

Consultation Paper No. 08/2021-22



Date of Issue: 15th June, 2021

**AERA Building
Administrative Complex
Safdarjung Airport
New Delhi – 110003**

Stakeholder Comments

The Authority is aware of the fact that since the early months of 2020 the Aviation Sector has been faced with severe disruptions and uncertainty on account of the COVID-19 global pandemic. The Authority is also cognizant of the recent trends on account of the second wave of infections and their impact on the industry as a result of the prevailing restrictions in air travel, both domestic and international, across the world. The Authority is inclined to avoid any delay in approval and implementation of tariffs for the Third Control Period and therefore has released this Consultation Paper currently in which the proposals have been put forward based on Authority's analysis and observations on the Multi Year Tariff Proposal (MYTP) submitted by the Airport Operator. The Authority, in the context of the COVID-19 pandemic, after considering all information currently available, the views of the Airport Operators, Industry bodies like FICCI, Aviation expert agencies such as IATA, ACI and CAPA etc., on this matter, and analysing various scenarios, has reviewed the necessary adjustments in traffic and other regulatory building blocks on account of the expected changes and uncertainties in the prevailing business scenario. However, these adjustments would be finalised only after consideration of valuable comments from the stakeholders.

For this Consultation Paper, the Authority has considered the actual audited financial results for the first four years of the Second Control Period (FY 2017-2020) and projections for FY 2021. Since AERA is doing this tariff determination exercise in real time, the figures for FY 2021 are not available at this stage. The Authority will factor in the actual financial results for FY 2021 on receipt of the audited financial statements from the Airport Operator and appropriately make necessary adjustments on account of the same in the Tariff Order.

The Authority shall consider written evidence-based feedback, comments and suggestions from all the Stakeholders on the proposals made in the Consultation Paper and pass a suitable Order determining the Tariff for airport services.

Thus, in accordance with the provisions of Section 13(4) of the AERA Act, the written comments on Consultation Paper No. 08/2021-22 dated 15th June 2021 are invited from the Stakeholders, preferably in electronic form, at the following address:

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Stakeholder Consultation Meeting	:	30th June 2021
Last Date for submission of Stakeholder comments	:	14th July 2021
Last Date for submission of counter comments	:	26th July 2021

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

For any clarification/information, Director (P&S, Tariff) may be contacted at Telephone Number: +91-11-24695048

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Glossary

Abbreviation	Full Form
AAI	Airports Authority of India
ACFT	Air Crash Fire Tender
ACI	Airports Council International
AERA	Airports Economic Regulatory Authority
AERAAT	Airports Economic Regulatory Authority Appellate Tribunal
AHU	Air Handling Unit
AKISL	Air Kerala International Services Limited
APU	Auxiliary Power Unit
ARR	Aggregate Revenue Requirement
ASQ	Airport Service Quality
ATM	Air Traffic Movement
AUCC	Airport User Consultative Committee
AVDGS	Advanced Visual Docking Guidance Systems
BCAS	Bureau of Civil Aviation Security
BIAL	Bangalore International Airport Limited
BPCL	Bharat Petroleum Corporation Limited
BRS	Baggage Reconciliation System
BWFS	Bird Worldwide Flight Services
CA	Chartered Accountant
CAGR	Compounded Annual Growth Rate
CAPM	Capital Asset Pricing Model
CAR	Civil Aviation Requirements
CBR	California Bearing Ratio
CCTV	Closed Circuit Television
CDRSL	CIAL Duty Free and Retail Services Limited
CIAL	Cochin International Airport Limited
CIASL	Cochin International Aviation Services Limited
CIL	CIAL Infrastructures Limited
CISF	Central Industrial Security Force
CoE	Cost of Equity
CP	Consultation Paper
CSR	Corporate Social Responsibility
CUPPS	Common User Passenger Processing System
CUSS	Common User Self Service Kiosks
CUTE	Common User Terminal Equipment
DER	Debt Equity Ratio
DFMD	Door Frame Metal Detector
DG	Diesel Generators
DGCA	Directorate General of Civil Aviation

Abbreviation	Full Form
DIAL	Delhi International Airport Limited
DPR	Detailed Project Report
DVOR	Doppler Very high frequency Omni directional Range
EASA	European Union Aviation Safety Agency
ERP	Equity Risk Premium
ETD	Explosive Trace Detectors
F&B	Food and Beverages
FA	Financing Allowance
FAR	Fixed Asset Register
FOREX	Foreign Exchange
FRoR	Fair Rate of Return
FTC	Fuel Throughput Charges
FY	Financial Year
GH	Ground Handling
GHIAL	GMR Hyderabad International Airport Limited
GoK	Government of Kerala
Gol	Government of India
GPU	Ground Power Unit
GSR	General Statutory Rules
HHMD	Handheld Metal Detector
HRA	House Rent Allowance
HUDCO	Housing and Urban Development Corporation Limited
INR	Indian Rupee
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IDC	Interest During Construction
ILS	Instrument Landing System
IOCL	Indian Oil Corporation Limited
IT	Information Technology
KIAS	Kochi International Airport Society
KITCO	Kerala Industrial and Technical Consultancy Organisation
KSEB	Kerala State Electricity Board
KWIL	Kerala Waterways and Infrastructures Limited
LAN	Local Area Network
MAHB	Malaysia Airport Holdings Berhad
MD	Managing Director
MIAL	Mumbai International Airport Limited
MMG	Minimum Monthly Guarantee
MoCA	Ministry of Civil Aviation
MPPA	Million Passengers Per Annum
MRO	Maintenance, Repair, Overhaul

Abbreviation	Full Form
MT	Metric Tonnage
MTPA	Metric Tonnes Per Annum
MWp	Megawatt peak
MYTP	Multi Year Tariff Proposal
NAR	Non-Aeronautical Revenue
NRI	Non-Resident Indian
NRK	Non-Resident Keralite
O&M	Operations & Maintenance
OPEX	Operational Expenses
PAX	Passengers
PBT	Profit Before Tax
PCA	Pre-Conditioned Air Unit
PCN	Pavement Classification Number
PHP	Peak Hour Passengers
PIDS	Perimeter Intrusion Detection System
PIF	Project Investment File
PPP	Public Private Partnership
PSF-SC	Passenger Service Fee – Security Component
PV	Present Value
R&M	Repairs and Maintenance
RAB	Regulatory Asset Base
RBI	Reserve Bank of India
RSD	Refundable Security Deposit
TDSAT	Telecom Disputes Settlement & Appellate Tribunal
SBI	State Bank of India
SD	Security Deposit
SITA	Société Internationale de Télécommunications Aéronautiques
UDF	User Development Fee
ULD	Unit Load Devices
UV-C	Ultraviolet C
WIP	Work in Progress
WPI	Wholesale Price Index

1. BRIEF ON COCHIN INTERNATIONAL AIRPORT LIMITED (CIAL)

1.1. Background

- 1.1.1. CIAL was the first airport in India to be built under Public Private Partnership (PPP), with equity participation from the Government of Kerala, financial institutions, and more than 16,000 individual investors who are mostly non-resident Keralites (NRKs). CIAL as it exists today, was an alternative to the then civil enclave in the Naval Airport at Cochin.
- 1.1.2. CIAL was incorporated on 30th March 1994 as a public limited company, with an authorised share capital of INR 90 crores. The construction work commenced in August 1994. The airport was inaugurated by the President of India on 25th May 1999. CIAL's operation started from June 1999 with Air India operating the first flight to the gulf.
- 1.1.3. A significant part of air traffic is driven by strong state-domiciled Non-Resident Indian (NRI) community residing in the Middle East and attractiveness of the state as an international and domestic tourist destination.

