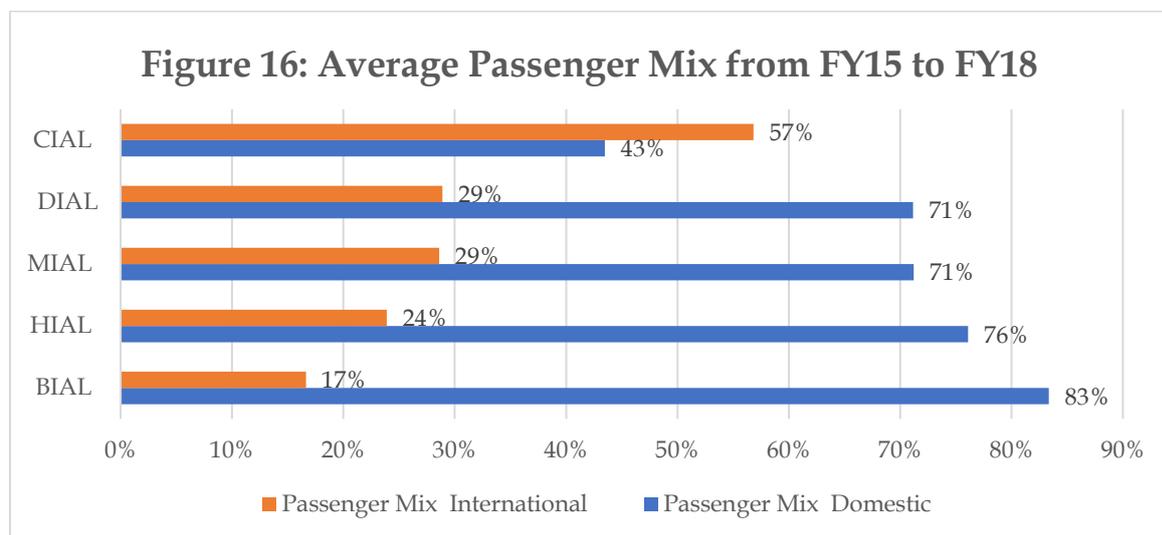
Consequently, from the information gathered and represented in the below chart, it can be interpreted that these costs would comparatively be higher at the Mumbai and Delhi Airport since they operate more than one and larger terminals.



<sup>16</sup> Source: Wikipedia  
 R. Subramanian and Company LLP  
 Chartered Accountants

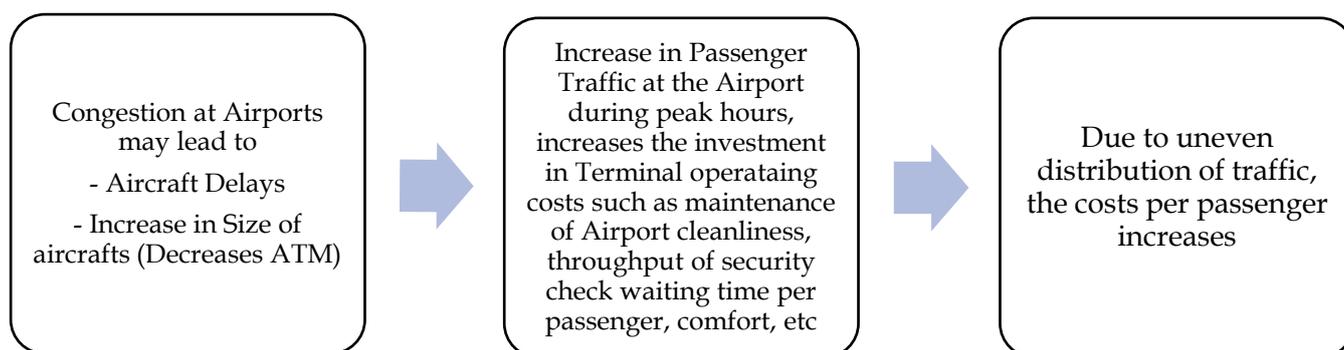
### 16.1.1.4 PASSENGER MIX<sup>17</sup>

Since the proportion of International passengers to the Domestic Passengers are higher at the Cochin Airport, higher costs for the additional services like customs, immigration having related costs of security, personnel, health care can be noted.



### 16.1.1.5 TERMINAL CAPACITY UTILISATION FOR FY18<sup>18</sup>

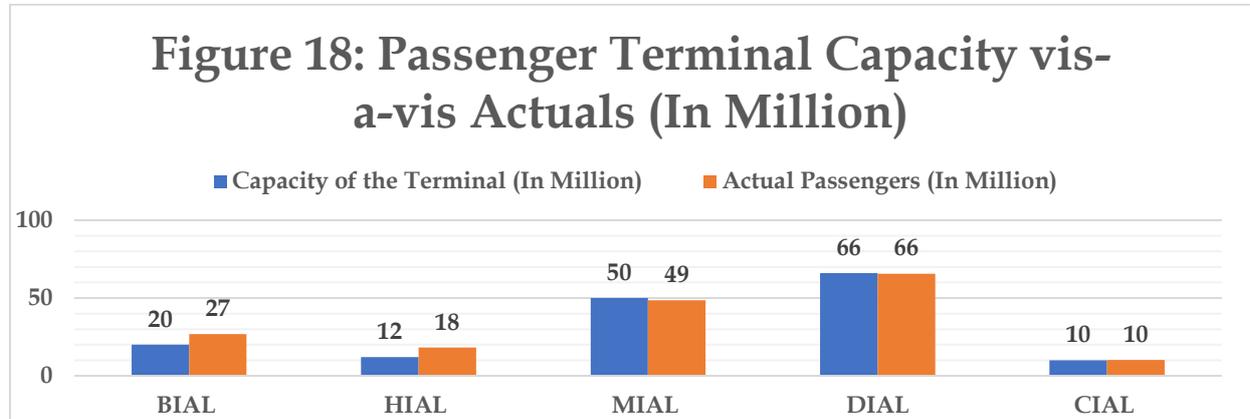
Capacity Utilisation have a two-fold effect on the airport operational costs. Increase in utilisation of the available capacity decreases the per PAX and per ATM Costs of the airport but an increase in terminal traffic more than the available capacity may increase the per PAX cost due to the following impact:



<sup>17</sup> Source: apaoindia.com

<sup>18</sup> Source: apaoindia.com

Thus, could be seen from the below chart, where Cochin, Delhi and Mumbai are currently operating at 100% capacity, airports at Bengaluru and Hyderabad operate at more than capacity which may influence their per PAX costs (Refer Figure Below)



#### 16.1.1.6 WEATHER CONDITIONS AT THE GEOGRAPHIC LOCATIONS OF THE AIRPORTS<sup>19</sup>

Weather conditions of the geographic locations of the airport affect primarily the utilities cost such as power, fuel and water.

In locations such as Delhi where the lowest temperature reaches as low as 8 degrees and the highest reach as high as 40 degrees with humidity up to 58% (September 2018), the consumption of power can be comparatively higher to others locations such as Bengaluru where the average temperature remains constant between 20 to 30 degree Celsius

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<sup>19</sup> Source: Average temperature for 2018 by NOAA – National Oceanic and Atmospheric Administration

## Delhi

Weather averages

Overview **Graphs**

Temperatures (°C)



## Mumbai, Maharashtra

Weather averages

Overview **Graphs**

Temperatures (°C)



## Bengaluru, Karnataka

Weather averages

Overview **Graphs**

Temperatures (°C)



## Hyderabad, Telangana

Weather averages

Overview **Graphs**

Temperatures (°C)



## Kochi, Kerala

Weather averages

Overview **Graphs**

Temperatures (°C)



### 16.1.1.7 INFERENCE FROM THE FLUCTUATING COST DRIVERS

Based on the available information, it can be construed that benchmarking of total costs between peer airports does not portray accurate positions.

To support the view, we quote the submissions made by the British Airport Authority (BAA) to the UK Civil Aviation Authority (CAA) on Benchmarking in 2001 which emphasizes that a complete set of adjustments would be required to the given airport costs to produce a notional set of perfectly comparable data. However, these adjusted numbers would not bear any

relation to reality. The report illustrates how airports can vary in the degree of services they provide and therefore the costs associated with the same.

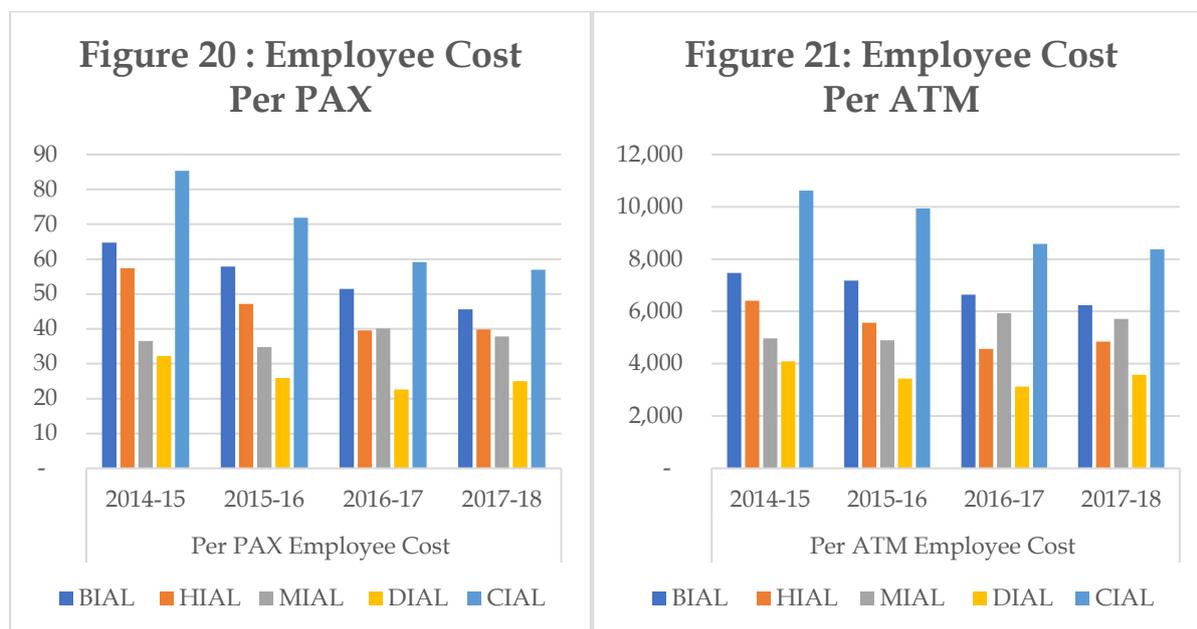
*Table 91 Variances between Comparable Airports*

Varying Airport Activities include:	Handling activities; International services; Crash and Rescue services; Degree of Security services like cabin Baggage search, Access Control, Other Airfield services
Add on Costs at the Airports	Rates; Airport licences; Corporation tax; Pension/Social security costs
Accounting differences	Asset valuation (replacement methodologies, asset ownership); Intercompany charges
Geographical and Regulatory Differences include	Local utility costs, Local property costs, Local staff costs, Exchange rates
In house/outsourcing	Cleaning; Engineering; Security; Catering; Retail

### **16.1.2 BENCHMARKING OF COMPONENTS OF OPERATION AND MAINTENANCE COSTS**

An effort to analyse the total costs for certain specific cost objects were made to observe the trend movements for the chosen airports and accordingly evaluate the performance of Delhi and Mumbai Airports.

### 16.1.2.1 EMPLOYEE COST BENCHMARKING

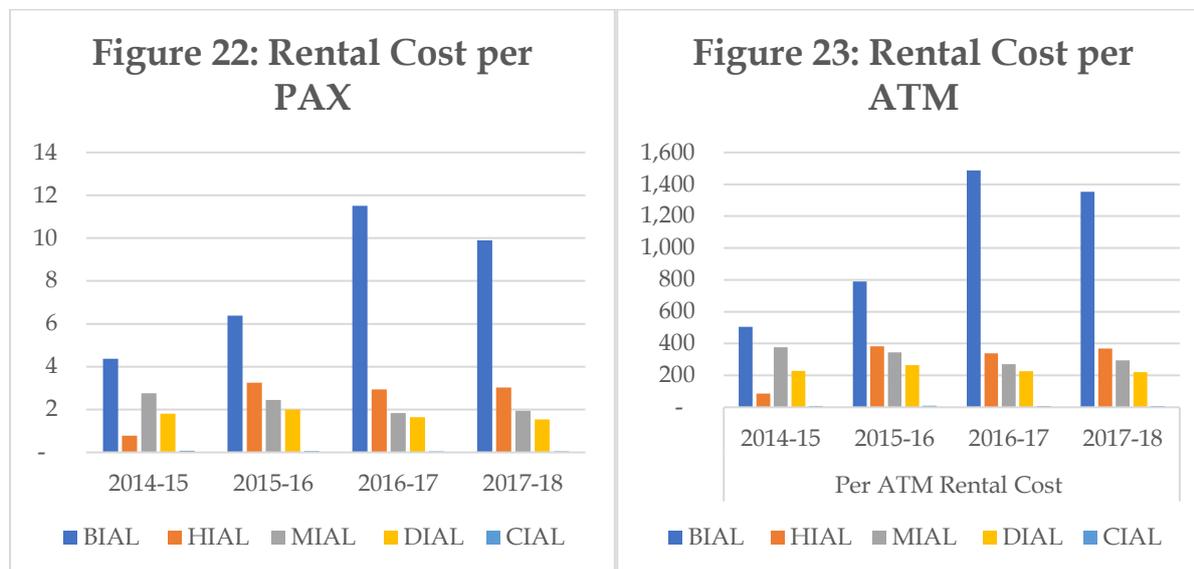


At first, the varying degrees to which airports provide services to its passengers and airlines make this measure of labour productivity particularly difficult to use for external benchmarking.

Further, while certain airports perform all the operations comparing other airports who outsource to other agencies, for example, the Cochin airport performs the operations of Cargo where the other airports have outsourced the same through concessionaires, the manpower costs of the Cochin airport, can be seen to be higher than the others.<sup>20</sup>

<sup>20</sup> Source: Normative Cost Approach by AERA  
 R. Subramanian and Company LLP  
 Chartered Accountants

### 16.1.2.2 RENTAL COST BENCHMARKING

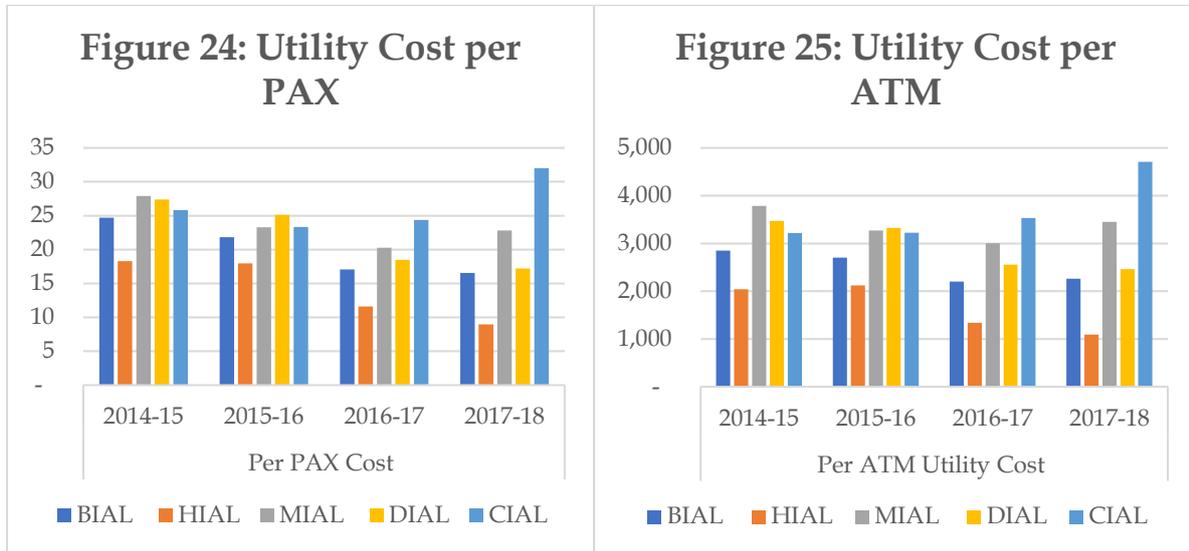


Interpreting the above chart, it was noted that BIAL reflects a higher rental cost as compared to the other domestic airports that were benchmarked.

The vital reason for this variation is the fact that Mumbai and Delhi airports are Brown Field projects with minimal rental payable to AAI for leasing of the airports on an “as is where basis”. However, BIAL (Green Field Project) entered into a Land Lease Agreement (LLA) with the Karnataka Government (KSIIDC) for approximately 4000 acres of land for which an annual lease rental of 3% of the total site cost of ₹211.78 crores is incurred by BIAL. This lease payment by BIAL justifies the higher costs<sup>21</sup>.

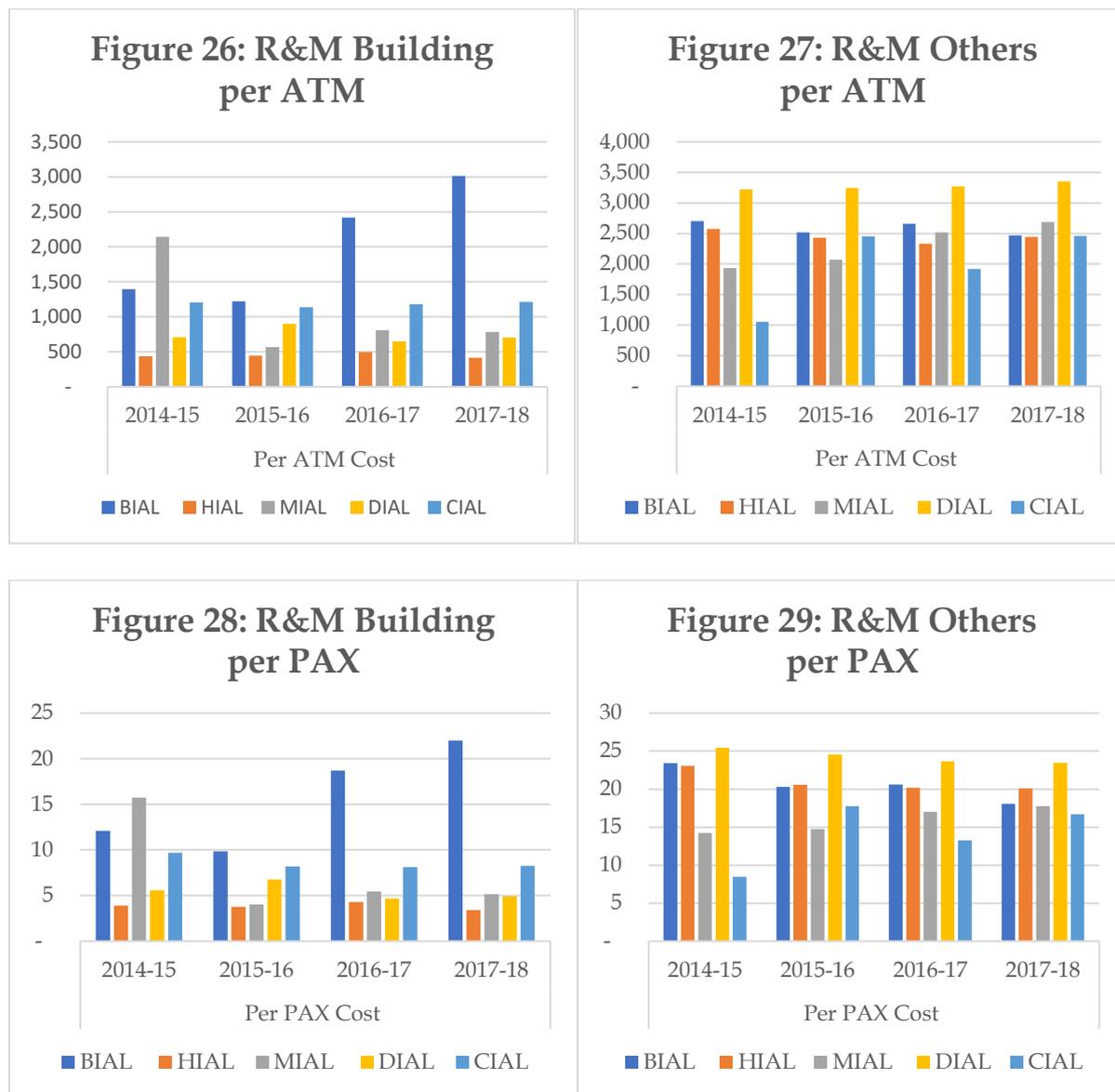
<sup>21</sup> Source: Annual Report 17-18 of Kempegowda International Airport Limited  
 R. Subramanian and Company LLP  
 Chartered Accountants