1.2. Cochin International Airport Limited

- 1.2.1. The total project cost for the initial phase of the airport was around Rs. 315 Crores financed through a paid-up equity capital of Rs. 85 Crores and a term loan of Rs. 218 Crores. The balance was tied up through interest free security deposits from various airport service providers.
- 1.2.2. There are two terminals at present,
- Domestic Terminal: The old international terminal at Cochin International Airport was converted to Domestic post commissioning of the new International terminal in March 2017 resulting in a five-fold increase in area for domestic operation. The terminal area for the Domestic Terminal is 74123 sq.m.
 - New International Terminal: In order to cater to its growing international passenger traffic, CIAL had envisioned the construction of a new International terminal. CIAL had started the construction of the new International terminal on 1st February 2014 after conducting consultations with the Airport Users Consultative Committee as per AERA guidelines. The new terminal with an area of 1,46,528 sq.m and with a capacity to handle 4000 pax during peak hours was commissioned in March 2017.
- 1.2.3. CIAL, through its subsidiary company CIAL Infrastructures Limited (CIL) has commissioned Solar Power Plants of 40 MWp capacity in the premises of Cochin International Airport and the Airport is currently fully powered by Solar Energy. The eco-friendly initiative of CIAL has won it International accolades including "The Champions of the Earth Award-2018" from United Nations.
- 1.2.4. Technical Highlights¹:
- The airport has a Code E Runway, with Boeing 747-400 as critical aircraft, that is 3400m long and 45m wide
 - The apron has 34 parking stands (Including 2 Multiple Apron Ramp Systems) and 17 Aerobridge Bays
 - Full length parallel Taxi Track, Rapid Exit Taxiway and 3 normal Taxi Links and CAT III Runway lighting
 - Full-fledged aircraft refuelling facilities operated by Bharat Petroleum Corporation Ltd.
 - Fully equipped CAT-9 Firefighting & Rescue services. MRO facility with 2 conventional Hangars

¹Source: <https://cial.aero/>

1.3. Ownership Structure

1.3.1. Cochin International Airport is owned and managed by Cochin International Airport Limited (CIAL) which has an ownership structure involving equity contributions from Government of Kerala, financial institutions, and more than 16,000 individual investors who are mostly Non-Resident Keralites (NRKs).

1.3.2. The shareholding pattern of equity investors (as on 31st March 2020) is as shown in the table below.

Table 1: Equity Shareholding pattern of CIAL

Equity Partner	% share
Government of Kerala	32.42%
Directors and Key Managerial Personnel	18.98%
Synthite Industries Private Limited	6.53%
BPCL	3.43%
HUDCO	3.28%
Air India Limited	3.27%
State Bank of India	3.27%
Federal Bank Limited	1.96%
Others	26.86%
Total	100.0%

Source: CIAL Annual Report FY 2020

1.3.3. In June 2015, CIAL raised Rs. 382.60 Crores through a rights issue to existing equity shareholders. The object of this issue was to part finance the construction cost of the new International Terminal Building, other ongoing projects and for the future expansion and diversification projects of CIAL.

1.3.4. CIAL had for the first time declared dividend to its shareholders in the fifth year of its operation (i.e. 2003-04). It has been regularly declaring dividend to its shareholders ever since.

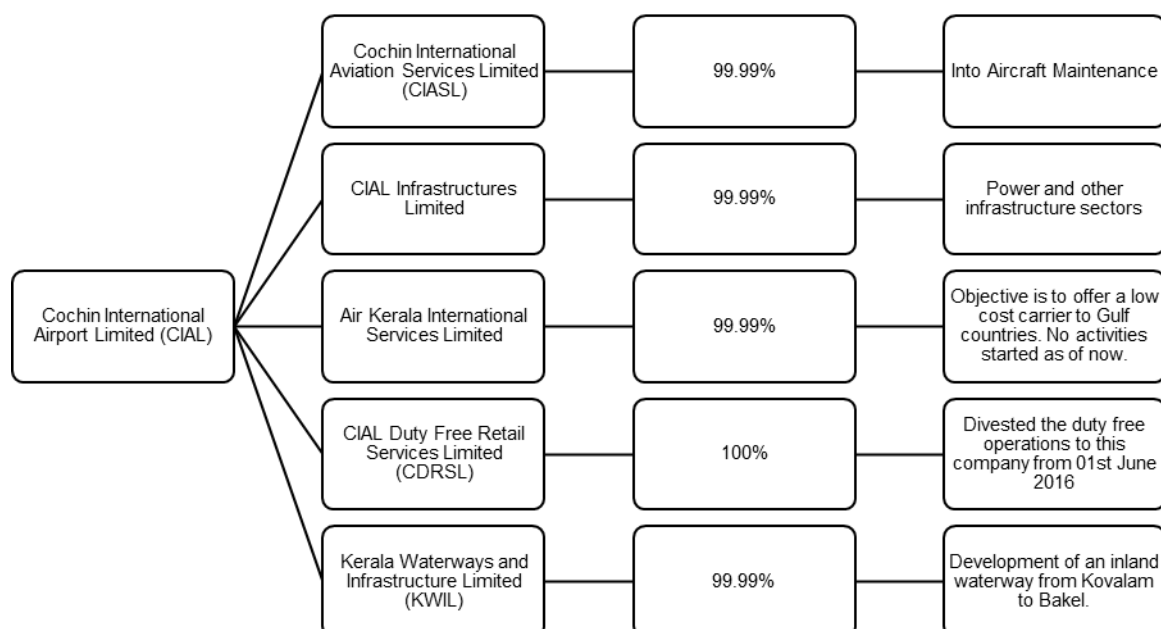
1.4. Management Structure

1.4.1. The Government of Kerala holds significant equity in CIAL (32.4%). The chairman of the board of directors is the Chief Minister of Kerala. As per Clause 125(1) of the Memorandum and Articles of Association of the company, so long as the GoK and/or its Public Sector Undertakings jointly or severally hold not less than 26% of the paid up equity capital of the company, the GoK shall have the right to appoint one among the directors as Managing Director of the company for such term, not exceeding five years at a time, and will also have the right to withdraw/cancel appointments so made at their discretion. On account of the government's active involvement in the airport development and operations, safeguarding public interest continues to remain a key priority for CIAL.