### 16.1.2.3 UTILITY COSTS (POWER, FUEL AND WATER)



Passenger Terminal Building (PTBs) consist of multiple space types in one structure, such as offices, retail, food service (FS), Public Order and Safety (PO&S), Public Assembly (PA), circulation, ticketing/check-in, passenger screening and other support areas. Due to the complexity and variations in the geometry, operations and business model of these terminal buildings for each of the airports, interpreting the energy consumption patterns for the airports becomes complicated.

### 16.1.2.4 REPAIRS AND MAINTENANCE



Maintenance ensures that airport buildings and installations are kept fully operational; it includes the internal equipment of the terminal (e.g. baggage conveyor belts, moving stairways, passageways, heating and air conditioning systems, power supply) and the external equipment (e.g. runway lighting, instrument landing system, telecommunication and meteorological equipment), as well as airport vehicles (e.g. buses, firefighting and apron vehicles).

Disparity between the airports in the number of terminals, runways and equipment operated makes these numbers incomparable. Further the extent to which these engineering services may be performed by outside consultants or contractors at airports to enable them to efficiently use such services on a permanent and continuous basis may also add to the reason why these numbers may not be accurately comparable.

### **16.1.3 BENCHMARKING - DIAL AND MIAL**

Due to the unavailability of specific information related the proportion of direct operating and administrative expenses to the total operation and maintenance costs of an airport and the proportion of the Operating staff and support staff to the total manpower strength at the airport to benchmark the cost levels involved in the backend functioning of airports, the exercise of benchmarking for these two parameters were restricted only to Delhi and Mumbai Airports.

#### **16.1.3.1 PROPORTION OF OPERATION AND MAINTENANCE COST (EXCLUDING A&G EXPENSES) TO THE ADMINISTRATIVE AND GENERAL (A&G) EXPENSES AT MIAL AND DIAL**

The below table shows the total cost per PAX at the Mumbai and Delhi Airport split into proportion of costs related to operation of the Terminal like

- Costs of Power, fuel and Water
- Costs of Consumables
- Repair and Maintenance Expenses
- Insurance
- Housekeeping and Security Expenses

and other indirect costs (A&G) required for supporting the functions of the airports like:

- Rent, Rates and Taxes
- Costs related the Corporate Social Responsibilities

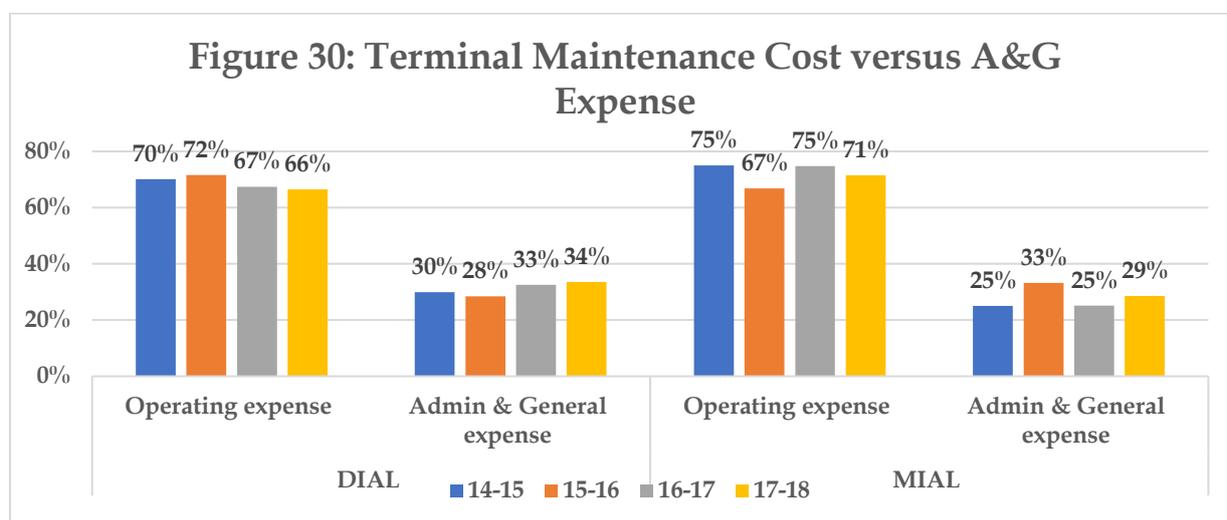
- Advertisement
- Traveling and Conveyance
- Professional Consultancy Charges, etc

Table 92 Proportion of Terminal Operating Cost and A&G Expenses at MIAL and DIAL

(₹ crores)

Particulars	Cost per PAX				Proportion of Costs			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
DIAL Terminal Operating Cost (excluding A&G)	97.25	83.64	69.42	71.23	70%	72%	67%	66%
DIAL Admin & General expense	41.47	33.22	33.50	35.89	30%	28%	33%	34%
<b>Total Cost per PAX - DIAL</b>	<b>138.72</b>	<b>116.86</b>	<b>102.92</b>	<b>107.12</b>				
MIAL Terminal Operating (excluding A&G)	88.01	73.25	78.28	76.86	75%	67%	75%	71%
MIAL Admin & General expense*	29.26	36.38	26.36	30.65	25%	33%	25%	29%
<b>Total Cost per PAX - MIAL</b>	<b>117.27</b>	<b>109.63</b>	<b>104.65</b>	<b>107.51</b>				

\*The Expenses of MIAL excludes the Collection Charges on Development Fund until FY17 as the same is adjusted against the revenue in the books of DIAL.



The above table when represented in graphs comparing the proportions maintained at both the airports, it was noted on an average both the airports operate at the same levels of operating and non-operating costs.

### 16.1.3.2 PROPORTION OF SUPPORT STAFF (NON-OPERATING) TO OPERATING STAFF AT MIAL AND DIAL

The below table shows the total employee count at the Mumbai and Delhi Airport split into manpower directly engaged with the operation of the airport working in departments like

- Airside Management
- Terminal Management
- Project and Engineering
- Baggage Operations
- Security
- Slot and Data Management

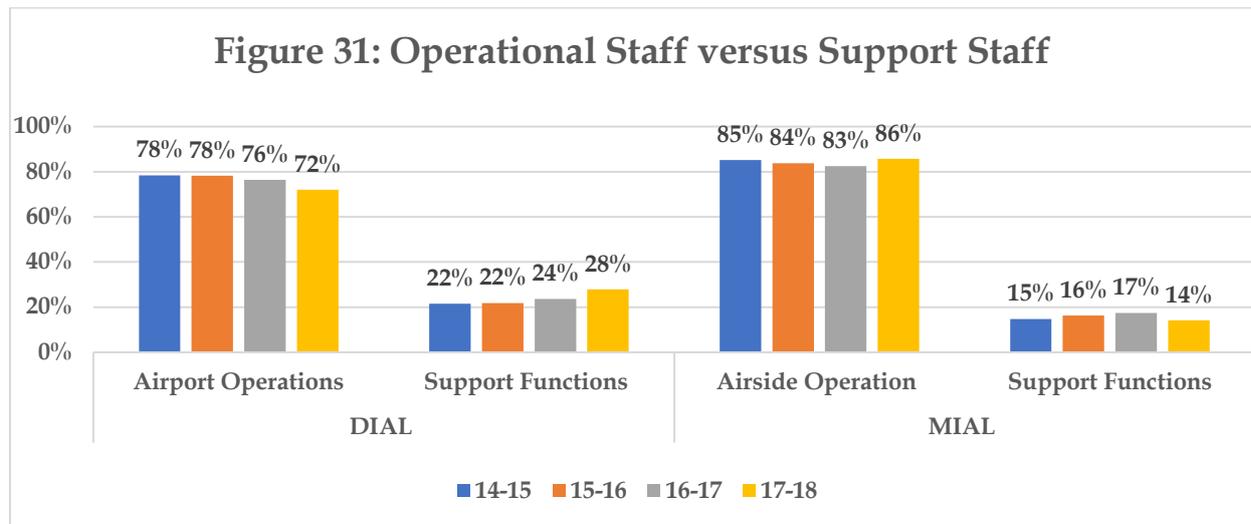
and manpower not directly related to the functional departments of the airport but required for supporting the functions of the airports like

- Senior Management Office
- Support Business functions like Legal, audit and assurance, Information Technology, etc
- Human Resource Management
- Aero Marketing Team, etc

Table 93 Proportion of Operating and Support Staff at DIAL and MIAL

(₹ crores)

Particulars		Manpower Count				Proportion of Support Functions			
		FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
MIAL	Airside Operation	1152	1065	1022	988	85%	84%	83%	86%
	Support Functions	200	207	216	164	15%	16%	17%	14%
	<b>Total</b>	<b>1352</b>	<b>1272</b>	<b>1238</b>	<b>1152</b>	-	-	-	-
DIAL	Airport Operations	1245	1187	1130	1252	78%	78%	76%	72%
	Support Functions	343	331	350	485	22%	22%	24%	28%
	<b>Total</b>	<b>1588</b>	<b>1518</b>	<b>1480</b>	<b>1737</b>	-	-	-	-



The above table when represented in graphs comparing the proportions maintained at both the airports, it was noted that on an average MIAL maintains a slightly lower proportion of non-support staff when compared to DIAL.

## 16.2 SUMMARY

Thus, in setting up of the efficiency target for the operations of Airports in India, we must be mindful of the numerous uncontrollable factors that vary between the airports since these variable factors are generally consistent with costs. The above charts (given in section 16.1) only give a general impression of how airport performance compares with other airports but aren't suitable to set regulatory price caps.

## 16.3 INTERNATIONAL BENCHMARKING<sup>22</sup>

- i Broadly meeting the criterion of comparable airport size to DIAL in terms of its passenger capacity of around 66MAP, Leigh- Fisher has selected fifteen airports for which data are available for the purpose of International Benchmarking. The List of fifteen airports along with the passenger throughout for calendar year 2017 are as per the table below:

Table 94 List of Comparable International Airports

(₹ crores)

Airport	Domestic	International	Total
<b>Delhi</b>	<b>4.84</b>	<b>1.73</b>	<b>6.57</b>
Amsterdam	0.00	7.58	7.58
Beijing	7.01	2.56	9.58
Hong Kong	-	7.36	7.36
London Gatwick	0.40	4.17	4.57
London Heathrow	0.48	7.32	7.80
Los Angeles	6.09	2.57	8.66
Melbourne	2.59	1.09	3.68
Miami	2.23	2.14	4.38
Mumbai	3.48	1.36	4.85
Munich	0.98	3.47	4.45
Rome Airports	1.17	3.50	4.69
San Francisco	4.39	1.38	5.77
Singapore Changi	-	6.30	6.30
Sydney	2.74	1.60	4.33
Tokyo Narita	0.75	3.34	4.09

<sup>22</sup> Source: Leigh Fisher  
 R. Subramanian and Company LLP  
 Chartered Accountants

ii. For the above airports, benchmarks were produced for the following cost Objects

- Total operating costs
- Staff costs
- Total non-staff operating costs
- Maintenance Cost

In addition, data are available to produce benchmarks of maintenance costs for the following nine airports (in addition to DIAL):

<ul style="list-style-type: none"> <li>• Amsterdam</li> <li>• Beijing</li> <li>• Hong Kong</li> </ul>	<ul style="list-style-type: none"> <li>• London Gatwick</li> <li>• London Heathrow</li> <li>• Melbourne</li> </ul>	<ul style="list-style-type: none"> <li>• San Francisco</li> <li>• Singapore Changi</li> <li>• Sydney</li> </ul>
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iii. The results are expressed in three ways

- on a per passenger basis,
- on a per ATM basis,
- in relation to airport capacity,

and in the following currencies for each of the three options above:

- Indian Rupees,
- US Dollars,
- SDRs (see below).

The SDR is an international reserve asset, created by the International Monetary Fund (IMF), to supplement its member countries' official assets. The value of the SDR is based on a basket of five currencies - the US Dollar, the Euro, the Chinese Ren, the Japanese Yen and the British Pound.

iv. The Benchmarking exercise was carried out with the data for calendar year 2017

v. Results of the International Benchmarking

**A. Per Passenger Basis**

- Delhi ranks in 15th position (*in order of highest to lowest cost*) out of 16 airports in terms of total costs per passenger. Its total costs per passenger are 20.8% of the average for the sample of airports.
- Delhi ranks in 16th and 15th positions (*in order of highest to lowest cost*) in terms of staff costs and non-staff costs per passenger respectively. Delhi's staff costs are only 9.4% of the average for the sample and non-staff costs are 26.8% of the average for the sample.
- Delhi ranked in 8th position (*in order of highest to lowest cost*) out of ten in comparison of the maintenance cost per passenger, and its maintenance costs equate to 49% of the average for the sample.

**B. Per ATM Basis**

- Delhi ranks in 15th position (*in order of highest to lowest cost*) out of 16 airports in terms of total costs per passenger. Its total costs per passenger are 20.3% of the average for the sample of airports.
- Delhi ranks in 16th and 15th positions (*in order of highest to lowest cost*) in terms of staff costs and non-staff costs per passenger respectively. Delhi's staff costs are only 9.3% of the average for the sample and non-staff costs are 26.0% of the average for the sample
- Delhi ranked in 8th position (*in order of highest to lowest cost*) out of ten in comparison of the maintenance cost per passenger, and its maintenance costs equate to 44.5% of the average for the sample.

**C. Per Terminal Capacity**

- Delhi ranks in 15th position (*in order of highest to lowest cost*) out of 16 airports in terms of total costs per passenger. Its total costs per passenger are 22.8% of the average for the sample of airports.

- Delhi ranks in 15th positions (*in order of highest to lowest cost*) in terms of staff costs and non-staff costs per passenger respectively. Delhi's staff costs are only 10.3% of the average for the sample and non-staff costs are 29.5% of the average for the sample
- Delhi ranked in 8th position (*in order of highest to lowest cost*) out of ten in comparison of the maintenance cost per passenger, and its maintenance costs equate to 53.3% of the average for the sample.

## **16.4 SUMMARY**

Reiterating the fact that the chosen comparable airports only broadly meet the criteria of comparable airport size, from the above results of Leigh-Fisher, it is interpreted that the Operating and Maintenance cost levels at the Delhi Airport are comparatively lower than its peer airports. However, the scale of difference between the variation from the average for maintenance costs compared to the variation from the average for the other three metrics makes the comparability of operating and maintenance costs quite complex.

## 17 AIRPORT SERVICE QUALITY ASSESSMENT OF DIAL

For coping up with ever- growing passenger traffic, air movement traffic and the Cargo Movements and for improving its passenger facilities, the Delhi International Airport Limited (DIAL) made significant investments in Second Control Period (2014 to 2019). DIAL has refurbished its T2, expanded its facility in T1, installed solar power plants, initiated measures to rehabilitate its airside pavements and thus improve their passenger turnaround time over the four years. The parameters and rating per parameter are as given in the below table<sup>23</sup>.

Table 95 ASQ Rating for Quarter 2, Quarter 3 for FY18 and Quarter 4 for FY19

ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
<b>OVERALL SATISFACTION SCORE</b>						
Overall satisfaction with the airport	5	5	5	5	4.99	5
Overall satisfaction with the airport; business PAX	5	5	5	5	4.94	5
Overall satisfaction with the airport; leisure PAX	5	5	5	5	5	5
Overall satisfaction other+ Leisure	5	5	5	5	5	5
<b>ACCESS</b>						
Ground transportation to/ from the airport	4.72	4.74	4.85	4.64	4.93	4.9
Availability of parking facilities	4.71	4.61	4.78	4.58	4.86	4.87
Parking facilities value for money	4.72	4.59	4.71	4.56	4.8	4.83
Availability of baggage carts/ trolleys	4.78	4.67	4.54	4.63	4.76	4.79
<b>CHECK-IN (AT THIS AIRPORT)</b>						
Waiting time in check-in-queue/ line	4.82	4.78	4.86	4.68	4.8	4.89

<sup>23</sup> Source: Management Information  
R. Subramanian and Company LLP  
Chartered Accountants

AERA RFP 02/2018-19  
 Study on Efficient Operation and Maintenance Costs

ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
Efficiency of check-in staff	4.76	4.68	4.73	4.58	4.89	4.76
Courtesy and helpfulness of inspection staff	4.84	4.69	4.8	4.71	4.88	4.79
<b>PASSPORT/ PERSONAL ID CONTROL</b>						
Waiting time at passport/ personal ID inspection				4.68	4.86	4.78
Courtesy and helpfulness of inspection staff				4.68	4.86	4.71
<b>SECURITY</b>						
Courtesy and helpfulness of security staff	4.82	4.81	4.93	4.81	4.85	4.89
Thoroughness of Security inspection	4.76	4.66	4.69	4.69	4.9	4.75
Waiting time at security inspection	4.84	4.69	4.74	4.66	4.91	4.75
Feeling of being safe and secure	4.89	4.75	4.87	4.82	4.92	4.85
<b>FINDING YOUR WAY</b>						
Ease of finding your way through airport	4.83	4.77	4.92	4.81	4.77	4.91
Flight information screens	4.77	4.66	4.77	4.69	4.86	4.76
Walking distance inside the terminal	4.82	4.69	4.79	4.61	4.84	4.77
Ease of making connections with other flights	4.9	4.75	4.79	4.81	4.84	4.86
<b>AIRPORT FACILITIES</b>						
Courtesy, helpfulness of airport staff	4.82	4.81	4.94	4.84	4.81	4.97
Restaurant/ eating facilities	4.62	4.62	4.64	4.68	4.82	4.79
Restaurant facilities value for money	4.63	4.67	4.57	4.67	4.85	4.73