1.5. Subsidiaries

1.5.1. CIAL has five subsidiary companies namely Cochin International Aviation Services Limited (CIASL), Air Kerala International Services Limited (AKISL), CIAL Infrastructures Limited (CIL), CIAL Duty-Free and Retail Services Limited (CDRSL) and Kerala Waterways and Infrastructures Limited (KWIL).

Figure 1: Subsidiaries of CIAL



1.5.2. The details² regarding the subsidiaries are given below;

- Cochin International Aviation Services Limited:** Cochin International Aviation Services Limited (CIASL) is a subsidiary of CIAL, which was incorporated for Aircraft Maintenance, Repair and Overhaul (MRO) services and for Aviation Training. CIASL is currently undertaking Line Maintenance Services for several international carriers operating at Cochin International Airport. The organisation has secured approvals from regulators like Director General of Civil Aviation (DGCA), European Aviation Safety Agency (EASA), General Civil Aviation Authority (GCAA-UAE) etc. for line maintenance services. The Company has also entered into an agreement with a leading MRO service provider for operationalising the MRO facility at Cochin Airport. The company has also established two Narrow Body Hangars, with easy and direct access to the Airport.
- Air Kerala International Services Limited:** Air Kerala International Services Limited (AKISL) is a subsidiary of CIAL and the primary objective of the Company is to establish a low-cost airline based at Cochin International Airport, to benefit the huge population of non-resident Keralites in the Middle East. The National Civil Aviation Policy 2016 had decided to scrap the requirement that mandated Airlines to have 5 years of Domestic Operations to be eligible to fly Overseas. However, the rule also mandated that the Airlines must allocate 20 Aircrafts or 20% of their total fleet of Aircraft, whichever is higher, to Domestic Operations. CIAL finds this condition unconducive for the successful operation of the Airline.
- CIAL Infrastructures Limited:** CIAL Infrastructures Limited (CIL) was incorporated in the year 2012 to exploit the opportunities in the power and other infrastructure sectors. CIL has already commissioned 40 MWp solar power plant at the Cochin Airport premises, which enabled the Company to continue the status of World's first fully solar powered Airport. The plant now generates adequate power to meet the energy requirements of the Airport. In addition to Cochin Airport, CIL has undertaken a 12 MWp solar power plant at Payyannur and 4.5 MWp capacity plant at Arippara.
- CIAL Duty free and Retail Services Limited:** CIAL Duty free and Retail Services Limited (CDRSL) is a wholly owned public limited company of CIAL. The Company was incorporated on the 01st of March 2016, in order to clasp the maximum benefits deriving out of the duty free and travel retail

² Source: CIAL Annual Report FY 2020

business. CDRSL currently carries out the Duty-Free Business at Cochin International Airport and has two shops at the Airport; one at the arrival area and the other at the Departure Security Hold Area. CDRSL was established with the major objective to expand the duty-free operations beyond Cochin Airport to the several travel destinations spread across the world.

- **Kerala Waterways and Infrastructure Limited:** Kerala Waterways and Infrastructures Limited (KWIL) was incorporated on 03rd October 2017 jointly by the GoK and Cochin International Airport Limited. The company was established with the major objective to facilitate the development of a 610 KM long Inland Waterway from Kovalam to Bakel, along the West coast, which is proposed to be developed in three phases. The project would be a major step taken towards the integration of Water, Road and Rail Transport networks across the state.

1.6. Cargo Operations

1.6.1. CIAL, while being the Airport Operator at Cochin International Airport, also manages and operates the Cargo facility at Cochin Airport.

1.6.2. The new Air Cargo centre at Cochin International Airport has more than 1,00,000 sq. ft. of office and Warehouse space dedicated for the Cargo Operations. The Airport has a close proximity to the major Industrial and Infrastructure facilities of the State of Kerala. It is about 30 Kms from the Cochin Sea Port and 25 Kms from Cochin Economic Zone.

1.6.3. Key Facts regarding the Air Cargo Facilities at Cochin International Airport are³:

- Total Area earmarked for the facility is 50 acres. The facility has more than 1,00,000 sq. Ft of Warehouse and Handling facilities
- Separate areas dedicated for the storage and handling of Domestic and International Cargo, including the Transshipment Cargo.
- The entire International Air Cargo Centre is designated as Custom Bonded Area.
- The Cargo centre accommodates all Aircraft Loading: both narrow and wide body upper deck and narrow-body belly.
- CIAL has planned to undertake the construction of new integrated Import Buildings and the conversion of the present building to an Automated Export Warehouse in the 3rd Control Period. The handling capacity of the Export Warehouse is estimated to reach 1,50,000 MTPA from the current capacity of 50,000 MTPA.

³ Source: CIAL Website and MYTP submitted by CIAL for 3rd Control Period

2. MULTI YEAR TARIFF PROPOSAL SUBMISSION BY CIAL

2.1. Introduction

2.1.1. AERA, was established by the Government of India vide notification No. GSR 317(E) dated 12th May 2009. The functions of AERA, in respect of major airports, are specified in section 13 of the Act, which are as below:

- a) To determine the tariff for aeronautical services taking into consideration –
 - i. the capital expenditure incurred and timely investment in the improvement of airport facilities;
 - ii. the service provided, its quality and other relevant factors;
 - iii. the cost for improving efficiency;
 - iv. economic and viable operation of major airports;
 - v. revenue received from services other than the aeronautical services;
 - vi. the concession offered by the Central Government in any agreement or memorandum of understanding or otherwise; and
 - vii. any other factor which may be relevant for the purpose of the Act.
- b) To determine the amount of the development fees in respect of Major Airports;
- c) To determine the amount of the passengers' service fee levied under Rule 88 of the Aircraft Rules, 1937 made under the Aircraft Act, 1934;
- d) To monitor the set performance standards relating to quality, continuity and reliability of service as may be specified by the Central Government or any authority authorised by it in this behalf;
- e) To call for any such information as may be necessary to determine the tariff for aeronautical services; and
- f) To perform such other functions relating to tariff, as may be entrusted to it by the Central Government or as may be necessary to carry out the provisions of the Act.

2.1.2. The terms "aeronautical services" and "major airports" are defined in Sections 2(a) and 2(i) of the Act, respectively.

2.1.3. After its establishment, AERA has categorised the aeronautical services, in respect of which it is required to determine Tariff, as under:

- i. Aeronautical services provided by the airport operators;
- ii. Cargo, Ground Handling and Fuel Supply Services; and
- iii. Air Navigation Services.