AERA RFP 02/2018-19  
Study on Efficient Operation and Maintenance Costs

ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
Availability of bank/ ATM facilities/ money changers	4.86	4.86	4.73	4.82	4.92	4.67
Shopping facilities	4.8	4.75	4.79	4.77	4.9	4.84
Shopping facilities value for money	4.79	4.78	4.49	4.76	4.83	4.51
Internet access/ Wi-Fi	4.88	4.85	4.84	4.86	4.9	4.84
Business/ Executive lounges	4.93	4.84	4.75	4.89	4.92	4.78
Availability of washrooms/ toilets	4.95	4.89	4.93	4.94	4.97	4.97
Cleanliness of washrooms/ toilets	4.94	4.92	4.95	4.92	4.95	4.96
Comfort of waiting/ gate areas	4.9	4.89	4.91	4.91	4.9	4.95
Cleanliness of airport terminal	4.97	4.97	4.99	4.99	4.95	5
Ambience of the airport	4.97	4.95	4.94	4.98	4.95	4.99
<b>ARRIVAL SERVICES</b>						
Arrivals passport and visa inspection				4.57	4.92	4.82
Speed of baggage delivery service	4.73	4.67	4.74	4.49	4.84	4.72
Customs inspection				4.64	4.91	4.69
<b>OVERALL SATSFACTION</b>						
Overall satisfaction with the airport	5	5	5	5	4.99	5
Ease of finding your way through airport/ Sign posting	4.83	4.77	4.92	4.81	4.77	4.91
Flight information screens	4.77	4.66	4.77	4.69	4.86	4.76
Walking distance	4.82	4.69	4.79	4.61	4.84	4.77
Ease of making connections with other flights	4.9	4.75	4.79	4.81	4.84	4.86
Ground transportation to/ from the airport	4.72	4.74	4.85	4.64	4.93	4.9

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ASQ Parameters	DOMESTIC			INTERNATIONAL		
	Q2'18	Q3'18	Q4'19	Q2'18	Q3'18	Q4'19
Availability of Baggage carts	4.78	4.67	4.54	4.63	4.76	4.79
Restaurant/ Eating facilities	4.62	4.62	4.64	4.68	4.82	4.79
Shopping Facilities	4.8	4.75	4.79	4.77	4.9	4.84
Business Facilities (ATM/ Money Exchange)	4.86	4.86	4.73	4.82	4.92	4.67
Washrooms (Cleanliness)	4.94	4.92	4.95	4.92	4.95	4.96
Parking Facilities	4.71	4.61	4.78	4.58	4.86	4.87
Restaurant/ Eating facilities	4.63	4.67	4.64	4.67	4.85	4.79
Shopping Facilities	4.79	4.78	4.79	4.76	4.83	4.84
Parking Facilities	4.72	4.59	4.71	4.56	4.8	4.83
Courtesy, helpfulness of airport staff	4.82	4.81	4.94	4.84	4.81	4.97
Comfort of waiting/ gate areas	4.9	4.89	4.91	4.91	4.9	4.95
Speed of baggage delivery services	4.73	4.67	4.74	4.49	4.84	4.72
Cleanliness of airport terminal	4.97	4.97	4.99	4.99	4.95	5
Ambience of the airport	4.97	4.95	4.94	4.98	4.95	4.99
Waiting time in Check-in	4.82	4.78	4.86	4.68	4.8	4.89
Efficiency of Check-in	4.76	4.68	4.73	4.58	4.89	4.76
Courtesy, helpfulness of check-in staff	4.84	4.69	4.8	4.71	4.88	4.79
Business/ executive lounges	4.93	4.84	4.75	4.89	4.92	4.78

Average ASQ rating (overall satisfaction) for domestic is 4.79 and international is 4.82.

## 18 OVERALL SUMMARY OF THE STUDY

- DIAL is the 12th busiest airport in the world and 6th busiest airport in Asia by passenger traffic handling nearly 67 million passengers in FY18.
- During the Second Control Period, the total passenger traffic grew at a rate of 17.03% p.a, Air traffic at 12.39%p.a & Cargo at 11.40% p.a. The Passenger terminal capacity utilisation increased from 62% to 100% and Runway Capacity utilisation increased from 55% to 72%.
- The total Operation and Maintenance costs incurred by DIAL during the Second Control Period was ₹ 5,649.36 crores.
- Based on the nature and description of the costs, the same was classified as Aeronautical and Non-Aeronautical in accordance with Schedules 5 and 6 of OMDA respectively.
- Segregation logics were determined for appropriate segregation of Common costs in to Aeronautical and Non-Aeronautical categories (as detailed in Table 1). Accordingly, the
  - Common costs incurred within the Terminal have been segregated in the ratio of space demarcated within the terminals for Aeronautical/ Non-Aeronautical activities as per initial floor space plan (*as it was noted that the actual space let out for Non -Aeronautical activities (89,804 sqm) was lower than the space demarcated for the same (1,05,252 sqm)*).
  - Common costs incurred outside the Terminal were segregated using a reasonable basis - *Adjusted Gross Fixed Assets ratio of 89:11 was used as a norm for apportioning such expenses and for exceptions such as Chartering, transit house expenses etc where there was no proper basis to ascertain the actual usage, a 50:50 ratio was used for apportionment.*
- Out of the total Operational and Maintenance costs of ₹ 5,649.36 crores, DIAL had classified Aeronautical Expenses (other than Forex Losses of ₹ 576.30 crores) as ₹ 4,304.15 crores and Non-Aero Expenses as ₹ 768.91 crores. Based on the study, an adjustment of ₹ 64.79 crores was made to the Aeronautical Expenses (as mentioned in section 4.1) and the total expenses have been re-segregated as under:
  - Adjusted Aeronautical expenses: ₹ 4,239.36 crores.
  - Non-Aeronautical expenses: ₹ 833.70 crores.

- Forex losses: ₹ 576.30 crores. The Authority may take its own view with regard to the above forex loss.
- Administration costs includes expenses such as Advertising, Consultancy, Travelling, Chartering, Rent, Taxes, Corporate cost etc, totaling to ₹ 759.50 crores (for FY15 to FY18).
- In order to determine the Efficient baseline costs, we have made a detailed study of DIAL's costing system, budgetary process, cost centre-wise allocation methodology, and process efficiency improvement initiatives undertaken.
- Standardised process is followed at DIAL for setting up budgets in the form of an Annual Operating Plan (AOP). MIS documenting the actual performance (financial & operational) vis-à-vis the AOP is documented and reviewed periodically by the Senior Management.
- There are 28 major departments/cost centers that are further divided into Sub-Cost Centers and the segregation of all operation and maintenance costs into Aeronautical and Non-Aeronautical is based on the nature of the sub cost center.
- Total cost savings of DIAL achieved through Continuous Improvement Plans (CIP) & Bottom Line Improvement Plans (BLIP) for the Second Control Period was ₹ 92.65 cr.
- Trend analysis was performed to determine efficiency of costs (adjusted with general price level changes to remove inflationary effect) incurred by DIAL over a period. Overall, the increase in operational costs were in consonance with the steady increase in passenger traffic/ air-craft movements.
- Operational and Maintenance (O&M) costs of DIAL was benchmarked with 4 domestic airports and 15 international airports and it was noted DIAL's O&M costs (per passenger and ATM) were reasonable as compared to the other domestic airports and were lower than the international airports.
- Airport Service Quality (ASQ) assessment of DIAL for the period ending 31 March 2019 based on various factors such as *Access, Check-in, Security, Passport/Personal ID control, Airport facilities, Arrival services, Overall satisfaction etc* showed that the average ASQ rating for domestic was 4.79 and international was 4.82, out of a maximum possible rating of 5.

## 19 LIMITATIONS

- We have relied on the reports of internal auditors, statutory auditors, cost auditors and the verification reports with respect to physical verification of fixed assets. As part of our study, we have performed a sample verification of internal documents for assessment of baseline costs and for its appropriate segregation in to 'Aeronautical' and Non-Aeronautical'.
- Our work procedures do not constitute an audit, examination or a review in accordance with generally accepted auditing standards or attestation standard as is expected under section 143 of the Company's Act, 2013. Consequently, we do not intend to express any opinion on the accuracy or appropriateness of such expenditures or its underlying assumptions.
- The study on the segregation of Assets and Operation and Maintenance Expenses and testing of the baseline costs for the second control period were limited to data up to FY18 only. However, any impact arising due to differences in opinion with the segregation logics adopted by DIAL were worked out also for FY19.

## 20 ANNEXURE TO DOMESTIC BENCHMARKING

### 20.1 TOTAL COST FOR THE AIRPORTS

Table 96 Total Cost at the Comparable Domestic Airports

(₹ crores)

Total Cost				
	FY15	FY16	FY17	FY18
BIAL	277	275	329	358
HIAL	220	225	257	315
MIAL	583	627	679	718
DIAL	830	825	891	1,047
CIAL	119	151	144	165
Employee Cost				
	FY15	FY16	FY17	FY18
BIAL	100	110	118	123
HIAL	60	59	60	72
MIAL	134	145	181	183
DIAL	132	125	131	164
CIAL	55	56	53	58
Rental Cost				
	FY15	FY16	FY17	FY18
BIAL	7	12	26	27
HIAL	1	4	4	6
MIAL	10	10	8	9
DIAL	7	10	9	10
CIAL	0	0	0	0
Power and Water				
	FY15	FY16	FY17	FY18
BIAL	38	41	39	44
HIAL	19	22	17	16
MIAL	102	97	92	111
DIAL	112	122	107	113
CIAL	17	18	22	32
R&M - Building				
	FY15	FY16	FY17	FY18
BIAL	19	19	43	59
HIAL	4	5	6	6
MIAL	58	17	25	25
DIAL	23	33	27	32

Total Cost				
CIAL	6	6	7	8
R&M - Machinery and Others				
	FY15	FY16	FY17	FY18
BIAL	36	39	47	49
HIAL	24	26	30	37
MIAL	52	61	77	86
DIAL	104	119	136	154
CIAL	5	14	12	17

## 20.2 COST PER PAX AND PER ATM

Table 97 Costs per PAX and ATM at the comparable domestic airports

(₹ crores)