2.1.4. AERA has, after extensive stakeholder consultation, finalised its approach to the economic regulation of services categorised in para 2.1.3 above. Detailed Guidelines laying down information requirements, periodicity and procedure for Tariff determination have also been issued. The details of Orders and Guidelines issued in this behalf are as under:

- i. Order No. 13 dated 12.01.2011 and Direction No. 5 dated 28.02.2011; and
- ii. Order No. 05 dated 02.08.2010; Order No. 12 dated 10.01.2011 and Direction No. 4 dated 10.01.2011

- iii. Order No. 07/2016-17 dated 13.06.2016
- iv. Order No. 14/2016-17 dated 23.01.2017
- v. Order No. 20/2016-17 dated 31.03.2017
- vi. Order No. 35/2017-18 dated 12.01.2018 and Amendment No. 01 to Order No. 35/2017-18 dated 09.04.2018
- vii. Order No. 42/2018-19 dated 05.03.2019

- 2.1.5. Cochin International Airport Limited is a major airport under the provisions of the AERA Act 2008 and the subsequent AERA (Amendment) Act 2019 that revised the annual passenger handling threshold definition of major airports from 1.5 million to 3.5 million. Pursuant to AERA Act 2008, AERA issued guidelines for the purpose of determination of aeronautical tariffs for major airports. CIAL had submitted Multi Year Tariff Proposal (MYTP) for the Second Control Period from FY 2017 to FY 2021. AERA issued the order for Second Control Period on 13th July 2017.
- 2.1.6. As per proviso to clause 3.1 of the Airport Guidelines, the Airport Operator(s) are required to submit to the Authority for its consideration, a Multi-Year Tariff Proposal (MYTP) for the respective Control Periods within the due date as specified by the Authority. CIAL has submitted the MYTP for the Third Control Period from FY 2022 to FY 2026, the document is available on the AERA website along with the Consultation Paper.
- 2.1.7. Further to the review of submissions made by CIAL, details and clarifications were sought for by AERA which have been submitted by CIAL on various dates over the period of November 2020 to May 2021.
- 2.1.8. The Authority had also commissioned three independent studies with respect to CIAL viz., "Study on Allocation of Assets between Aeronautical and Non-Aeronautical Assets", "Study on Efficient Operations and Maintenance Expenses" and "Study on Determinants of Cost of Capital of CIAL", for the purpose of tariff determination. The recommendations of these studies have been used in this Consultation Paper.

3. FRAMEWORK FOR DETERMINATION OF TARIFF FOR CIAL

3.1. Till to be adopted

3.1.1. The methodology adopted by the Authority to determine Aggregate Revenue Requirement (ARR) is based on AERA Act, 2008 and the Airport Guidelines issued by AERA.

3.1.2. As per the guidelines, for the Second Control Period, the Authority had adopted the Hybrid-Till mechanism for tariff determination, wherein, only 30% of the Non-Aeronautical revenue is to be used for cross-subsidising the aeronautical charges. The Authority has considered the same methodology in the true up of the Second Control Period and for tariff determination in the Third Control Period.

3.1.3. The ARR under hybrid till for the Control Period (ARR) shall be expressed as under:

$$ARR = \sum_{t=1}^5 ARR_t$$

$$ARR_t = (FRoR * RAB_t) + D_t + O_t + T_t - \alpha * NAR_t$$

- Where t is the Tariff Year in the Control Period
- Where ARR_t is the Aggregate Revenue Requirement for year t
- Where FRoR is the Fair Rate of Return for the Control Period
- Where RAB_t is the Regulatory Asset Base pertaining to Aero activities for the year t
- Where D_t is the Depreciation corresponding to the RAB for the year t
- Where O_t is the Operation and Maintenance Expenditure for the year t, which include all expenditures incurred by the Airport Operator(s) pertaining to Aero activities
- Where T_t is the Taxation cost for the year t, relating to Aero activities
- α is the cross-subsidy factor for revenue from services other than aeronautical services. Under the hybrid till methodology followed by the Authority, $\alpha = 30\%$.
- Where NAR_t is the revenue from Non-Aeronautical Services.

3.1.4. Based on ARR, yield per passenger (Y) is calculated as per the formula given below

$$Yield\ per\ passenger(Y) = \sum_{t=1}^5 PV(ARR_t) \div \sum_{t=1}^5 VEt$$

- Where $PV(ARR_t)$ is the present value of ARR for all the tariff years. All cash flows are assumed to occur at the end of the year. Further, the date considered by the Authority for discounting of cash flows is one year from the start of the Control Period.
- Where, VE_t is the passenger traffic in year t

3.2. Control Period

3.2.1. In terms of Direction No. 5 issued on 28 February 2011, Control Period means a period of five Tariff Years during which the Multi Year Tariff Order and Tariff(s) as determined by the Authority pursuant to such order shall subsist. The Second Control Period commences from 1st April 2016 and the Third Control Period shall commence from 01st April 2021.

3.3. Consideration of Cargo, Ground Handling, Fuel Farm services and rental revenues

3.3.1. CIAL, while being the airport operator, also manages the cargo operations at Cochin airport. Accordingly, the Authority had decided to carry out the assessment of cargo services provided by CIAL under "Price Cap" method together with the determination of tariff for Airport operations for the Second Control Period. The Authority has continued with the same approach while determining the tariff for of the Third Control Period.

3.3.2. Determination of ARR for airport operations together with the ARR for cargo operations will provide flexibility to the airport operator to determine individual charges within the overall ARR. This is because the cargo operator is the same legal entity that operates the airport. In future, if a different legal entity operates the cargo services, determination of ARR would, accordingly be done individually.

3.3.3. At the time of determination of tariff for the Second Control Period, the Authority had taken the following decisions pertaining to consideration of Cargo, Ground Handling, Fuel Farm services and revenues from leasing of space to agencies providing Aeronautical services,

- a. *"To consider Cargo Services provided by CIAL as material and non-competitive and determine tariff under "Price Cap" regulation together with determination of Tariff for Airport Operations." (Decision No. 1. a. i)*
- b. *"To consider revenues from Cargo, Ground Handling and Fuel Farm Services and rentals from leasing of space to agencies providing Aeronautical services as Aeronautical revenues." (Decision No. 1. a. ii)*

3.3.4. In line with the above, the Authority has considered revenues from Aeronautical services viz., Cargo, Ground Handling, Fuel Farm services and revenues from other Aeronautical Service providers as Aeronautical revenues for true up of the Second Control Period and to compute Aggregate Revenue Requirement for the Third Control Period.

4. TRUE UP OF SECOND CONTROL PERIOD

4.1. Key aspects pertaining to true up of the Second Control Period

4.1.1. In addition to true up of various building blocks based on actuals, CIAL has raised the following issues concerning the Second Control Period for true up as part of their MYTP:

- Treatment of return on land and segregation of land into Aeronautical and Non-Aeronautical areas (refer section 4.7)
- Return on refundable security deposits (refer section 4.6)
- Terminal area allocation ratio (refer section 4.4)
- Lease rental revenues from subsidiaries (refer section 4.10)

4.2. Authority's analysis of true up for Second Control Period

4.2.1. For each of the issues raised by CIAL as stated above and the regulatory building blocks proposed for true up by the Airport Operator, the Authority has looked at the past decisions taken with regards to the true up of the particular building block for Second Control Period as per the tariff order for the Second Control Period and has then proceeded to examine the same as part of the tariff determination for the Third Control Period. These issues have been discussed in detail in the relevant sections of this consultation paper.