	Per PAX Total Cost				Per ATM Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	180	145	144	133	20,719	17,934	18,553	18,227
HIAL	210	180	170	173	23,409	21,237	19,666	21,071
MIAL	159	150	150	148	21,651	21,151	22,214	22,380
DIAL	202	171	154	159	25,648	22,573	21,346	22,806
CIAL	185	194	162	164	23,027	26,797	23,406	24,053
	Per PAX Employee Cost				Per ATM Employee Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	65	58	51	46	7,466	7,174	6,644	6,231
HIAL	57	47	40	40	6,412	5,569	4,564	4,840
MIAL	37	35	40	38	4,963	4,890	5,932	5,714
DIAL	32	26	23	25	4,085	3,427	3,129	3,582
CIAL	85	72	59	57	10,621	9,937	8,576	8,369
	Per PAX Rental Cost				Per ATM Rental Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18
BIAL	4	6	12	10	505	790	1,487	1,354
HIAL	1	3	3	3	87	384	339	368
MIAL	3	2	2	2	376	344	271	294
DIAL	2	2	2	2	229	265	226	220
CIAL	0	0	0	0	9	9	7	8
	Per PAX Utility Cost				Per ATM Utility Cost			
	FY15	FY16	FY17	FY18	FY15	FY16	FY17	FY18

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BIAL	25	22	17	17	2,846	2,704	2,202	2,261
HIAL	18	18	12	9	2,043	2,119	1,338	1,092
MIAL	28	23	20	23	3,788	3,271	3,001	3,453
DIAL	27	25	18	17	3,473	3,327	2,553	2,465
CIAL	26	23	24	32	3,216	3,224	3,531	4,708
<b>Per PAX R&amp;M- Building Cost</b>					<b>Per ATM R&amp;M- Building Cost</b>			
	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>	<b>FY18</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>	<b>FY18</b>
BIAL	12	10	19	22	1,396	1,220	2,417	3,010
HIAL	4	4	4	3	435	445	493	414
MIAL	16	4	5	5	2,140	566	807	782
DIAL	6	7	5	5	709	896	647	704
CIAL	10	8	8	8	1,205	1,134	1,179	1,214
<b>Per PAX R&amp;M- Machinery and Others Cost</b>					<b>Per ATM R&amp;M- Machinery and Others Cost</b>			
	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>	<b>FY18</b>	<b>FY15</b>	<b>FY16</b>	<b>FY17</b>	<b>FY18</b>
BIAL	23	20	21	18	2,700	2,517	2,660	2,470
HIAL	23	21	20	20	2,576	2,429	2,332	2,443
MIAL	14	15	17	18	1,934	2,071	2,518	2,686
DIAL	25	25	24	23	3,224	3,248	3,269	3,354
CIAL	8	18	13	17	1,055	2,453	1,920	2,457

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## 22 GLOSSARY

Table 98 Table of Glossary

Abbreviations	Expansions
AAI	Airports Authority of India
ACI	Airports Council International
ACS	Access Control Systems
AERA	Airports Economic Regulatory Authority
AGL	Airfield Ground Lighting
AMC	Annual Maintenance Contract
AMDB	Airport Mapping Database
AOA	Airport Operator Agreement
AOCC	Airport Operation Control Centre
AODB	Airport Operational Database
AOP	Annual Operating Plan
ASQ	Airport Service Quality
ATC	Air Traffic Control
ATM	Aircraft Movement
ATR	Action Taken Report
BAA	British Airport Authority
BAC	Base Airport Charges
BCM	Business Chairman
BIAL	Bengaluru International Airport Limited
BID	Bill Inward Desk
BLIP	Bottom Line Improvement Plans
BRS	Baggage reconciliation system
CAA	Civil Aviation Authority
CAGR	Compound annual growth rate

Abbreviations	Expansions
CCMO	Corporate Chairman Office
CCTV	Control Centre television camera
CDM	Collaborative Decision-Making Module
CFT	Crash Fire Tenders
CIAL	Cochin International Airport Limited
CIP	Continuous Improvement Plans
CISF	Central Industrial Security Force
CMC	Comprehensive Maintenance Contract
CPSD	Corporate Strategic & Planning Department
CSR	Corporate Social Responsibility
CUPPS	Common Use Passenger Processing Systems
CUSS	Common Use Self Service
CUTE	Common Use Terminal Equipment
DIAL	Delhi International Airport Private Limited
EPOS	Electronic Point of Sale
FAR	Fixed Asset Register
FIDS	Flight information display system
FTE	Full Time Equivalent
FY	Financial year from 1 April till 31 <sup>st</sup> March
GADL	GMR Airport Developer Limited
GAL	GMR Airports Ltd
GCM	Group Chairman
GDP	Gross Domestic Product
GHB	GMR Holding Board
GHIAL	GMR Hyderabad International Airport Limited
GIL	GMR Infrastructure Limited
GOI	Government of India
GRN	Goods Receipt Note

Abbreviations	Expansions
HIAL	Hyderabad International Airport Limited
HVAC	Heating Ventilation and Air Conditioning
IATA	International Air Transport Association
IBLA	India Business Leader
ICWA	Institute of Cost and Works Accountants
IGIA	Indira Gandhi International Airport
IMB	(Interface Message Broker)
IOTY	Indian of the Year
IT JV	Information Technology Joint Venture (WAISL)
JVC	Joint Venture Company
KPI	Key performance indicators
LDA	Lease Deed Agreement
LLA	Land Lease Agreement
LLP	Limited Liability Partnership
MAP	Million Annual Passengers
MATV	Master Antenna TV
MCA	Ministry of Civil Aviation
MCD	Municipal Corporation of Delhi
MIAL	Mumbai International Airport Limited
MIS	Management Information System
MPAS	Mobile Phone Antenna Systems
MPPA	Million Passengers per annum
MRSS	Main Receiving Sub-Station
NFA	Notes for approvals
NUB	New Udaan Bhavan
OMDA	Operation, Management and Development Agreement
OTP	On Time Performance
PA	Public Assembly

Abbreviations	Expansions
PAVA	Public Address System
PAX	Passengers
PBB	Passenger Boarding Bridge
PDPR	Personal Development and Performance Review
PIDS	Perimeter Intrusion Detection System
PO	Purchase Orders
POS	Public Order and Safety
PPE	Plant, Property and equipment
PR	Purchase Requisition
PTB	Passenger Terminal Building
PSF	Passenger Service Fee
RAB	Regulatory Asset Base
ORFQ	Request for Quotation
RVR	Runway Visual Range
SA	Shareholders' Agreement
SE	Service entry
SGSA	State Government Support Agreement
SPG	Strategic Planning Group
SSA	State Support Agreement
STP	Sewage Treatment Plant
T1	Terminal 1
T2	Terminal 2
T3	Terminal 3
TDSAT	Telecom Disputes Settlement and Appellate Tribunal
TMRS	Tetra Mobile Radio Systems
UDF	User Development fee
UFIS	Universal Flight Information System
VDGS	Visual Docking Guiding System

Abbreviations	Expansions
VFD	Variable Frequency Drive
VHT	Vertical Horizontal Travellator
VIM	Vendor Invoice Management
WAISL	Wipro Airport IT Services Limited
WPI	Wholesale Price Index
YTD	Year to date

## **23 EXHIBITS**

### **23.1 EXHIBIT 1 ON FINAL ANNEXURE ON OPERATING AND MAINTENANCE EXPENSES**

[Exhibit 1 - Final Annexure of Operation and Maintenance Expense.xlsx](#)

### **23.2 EXHIBIT 2 ON THE HOTO CERTIFICATE WORKINGS FOR ACTUAL LET OUT RETAIL SPACE**

[Exhibit 2- HOTO Working.xlsx](#)

**Summary of the Operating and Maintenance Expense of DIAL**

Particulars	Reference to the Annexure	In ₹ (Refer Item A of Table 2 in our Report 02/2018-19)	Aeronautical Charges as per DIAL Study (Refer Item D of Table 2 in our Report 02/2018-19)	Aeronautical Charges as per Our Study (Refer Item H of Table 2 in our Report 02/2018- 19)	Proposed Increase/Decrease in Aeronautical Expenses (Refer Item G of Table 2 in our Report 02/2018-19)
Total Operating and Maintenance Expense Up to FY 18	Sheet 1. Total O&M Expense upto FY 18	36,565,143,706	31,435,556,723	30,946,977,710	488,579,014
Total Operating and Maintenance Expense FY 19	Sheet 2. Total O&M Expense for FY 19	10,439,645,765	8,908,200,679	8,759,997,460	148,203,220
Finance Charges (Bank Charges, Amortisation Fee and Refinancing Charges)	Refer Sheet 1A + Sheet2 - Finance Charges	2,635,100,000	2,349,115,670	2,343,415,670	5,700,000
Foreign Exchange Gain/Loss		6,464,300,000	5,763,000,000	5,763,000,000	-
Additional Property tax Paid on Demand	Refer Sheet1A - Additional Property Tax	389,500,000	348,700,000	343,300,000	5,400,000
<b>Total Expense Claimed</b>		<b>56,493,689,471</b>	<b>48,804,573,073</b>	<b>48,156,690,840</b>	<b>647,882,233</b>