4.3. True up of Traffic

CIAL's submissions regarding true up of Traffic for the Second Control Period

4.3.1. CIAL as part of its MYTP had submitted the passenger, cargo and ATM traffic based on actuals for FY 2017-2020 and projections for FY 2021. Later, the Airport Operator vide their email dated 22 May 2021 ("Actual Data for FY 21 | CIAL") shared the actual traffic figures achieved during FY 2021 and the same has now been included in CIAL's submission of traffic to be considered for true up.

4.3.2. The passenger, ATM and cargo traffic as submitted by CIAL for true up of the Second Control Period is as given in the table below.

Table 2: Traffic submitted by CIAL for true up of 2nd Control Period

FY ending 31st March	2017	2018	2019	2020	2021	Total
Passengers (in Millions)						
Domestic	3.95	4.89	5.27	5.01	1.55	20.67
International	5.00	5.23	4.93	4.70	0.92	20.79
Total Pax	8.95	10.12	10.20	9.71	2.47	41.46
ATMs (in no's)						
Domestic	31,164	36,752	41,104	38,463	18,954	1,66,437
International	31,653	32,909	30,762	29,267	8,071	1,32,662
Total ATMs	62,817	69,661	71,866	67,730	27,025	2,99,099
Air Cargo (in MT)						
Domestic outbound	3,291	3,658	3,831	4,013	2,345	17,139
Domestic inbound	9,867	9,765	11,087	10,993	7,854	49,570
International Export	64,012	62,794	49,454	47,727	29,410	2,53,396
International Import	7,239	6,068	11,993	10,855	6,232	42,387
Total Cargo	84,409	82,285	76,365	73,589	45,845	3,62,491

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

4.3.3. Relevant decision taken by the Authority for traffic at the time of tariff determination for the Second Control Period is as follows:

- *“To true up the traffic of the Second Control Period based on actuals, at the time of determination of tariff for the next Control Period.” (Decision No. 3.a.ii.)*

4.3.4. Traffic proposed by the Authority as per tariff order for the 2nd Control Period is as given in the table below.

Table 3: Traffic proposed by the Authority as per Second Control Period tariff order

FY ending 31st March	2017	2018	2019	2020	2021	Total
Passengers (in Millions)						
Domestic	3.43	3.75	4.11	4.50	4.93	20.72
International	4.86	5.14	5.75	6.42	7.18	29.35
Total Pax	8.29	8.90	9.86	10.93	12.11	50.09
ATMs (in no's)						
Domestic	30,127	32,531	35,134	37,952	41,005	1,76,749
International	30,985	32,448	35,920	39,768	44,031	1,83,152
Total ATMs	61,113	64,979	71,054	77,720	85,036	3,59,902
Air Cargo (in MT)						
Domestic outbound	3,039	3,280	3,541	3,822	4,126	17,808
Domestic inbound	9,503	10,570	11,757	13,078	14,547	59,455
International Export	51,849	57,341	63,414	70,129	77,557	3,20,290
International Import	4,837	5,050	5,272	5,503	5,745	26,407
Total Cargo	56,687	62,391	68,685	75,663	83,302	3,46,728

Authority's analysis of Traffic submitted by CIAL for the Second Control Period

4.3.5. The Authority compared Traffic submitted by CIAL based on actuals for true up of 2nd Control Period and the Traffic approved by the Authority in the previous tariff order. The comparison is given below:

Table 4: Comparison of Traffic submitted by CIAL for 2nd Control Period true up and that approved by the Authority in tariff order for 2nd Control Period

FY ending 31st March	Formula	2017	2018	2019	2020	2021	Total
Domestic passengers (In Millions)							
As per CIAL	A	3.95	4.89	5.27	5.01	1.55	20.67
As per tariff order for 2 nd Control Period	B	3.43	3.75	4.11	4.50	4.93	20.72
Difference	A-B	0.52	1.14	1.16	0.51	(3.38)	(0.05)
International Passengers (In Millions)							
As per CIAL	C	5.00	5.23	4.93	4.70	0.92	20.79
As per tariff order for 2 nd Control Period	D	4.86	5.14	5.75	6.42	7.18	29.35
Difference	C-D	0.14	0.09	(0.82)	(1.72)	(6.26)	(8.56)
Domestic ATMs (In Nos)							
As per CIAL	E	31,164	36,752	41,104	38,463	18,954	1,66,437
As per tariff order for 2 nd Control Period	F	30,127	32,531	35,134	37,952	41,005	1,76,749
Difference	E-F	1,037	4,221	5,970	511	(22,051)	(10,312)
International ATMs (In Nos)							
As per CIAL	G	31,653	32,909	30,762	29,267	8,071	1,32,662
As per tariff order for 2 nd Control Period	H	30,985	32,448	35,920	39,768	44,031	1,83,152

Difference	G-H	668	461	(5158)	(10,501)	(35,960)	(50,490)
International + Domestic Cargo (In MT)							
As per CIAL	I	84,409	82,285	76,365	73,589	45,845	3,62,491
As per tariff order for 2 nd Control Period	J	56,687	62,391	68,685	75,663	83,302	3,46,728
Difference	I-J	27,722	19,894	7,680	(2,074)	(37,457)	15,763

- 4.3.6. The Authority observed that the domestic pax and ATM traffic attained by CIAL during the period FY 2017-2020 were higher than that approved by the Authority in the previous tariff order. For FY 2021, the traffic is lower than that approved by the Authority, due to the negative impact caused by the COVID-19 pandemic.
- 4.3.7. The Authority noted that the international pax and ATM traffic attained by CIAL during the period FY 2019 - FY 2020 were lower than that approved by the Authority in the previous tariff order. This indicates that the estimates made at the time of tariff determination in light of new international terminal completion weren't attained. The Airport Operator has stated that the closure of the airport for 15 days in August 2018 due to severe floods has had an impact on the traffic in FY 2019. CIAL has attributed the shortfall in international traffic in FY 2020 to various factors including grounding of Jet Airways⁴, minor flooding during the monsoon, reduced operations due to runway re-carpeting, slowdown in Middle East economy and the spread of COVID-19. Further, it is also believed that the commissioning of another airport in the State could have impacted the demand at Cochin airport. For FY 2021, the international pax and ATM traffic is lower than that approved by the Authority, primarily because of the negative impact of COVID-19 global pandemic.
- 4.3.8. The Authority further notes that the actual cargo traffic (international and domestic combined) during FY 2017 – FY 2019 is higher than that approved by the Authority while, the actual cargo traffic during FY 2020 – FY 2021 was less than that approved by the Authority. However, the Authority notes that the total cargo traffic during the Second Control Period as submitted by CIAL is higher than that approved by the Authority in the previous tariff order.
- 4.3.9. The Authority, based on the actual traffic achieved by CIAL, observed that the passenger, ATM and cargo traffic realised by CIAL during FY 2017 to 2019 is higher than that proposed by the Authority in the tariff order for the 2nd Control Period. However, there is a dip in traffic numbers for the FY 2020, which can be attributed to the grounding of Jet Airways in early part of the financial year, minor flooding during the monsoon, runway re-carpeting leading to reduced operations, economic slowdown in the gulf and the spread of pandemic COVID-19. Further, there is a significant dip in passenger, ATM and cargo traffic during FY 2021 as compared to the projections given in the tariff order due to the negative impact of COVID-19 pandemic on the aviation sector. The authority compared the actual traffic as submitted by CIAL for the Second Control Period with the actual traffic as given by AAI on its website. The comparison is as given in the table below.

Table 5: Comparison of traffic submitted by CIAL and as per AAI website

FY ending 31 st March	Formula	2017	2018	2019	2020	2021	Total
Domestic passengers (In Millions)							
As per CIAL	A	3.95	4.89	5.27	5.01	1.55	20.67
As per AAI website	B	3.95	4.80	5.21	4.94	1.55	20.47
Difference	A-B	(0.01)	0.09	0.06	0.06	0.00	0.21
Difference (%)	(1-B/A) *100	(0.2)%	1.8%	1.2%	1.3%	0.2%	1.0%
International Passengers (In Millions)							
As per CIAL	C	5.00	5.23	4.93	4.70	0.92	20.79
As per AAI website	D	5.00	5.37	4.90	4.67	0.91	20.86
Difference	C-D	0.00	(0.14)	0.02	0.02	0.01	(0.08)

⁴ Jet Airways had considerable operations at Cochin airport. It accounted for more than ~10% of ATMs at CIAL during the initial years of the Second Control Period, as per the DGCA schedules.

Difference %	(1-D/C) *100	0%	(2.6)%	0.5%	0.5%	1.4%	(0.4)%
Domestic ATMs (In Nos)							
As per CIAL	E	31,164	36,752	41,104	38,463	18,954	1,66,437
As per AAI website	F	32,164	38,477	42,406	38,845	16,803	1,68,695
Difference	E-F	(1000)	(1725)	(1302)	(382)	2,151	(2,258)
Difference %	(1-F/E) *100	(3.2)%	(4.7)%	(3.2)%	(1.0)%	11.3%	(1.4)%
International ATMs (In Nos)							
As per CIAL	G	31,653	32,909	30,762	29,267	8,071	1,32,662
As per AAI website	H	29,524	30,295	28,651	27,261	8,109	1,23,840
Difference	G-H	2,129	2,614	2,111	2,006	(38)	8,822
Difference %	(1-H/G) *100	6.7%	7.9%	6.9%	6.9%	(0.5)%	6.6%
Intl + Domestic Cargo (In MT)							
As per CIAL	I	84,409	82,285	76,365	73,589	45,845	3,62,491
As per AAI website	J	81,485	76,274	70,199	72,142	42,776	3,42,876
Difference	I-J	2,924	6,011	6,166	1,447	3,069	19,615
Difference %	(1-J/I) *100	3.5%	7.3%	8.1%	2.0%	6.7%	5.4%

4.3.10. The difference between the total passenger traffic numbers provided by CIAL with respect to the numbers available on the website of AAI is insignificant. For the total ATM and cargo traffic, the difference between the numbers given by CIAL and the numbers available on the AAI website is considerable, and the traffic submitted by the Airport Operator is higher than that reported by AAI. The Airport operator has confirmed that the passenger, ATM and Cargo traffic submitted by it are based on actual traffic at the Airport. Hence, the Authority proposes to consider the numbers given by CIAL for true up of the Second Control Period.

4.3.11. The Traffic considered by the Authority for true up of the 2nd Control Period is given in the table below.

Table 6: Traffic proposed by the Authority for true up of 2nd Control Period

FY ending March 31	2017	2018	2019	2020	2021	Total
Passengers (in Millions)						
Domestic	3.95	4.89	5.27	5.01	1.55	20.67
International	5.00	5.23	4.93	4.70	0.92	20.79
Total Pax	8.95	10.12	10.20	9.71	2.47	41.46
ATMs (in no's)						
Domestic	31,164	36,752	41,104	38,463	18,954	1,66,437
International	31,653	32,909	30,762	29,267	8,071	1,32,662
Total ATMs	62,817	69,661	71,866	67,730	27,025	2,99,099
Air Cargo – (in MT)						
Domestic - Outbound	3,291	3,658	3,831	4,013	2,345	17,139
Domestic - Inbound	9,867	9,765	11,087	10,993	7,854	49,570
Domestic - Total	13,159	13,423	14,919	15,007	10,202	66,708
International - Export	64,012	62,794	49,454	47,727	29,410	2,53,396
International - Import	7,239	6,068	11,993	10,855	6,232	42,387
International - Total	71,251	68,862	61,447	58,582	35,643	2,95,783
Total Cargo	84,409	82,285	76,365	73,588	45,845	3,62,491

4.4. True up of Regulatory Asset Base

CIAL's submission of Opening RAB and Capital Expenditure for the Second Control Period

4.4.1. The opening RAB as submitted by CIAL is given in the table below.

Table 7: Opening RAB submitted by CIAL for true up of 2nd Control Period

Particulars	Value as on 1 st April 2016 (in INR crores)
Buildings and Civil works	102.03
Runway, Roads and Culverts	66.06
Plant and Equipment, Office Equipment, Computers and Accessories, Furniture and Fixtures, Vehicles and Intangibles Assets	104.42
Total	272.5

4.4.2. CIAL has submitted capital additions during the 2nd Control Period as given below.

Table 8: Capital additions during the 2nd Control Period submitted by CIAL

Particulars	Cost Incurred (in INR crores)
Construction of new terminal T3 and related works proposed to be constructed in March 2017	923
Apron works, roads proposed to be constructed in March 2017	172
Runway Re-carpeting & Construction of Rapid Exit/Vertical Links – FY 2021	178
Additional Parking Bays, Code f upgradation, approach road and other road works	166
Ground Handling related	59
Other works including terminal modification, new equipment purchase etc.	373
New Cargo warehouse and allied works	20
PSF – SC assets	85
Flood control measures	30
Commercial complex, family entertainment centre and product display showroom	97
Total	2103

4.4.3. CIAL has submitted that the proposed works for Additional Parking Bays were not undertaken in the 2nd Control Period and that these are now proposed to be undertaken in the Third Control Period.