Company Name	Country	Industry	Market Cap	Revenue	Profit	EPS	P/E Ratio	Dividend Yield	ROE	Debt to Equity	Current Ratio	Operating Margin	Net Margin	Asset Turnover	Equity Turnover	Capital Turnover	Return on Assets	Return on Equity	Return on Capital Employed	Return on Invested Capital
Alibaba Group	China	E-commerce	235.5	57,500	10,500	1.15	19.5	0.02	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Amazon.com	USA	E-commerce	178.5	46,200	9,800	1.25	14.3	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Apple Inc.	USA	Technology	165.0	229,000	65,000	4.15	11.8	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Microsoft	USA	Technology	155.0	168,000	48,000	3.15	14.3	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Facebook	USA	Technology	145.0	119,000	20,000	1.85	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Google	USA	Technology	135.0	252,000	68,000	3.15	11.8	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Twitter	USA	Technology	125.0	2,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
LinkedIn	USA	Technology	115.0	12,000	1,000	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Slack	USA	Technology	105.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Zoom	USA	Technology	95.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Dropbox	USA	Technology	85.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
GitHub	USA	Technology	75.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Atlassian	Australia	Technology	65.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Okta	USA	Technology	55.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Auth0	USA	Technology	45.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Twilio	USA	Technology	35.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
SendGrid	USA	Technology	25.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Mailchimp	USA	Technology	15.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Constant Contact	USA	Technology	10.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
HubSpot	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Marketo	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Pardot	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Braze	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Iterable	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Optimizely	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
VWO	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Unbounce	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Leadpages	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Instapage	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Sumo	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
OptinMonster	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
ThriveCart	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Kajabi	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
Thinkific	USA	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15	13.5	0.01	23.5	0.15	1.2	15.5	10.5	0.8	1.2	0.8	12.5	23.5	18.5	18.5
FutureLearn	UK	Technology	5.0	1,000	100	0.15														





Company Name	Country	Market	Revenue	Profit	Employees	Market Cap	Price	Volume	Dividend	P/E Ratio	Beta	52-Week High	52-Week Low	Analyst Rating
Alphabet Inc.	USA	Technology	145,256	30,430	74,531	2,800,000	2,800	1,200,000,000	0.00	22.5	1.05	2,800	2,800	Strong Buy
Microsoft Corporation	USA	Technology	118,211	24,290	67,821	2,400,000	2,400	1,000,000,000	0.00	28.0	0.90	2,400	2,400	Strong Buy
Amazon.com, Inc.	USA	Technology	106,971	14,530	754,000	1,800,000	1,800	1,500,000,000	0.00	35.0	1.20	1,800	1,800	Strong Buy
Apple Inc.	USA	Technology	98,996	22,950	497,000	1,600,000	1,600	1,200,000,000	0.00	28.0	1.00	1,600	1,600	Strong Buy
Meta Platforms, Inc.	USA	Technology	81,461	19,650	54,200	1,200,000	1,200	1,000,000,000	0.00	25.0	1.10	1,200	1,200	Strong Buy
Alphabet Inc.	USA	Technology	70,000	15,000	45,000	1,000,000	1,000	800,000,000	0.00	20.0	1.00	1,000	1,000	Strong Buy
Microsoft Corporation	USA	Technology	60,000	12,000	35,000	800,000	800	700,000,000	0.00	25.0	0.95	800	800	Strong Buy
Amazon.com, Inc.	USA	Technology	50,000	8,000	30,000	600,000	600	500,000,000	0.00	30.0	1.15	600	600	Strong Buy
Apple Inc.	USA	Technology	40,000	6,000	25,000	400,000	400	300,000,000	0.00	25.0	1.05	400	400	Strong Buy
Meta Platforms, Inc.	USA	Technology	30,000	4,000	20,000	300,000	300	200,000,000	0.00	20.0	1.10	300	300	Strong Buy
Alphabet Inc.	USA	Technology	20,000	3,000	15,000	200,000	200	150,000,000	0.00	15.0	1.00	200	200	Strong Buy
Microsoft Corporation	USA	Technology	15,000	2,000	10,000	150,000	150	100,000,000	0.00	20.0	0.95	150	150	Strong Buy
Amazon.com, Inc.	USA	Technology	10,000	1,500	7,000	100,000	100	80,000,000	0.00	25.0	1.15	100	100	Strong Buy
Apple Inc.	USA	Technology	8,000	1,200	5,000	80,000	80	60,000,000	0.00	20.0	1.05	80	80	Strong Buy
Meta Platforms, Inc.	USA	Technology	6,000	900	4,000	60,000	60	40,000,000	0.00	15.0	1.10	60	60	Strong Buy
Alphabet Inc.	USA	Technology	4,000	600	3,000	40,000	40	30,000,000	0.00	10.0	1.00	40	40	Strong Buy
Microsoft Corporation	USA	Technology	3,000	400	2,000	30,000	30	20,000,000	0.00	15.0	0.95	30	30	Strong Buy
Amazon.com, Inc.	USA	Technology	2,000	300	1,500	20,000	20	15,000,000	0.00	20.0	1.15	20	20	Strong Buy
Apple Inc.	USA	Technology	1,500	200	1,000	15,000	15	10,000,000	0.00	15.0	1.05	15	15	Strong Buy
Meta Platforms, Inc.	USA	Technology	1,000	150	700	10,000	10	7,000,000	0.00	10.0	1.10	10	10	Strong Buy
Alphabet Inc.	USA	Technology	800	100	600	8,000	8	6,000,000	0.00	8.0	1.00	8	8	Strong Buy
Microsoft Corporation	USA	Technology	600	80	400	6,000	6	4,000,000	0.00	10.0	0.95	6	6	Strong Buy
Amazon.com, Inc.	USA	Technology	400	50	300	4,000	4	3,000,000	0.00	15.0	1.15	4	4	Strong Buy
Apple Inc.	USA	Technology	300	40	200	3,000	3	2,000,000	0.00	10.0	1.05	3	3	Strong Buy
Meta Platforms, Inc.	USA	Technology	200	30	150	2,000	2	1,500,000	0.00	8.0	1.10	2	2	Strong Buy
Alphabet Inc.	USA	Technology	150	20	100	1,500	1.5	1,000,000	0.00	6.0	1.00	1.5	1.5	Strong Buy
Microsoft Corporation	USA	Technology	100	15	70	1,000	1	700,000	0.00	8.0	0.95	1	1	Strong Buy
Amazon.com, Inc.	USA	Technology	80	10	60	800	0.8	600,000	0.00	10.0	1.15	0.8	0.8	Strong Buy
Apple Inc.	USA	Technology	60	8	40	600	0.6	400,000	0.00	6.0	1.05	0.6	0.6	Strong Buy
Meta Platforms, Inc.	USA	Technology	40	5	30	400	0.4	300,000	0.00	4.0	1.10	0.4	0.4	Strong Buy
Alphabet Inc.	USA	Technology	30	4	20	300	0.3	200,000	0.00	3.0	1.00	0.3	0.3	Strong Buy
Microsoft Corporation	USA	Technology	20	3	15	200	0.2	150,000	0.00	4.0	0.95	0.2	0.2	Strong Buy
Amazon.com, Inc.	USA	Technology	15	2	10	150	0.15	100,000	0.00	6.0	1.15	0.15	0.15	Strong Buy
Apple Inc.	USA	Technology	10	1.5	7	100	0.1	70,000	0.00	4.0	1.05	0.1	0.1	Strong Buy
Meta Platforms, Inc.	USA	Technology	8	1	6	80	0.08	60,000	0.00	3.0	1.10	0.08	0.08	Strong Buy
Alphabet Inc.	USA	Technology	6	0.8	4	60	0.06	40,000	0.00	2.0	1.00	0.06	0.06	Strong Buy
Microsoft Corporation	USA	Technology	4	0.5	3	40	0.04	30,000	0.00	3.0	0.95	0.04	0.04	Strong Buy
Amazon.com, Inc.	USA	Technology	3	0.4	2	30	0.03	20,000	0.00	4.0	1.15	0.03	0.03	Strong Buy
Apple Inc.	USA	Technology	2	0.3	1.5	20	0.02	15,000	0.00	3.0	1.05	0.02	0.02	Strong Buy
Meta Platforms, Inc.	USA	Technology	1.5	0.2	1	15	0.015	10,000	0.00	2.0	1.10	0.015	0.015	Strong Buy
Alphabet Inc.	USA	Technology	1	0.15	0.7	10	0.01	7,000	0.00	1.5	1.00	0.01	0.01	Strong Buy
Microsoft Corporation	USA	Technology	0.8	0.1	0.5	8	0.008	5,000	0.00	2.0	0.95	0.008	0.008	Strong Buy
Amazon.com, Inc.	USA	Technology	0.6	0.08	0.4	6	0.006	4,000	0.00	3.0	1.15	0.006	0.006	Strong Buy
Apple Inc.	USA	Technology	0.4	0.05	0.3	4	0.004	3,000	0.00	2.0	1.05	0.004	0.004	Strong Buy
Meta Platforms, Inc.	USA	Technology	0.3	0.04	0.2	3	0.003	2,000	0.00	1.5	1.10	0.003	0.003	Strong Buy
Alphabet Inc.	USA	Technology	0.2	0.03	0.15	2	0.002	1,500	0.00	1.0	1.00	0.002	0.002	Strong Buy
Microsoft Corporation	USA	Technology	0.15	0.02	0.1	1.5	0.0015	1,000	0.00	1.5	0.95	0.0015	0.0015	Strong Buy
Amazon.com, Inc.	USA	Technology	0.1	0.015	0.07	1	0.001	700	0.00	2.0	1.15	0.001	0.001	Strong Buy
Apple Inc.	USA	Technology	0.08	0.01	0.05	0.8	0.0008	500	0.00	1.5	1.05	0.0008	0.0008	Strong Buy
Meta Platforms, Inc.	USA	Technology	0.06	0.008	0.04	0.6	0.0006	400	0.00	1.0	1.10	0.0006	0.0006	Strong Buy
Alphabet Inc.	USA	Technology	0.04	0.005	0.03	0.4	0.0004	300	0.00	0.8	1.00	0.0004	0.0004	Strong Buy
Microsoft Corporation	USA	Technology	0.03	0.004	0.02	0.3	0.0003	200	0.00	1.0	0.95	0.0003	0.0003	Strong Buy
Amazon.com, Inc.	USA	Technology	0.02	0.003	0.015	0.2	0.0002	150	0.00	1.5	1.15	0.0002	0.0002	Strong Buy
Apple Inc.	USA	Technology	0.015	0.002	0.01	0.15	0.00015	10,000	0.00	1.0	1.05	0.00015	0.00015	Strong Buy
Meta Platforms, Inc.	USA	Technology	0.01	0.0015	0.007	0.1	0.0001	7,000	0.00	0.8	1.10	0.0001	0.0001	Strong Buy
Alphabet Inc.	USA	Technology	0.008	0.001	0.004	0.08	0.00008	500,000	0.00	0.6	1.00	0.00008	0.00008	Strong Buy
Microsoft Corporation	USA	Technology	0.006	0.0008	0.003	0.06	0.00006	300,000	0.00	0.8	0.95	0.00006	0.00006	Strong Buy
Amazon.com, Inc.	USA	Technology	0.004	0.0005	0.002	0.04	0.00004	200,000	0.00	1.0	1.15	0.00004	0.00004	Strong Buy
Apple Inc.	USA	Technology	0.003	0.0004	0.0015	0.03	0.00003	150,000	0.00	0.8	1.05	0.00003	0.00003	Strong Buy
Meta Platforms, Inc.	USA	Technology	0.002	0.0003	0.001	0.02	0.00002	100,000	0.00	0.6	1.10	0.00002	0.00002	Strong Buy
Alphabet Inc.	USA	Technology	0.0015	0.0002	0.0007	0.015	0.000015	70,000	0.00	0.5	1.00	0.000015	0.000015	Strong Buy
Microsoft Corporation	USA	Technology	0.001	0.00015	0.0005	0.01	0.00001	50,000	0.00	0.6	0.95	0.00001	0.00001	Strong Buy
Amazon.com, Inc.	USA	Technology	0.0008	0.0001	0.0004	0.008	0.000008	40,000	0.00	0.8	1.15	0.000008	0.000008	Strong Buy
Apple Inc.	USA	Technology	0.0006	0.00008	0.0003	0.006	0.000006	30,000	0.00	0.6	1.05	0.000006	0.000006	Strong Buy
Meta Platforms, Inc.	USA	Technology	0.0004	0.00006	0.0002	0.004	0.000004	20,000	0.00	0.4	1.10	0.000004	0.000004	Strong Buy
Alphabet Inc.	USA	Technology	0.0003	0.00004	0.00015	0.003	0.000003	15,000	0.00	0.3	1.00	0.000003	0.000003	Strong Buy
Microsoft Corporation	USA	Technology	0.0002	0.00003	0.0001	0.002	0.000002	10,000	0.00	0.4	0.95	0.000002	0.000002	Strong Buy
Amazon.com, Inc.	USA	Technology	0.00015	0.00002	0.00007	0.0015	0.0000015	7,000	0.00	0.6	1.15	0.0000015	0.0000015	Strong Buy
Apple Inc.	USA	Technology	0.0001	0.000015	0.00005	0.001	0.000001	5,000	0.00	0.5	1.05	0.000001	0.000001	Strong Buy
Meta Platforms, Inc.	USA	Technology	0.00008	0.00001	0.00004	0.0008	0.0000008	400,000	0.00	0.4	1.10	0.0000008	0.0000008	Strong Buy
Alphabet Inc.	USA	Technology	0.00006	0.000008	0.00003	0.0006	0.0000006	300,000	0.00	0.3	1.00	0.0000006	0.0000006	Strong Buy
Microsoft Corporation	USA	Technology	0.00004	0.000006	0.00002	0.0004	0.0000004	200,000	0.00	0.4	0.95	0.0000004	0.0000004	Strong Buy
Amazon.com, Inc.	USA	Technology	0.00003	0.000004	0.000015	0.0003	0.0000003	150,000	0.00	0.6	1.15	0.0000003	0.0000003	Strong Buy
Apple Inc.	USA	Technology	0.00002	0.000003	0.00001	0.0002	0.0000002	100,000	0.00	0.5	1.05	0.0000002	0.0000002	Strong Buy
Meta Platforms, Inc.	USA	Technology	0.000015	0.000002	0.000007	0.00015	0.00000015	70,000	0.00	0.4	1.10	0.00000015	0.00000015	Strong Buy
Alphabet Inc.	USA	Technology	0.00001	0.0000015	0.000005	0.0001	0.0000001	50,000	0.00	0.3	1.00	0.0000001	0.0000001	Strong Buy
Microsoft Corporation	USA	Technology	0.000008	0.000001	0.000004	0.00008	0.00000008	400,000	0.00	0.4	0.95	0.00000008	0.00000008	Strong Buy
Amazon.com, Inc.	USA	Technology	0.000006	0.0000008	0.000003	0.00006	0.00000006	300,000	0.00	0.6	1.15	0.00000006	0.00000006	Strong Buy

