4.4.4. Regarding Ground Handling Related expenses, CIAL has stated that, “Ground handling equipment procurement and leasing was intended to be undertaken in the 2nd Control Period. However, as more airlines are opting for self-handling, by virtue of policy change of the government the same has been shelved. The amount incurred in 2nd Control Period is for construction of new ground handling support building”.

4.4.5. The new cargo warehouse is currently under construction and the expenses have not been considered in the Second Control Period.

4.4.6. Regarding PSF – SC Assets, CIAL has stated that, “Ministry of Civil Aviation vide order dated 18 February 2014 had instructed the airport operators including CIAL to reimburse the capital expenditures incurred out of PSF (SC) escrow account maintained and operated by CIAL in the fiduciary capacity. As per the directions of MoCA, CIAL had refunded the capital expenditures incurred from FY 2007 to FY 2018 at the original cost of such capital expenses. Accordingly, the PSF (SC) assets were accounted in the FY 2018 financial statements of CIAL at its original cost of INR 84.99 Cr”.

- 4.4.7. The Authority notes that CIAL has carried out Flood Control Measures in light of the floods of 2018 and 2019 that hampered flight operations at CIAL. The Airport Operator has submitted the detailed report for flood mitigation measures prepared by KITCO Ltd.
- 4.4.8. CIAL's submission regarding Depreciation for the Second Control Period has been discussed in section 4.5.
- 4.4.9. The Regulatory Asset Base as submitted by CIAL for true up during the 2nd Control Period is given in the table below:

Table 9: RAB submitted by CIAL for true up of 2nd Control Period

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Opening RAB	272.5	1350.7	1414.0	1576.0	1529.3	
Less: Depreciation during year	31.9	92.9	94.9	111.7	125.4	456.8
Add: Capitalisation during year	1110.0	157.8	276.8	65.3	249.1	1859.0
Sales/transfers/retirements	0.0	(1.5)	(19.9)	(0.3)	0.0	(21.7)
Closing RAB	1350.7	1414.0	1576.0	1529.3	1653.0	
Average RAB	811.6	1382.4	1495.0	1552.7	1591.2	

*Projected figures including Financing Allowance

Decisions taken by the Authority regarding Capital Expenditure as per Tariff Order for the Second Control Period

- 4.4.10. Relevant decision taken by the Authority at the time of tariff determination for the Second Control Period is given below
- *"To true up the actual Capital Expenditure on actuals at the time of determination of tariff for the next Control Period." (Decision No. 5. a. iii)*
 - *"To true up the Regulatory Asset Base at the end of the Control Period based on actuals, at the time of determination of tariff for the next Control Period." (Decision No.7. a. ii)*

Authority's analysis of Opening RAB and Capital Expenditure for the Second Control Period

- 4.4.11. The Authority notes that CIAL has considered the Opening RAB as computed and approved by the Authority in the previous tariff order.
- 4.4.12. CIAL had submitted planned capital additions for the Second Control Period broken up into project-wise line items and a consolidated asset-wise breakup of the total capital expenditure. In the true-up exercise relating to these expenditures, CIAL has provided the Fixed Asset Register (FAR), which does not capture the project wise mapping of the new assets commissioned in the Second Control Period. Therefore, it was not possible to verify the project wise estimates and allocations provided in the previous Tariff Order with the capital projects provided in the MYTP for the Third Control Period.
- 4.4.13. In order to validate the actual costs incurred by the CIAL, the Authority sought CA certificate for the actual amounts spent on each of the projects mentioned in Table No. 8 as per the MYTP of CIAL for the Third Control Period and CIAL had submitted the same.
- 4.4.14. The capital expenditure on projects approved for the Second Control Period was done on an estimate basis during the determination of tariff for Second Control Period. Hence, the amount spent towards projects approved for the Second Control Period require true up.

4.4.15. The Authority compared the actual capital expenditure against the project costs approved in the previous tariff order.

Table 10: Comparison of capital expenditure as per CIAL and as per 2nd Control Period tariff order

Particulars (INR Cr.)	Actual cost incurred as per CIAL	Cost approved in the tariff order for the Second Control Period	Difference
Construction of new terminal T3 and related works proposed to be constructed in March 2017	923	927	(4)
Apron works, roads proposed to be constructed in March 2017	172	201	(29)
Runway Re-carpeting & Construction of Rapid Exit/Vertical Links – FY 2021	178	176	2
Additional Parking Bays, Code f upgradation, approach road and other road works	166	311	(145)
Ground Handling related	59	71	(12)
Other works including terminal modification, new equipment purchase etc.	373	370	3
New Cargo warehouse and allied works	20	131	(111)
PSF – SC assets	85	0	85
Flood control measures	30	0	30
Commercial complex, family entertainment centre and product display showroom	97	354	(257)
Total	2103	2540	(437)

4.4.16. Additional parking bays:

- CIAL has stated that the proposed works for construction of parking bays phase 2 were not undertaken in the 2nd Control Period and these are proposed to be undertaken in the Third Control Period. The project was envisaged considering the expected growth in traffic at the airport, however, in the latter half of the Second Control Period the traffic at Cochin airport hasn't grown as expected. Hence, it would be prudent to undertake this project as and when the need for the same is realised as per the expected recovery in demand.

4.4.17. Ground Handling Assets capitalised in the 2nd Control Period:

- As per the Tariff Order for the 2nd Control Period, the Authority had approved 'Ground Handling related' item for a cost of INR 70.45 Cr.
- In this regard, the Airport Operator has constructed new ground handling support building (for about INR 59 Cr), by citing that more Airlines are opting for self-handling by virtue of policy change of the government and hence, Ground handling equipment procurement and leasing, which was intended earlier was not taken up.
- On further discussion on this aspect with the Airport Operator, the operator mentioned that no further break up was given in the order (detailing 'Ground Handling related') at the time of tariff determination for the 2nd Control Period.
- All ground handling related procurements and two new ground handling support buildings are classified under this expense. Individual costs of procurement are far less than INR 50 crores Predominantly, two ground support building for an amount of INR 8.16 crores each (total of INR 16.32 crores). Runway sweeper, jeeps, triage and first aid equipment, other equipment etc. are also procured and included in the head.

- During the site visit the ground handling support buildings were observed and the operator has clarified that these spaces are currently rented out to Ground Handling Agencies, viz., Celebi, BWFS and Air India; the revenues from these agencies are considered aeronautical.

4.4.18. New cargo warehouse and allied works:

- The construction of the new cargo warehouse has commenced in FY 2020, however CIAL does not expect the costs to be capitalised by FY 2021, hence the project has now been included the proposed capital expenditure for the Third Control Period. The Authority notes that the costs proposed by CIAL are still within the figures approved as per the tariff order for the Second Control Period.