Company Name	Country	Industry	Market Cap	Revenue	Profit	EPS	P/E Ratio	Dividend Yield	ROE	Debt to Equity	Current Ratio	Operating Margin	Net Margin	Asset Turnover	Equity Turnover	Capital Expenditure	Free Cash Flow	Operating Cash Flow	Change in Cash	Change in Debt	Change in Equity
Alibaba Group Holding Ltd	China	Internet	200,000,000,000	57,500,000,000	10,000,000,000	1.00	199.00	0.00	10.00	0.00	0.00	15.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Amazon.com Inc	USA	Internet	1,000,000,000,000	376,000,000,000	30,000,000,000	3.00	333.33	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Apple Inc	USA	Consumer Electronics	1,000,000,000,000	260,000,000,000	60,000,000,000	6.00	166.67	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Microsoft Corp	USA	Software	700,000,000,000	168,000,000,000	45,000,000,000	4.50	155.56	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Facebook Inc	USA	Internet	500,000,000,000	119,000,000,000	18,000,000,000	1.80	277.78	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Google Inc	USA	Internet	800,000,000,000	251,000,000,000	50,000,000,000	5.00	160.00	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Netflix Inc	USA	Entertainment	100,000,000,000	22,000,000,000	3,000,000,000	3.00	66.67	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Twitter Inc	USA	Internet	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
LinkedIn Corp	USA	Internet	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Slack Technologies Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Zoom Video Communications Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Dropbox Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Okta Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Twilio Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
SendGrid Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
MailChimp Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
HubSpot Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Marketo Engage Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Oracle Corp	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
SAP SE	Germany	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Microsoft Dynamics 365	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Salesforce Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Workday Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
NetScout Systems Inc	USA	Software	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Bluebird bio Inc	USA	Biotechnology	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Moderna Inc	USA	Biotechnology	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Vertex Pharmaceuticals Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Amgen Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novartis AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Roche Holding AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novo Nordisk A/S	Denmark	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
AbbVie Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Amgen Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novartis AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Roche Holding AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novo Nordisk A/S	Denmark	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
AbbVie Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Amgen Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novartis AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Roche Holding AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novo Nordisk A/S	Denmark	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
AbbVie Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Amgen Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novartis AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Roche Holding AG	Switzerland	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
Novo Nordisk A/S	Denmark	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00	0.00	10.00	10.00	0.50	0.50	10,000,000,000	10,000,000,000	10,000,000,000	0	0	0
AbbVie Inc	USA	Pharmaceuticals	50,000,000,000	5,000,000,000	0	0.00	-	0.00	15.00	0.00											



Terminal	Financial Year	Total Space	Space Allocated to Aero	Directly Allocated to Non AERO as per HOTO (Relatable to Rental Income)	Directly Allocated to Non AERO as per HOTO (Incl 8652)	Common Area allocated to Non-Retail	Area Excluded by AERA	Total Non area	AERO %	NON-AERO %	Weighted Average Floor Space (AERO)	Weighted Average Floor Space (NON AERO)
Terminal 1	FY12	64146	58857	5020	0	269	0	5289	91.75%	8.25%		
	FY13	64146	58428	5449	0	269	0	5718	91.09%	8.91%		
	FY14	64146	56655	7222	0	269	0	7491	88.32%	11.68%		
	FY15	64146	56713	7164	0	269	0	7433	88.41%	11.59%		
	FY16	64146	55833	8044	0	269	0	8313	87.04%	12.96%		
	FY17	64146	56817	7060	0	269	0	7329	88.57%	11.43%		
FY18	64146	56591	7286	0	269	0	7555	88.22%	11.78%	88.11%	11.89%	
Terminal 2	FY15	<b>Non-Operational</b>										
	FY16											
	FY17											
	FY18	54729	51848	2404		477	0	2881	94.74%	5.26%	94.74%	5.26%
Terminal 3	FY12	541541	478596	38541	47193	24404	8652	71597	88.38%	11.62%		
	FY13	541541	476725	40412	49064	24404	8652	73468	88.03%	11.97%		
	FY14	541541	474398	42739	51391	24404	8652	75795	87.60%	12.40%		
	FY15	541541	475596	41541	50193	24404	8652	74597	87.82%	12.18%		
	FY16	541541	477863	39274	47926	24404	8652	72330	88.24%	11.76%		
	FY17	541541	476999	40138	48790	24404	8652	73194	88.08%	11.92%		
FY18	541541	470825	46312	54964	24404	8652	79368	86.94%	13.06%	87.63%	12.37%	
<b>Average Terminal Space</b>											<b>90.16%</b>	<b>9.84%</b>

<b>Terminal</b>	<b>Financial Year</b>	<b>Total Space</b>	<b>Space Allocated to Aero</b>	<b>Directly Allocated to Non AERO (Relatable to Rental Income)</b>	<b>Common Area allocated to Non-Retail</b>	<b>Total Non area</b>	<b>AERO %</b>	<b>NON-AERO %</b>
Terminal 1 Demarcated Area	2011	64146	53820	10057	269	10326	83.90%	16.10%
Terminal 2 Demarcated Area	2011	54729	46080	8163	477	8640	84.20%	15.80%
Terminal 3 Demarcated Area	2011	541541	455255	61882	24404	86286	84.07%	15.93%
						Weighted average	84.06%	15.94%