4.4.19. PSF-SC Assets capitalised in the 2nd Control Period:

- Citing Ministry of Civil Aviation's Order dated 18 February 2014 CIAL has reimbursed the capital expenditures incurred out of PSF (SC) account.
- Such assets capitalised between FY 2007 and FY 2018 were transferred to the books of CIAL, at the original cost adjusted for depreciation.
- As per the Fixed Asset Register, 352-line items were added in FY 2018. The original cost of these assets is INR 84.99 Cr, which has been accounted in RAB after adjusting for depreciation, which comes out to be INR 71.9 Cr.
- These assets are classified as Aeronautical by the Airport Operator. Since these items are Security related, their classification has been retained as Aeronautical.

4.4.20. Assets to be commissioned in FY 2021:

- The Airport Operator was asked to share the documents supporting the PCN values before and after the runway re-carpeting that is proposed to be capitalised in FY 2021. The Aeronautical Information Publication documents of AAI showed that the PCN value has significantly increased from 60/F/B/W/T to 105/F/B/W/T. Since there has been considerable strengthening of the runway, the cost of re-carpeting should be capitalised as per AERA Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets.
- CIAL had been severely affected by floods in FY 2019 leading to suspension of airport operations for 15 days. To address the risk of such disruptions in future CIAL had started implementing various projects based on the recommendations of the detailed report by KITCO. Since these measures would be necessary to avoid flood related losses and suspension of operations in future, the Authority has considered the capital expenditure incurred in this regard in the true up of the Second Control Period.
- The proposed RAB for FY 2021 is computed using forecasted capital additions. The Airport Operator was requested to share the actual financial and physical progress of these projects as of March 2021.
- Based on the actual details shared by the operator, it was observed that most of the major Aeronautical items (about 80%) have achieved significant progress and are expected to be completed on schedule.
- Minor asset items (approximately 33 items totalling to 17 Cr) that are proposed to be capitalised in FY 2021 were at 0% physical and financial progress. However, it is understood from the Airport Operator that such items are related to procurement and would be completed before 31 March 2021. Hence, The Authority proposes to consider the cost proposed by the Operator for the computation of RAB at this stage and update the same based on actuals before the issue of the final tariff order.

4.4.21. The Commercial Complex and related works are still in progress; however, they are Non-Aeronautical in nature and do not form a part of RAB.

4.4.22. The Authority observes that most of the projects were completed within the estimated costs and that the over-runs of the remaining projects are not of significant magnitude. The capital addition for the Second Control Period, as considered by the Authority is given in the tables below.

Table 11: Project-wise capital addition in Second Control Period considered by the Authority

Particulars	Capital Addition (in INR crores)
Construction of new terminal T3 and related works constructed in March 2017	923
Apron works, roads constructed in March 2017	172
Runway Re-carpeting & Construction of Rapid Exit/Vertical Links – FY 2021	178*
Additional Parking Bays, Code f upgradation, approach road and other road works	166
Ground Handling related	59
Other works including terminal modification, new equipment purchase etc.	373
PSF – SC assets	85
Flood control measures	30*
Total Capital Additions**	1963

*Proposed to be capitalised in FY 2021

** Excluding Ind-AS grant of INR 23 Cr

Table 12: Total capital addition in the Second Control Period as considered by the Authority

Particulars (INR Cr)	2017	2018	2019	2020	2021	Total
Land	0.00	0.00	0.00	0.00	0.00	0.00
Buildings & Civil Works	586.44	50.76	134.20	9.10	9.00	789.50
Golf Course Development	0.00	0.00	0.00	0.00	0.00	0.00
Runway, Roads and Culverts	271.22	25.85	31.65	8.62	178.24	515.58
Plant and Equipment	308.05	103.00	121.25	40.10	47.94	620.35
Office Equipment	0.34	0.15	0.22	0.07	2.50	3.27
Computers and Accessories	0.62	0.63	1.53	3.94	6.86	13.58
Furniture and Fixtures	2.90	3.52	3.88	0.80	0.00	11.10
Vehicles	1.09	1.09	0.85	4.46	0.50	7.99
Intangible assets	0.31	0.37	1.10	0.47	0.00	2.25
Total	1170.97	185.38	294.67	67.56	245.04	1963.62

CIAL's submission of Allocation of Assets Between Aeronautical and Non-Aeronautical for the Second Control Period:

4.4.23. Under Hybrid-Till, only Aeronautical assets are included as part of the Regulatory Asset Base. Therefore, all airport assets need to be segregated between Aeronautical and Non-Aeronautical. Further, only projections of capitalisations during the control period classified as Aeronautical assets need to be considered as part of RAB.

4.4.24. CIAL has submitted the bifurcation of assets for the opening RAB as given below:

Table 13: Aeronautical allocation of opening RAB for 2nd Control Period submitted by CIAL

Particulars	Aeronautical allocation
Buildings and Civil works	71%
Runway, Roads and Culverts	100%
Plant and Equipment, Office Equipment, Computers and Accessories, Furniture and Fixtures, Vehicles and Intangibles Assets	90%

4.4.25. CIAL has submitted the basis for segregation of assets capitalised in the Second Control Period as follows:

Table 14: Basis for allocation of capital additions undertaken in 2nd Control Period as per CIAL

Existing Assets	Basis for Segregation
Land	Land is excluded from RAB and is taken as a separate line item for determination of FRoR as per AERA Order 42/2018-19 dated 5 th March 2019.
Buildings and Civil Works	Buildings and civil works assets have been divided into Aeronautical, Non-Aeronautical and Common assets based on usage of each assets. Common assets have been further apportioned into Aeronautical and Non-Aeronautical based on Aeronautical and Non-Aeronautical area in the terminal building. KITCO has undertaken a study for computation of the Aeronautical and Non-Aeronautical area in the terminal buildings. As per the study, total area of the terminal building is 2,20,651 sq. m. out of which Aeronautical area is 2,04,780 and Non-Aeronautical area is 15,872 sq. m. Accordingly, Common assets have been bifurcated into Aeronautical and Non-Aeronautical assets based on the ratio of 92.81% and 7.19%, respectively. Please refer to Annexure for KITCO certificate on terminal area usage.
Golf Course Development	Golf course development assets have been considered as Non-Aeronautical assets.
Runways, Roads and Culverts	Existing runway, roads and culverts have been considered as Aeronautical assets except for roads comprising connected roads and car park area. Overall cost of connecting roads have been bifurcated into Aeronautical and Non-Aeronautical assets based on the actual cost incurred for internal roads and car park roads. Details of the bifurcation are given in the below section.
Plant and Equipment	These assets have been divided into Aeronautical, Non-Aeronautical and Common assets based on usage of each assets.
Office Equipment	
Computers and Accessories	Common assets have been apportioned into Aeronautical and Non-Aeronautical component based on the terminal area ratio of 92.81% and 7.19%.
Furnitures and Fixtures	
Vehicles	
Intangible Assets	

4.4.26. Further, CIAL has submitted KITCO's certificate with the workings for the calculation of the terminal area ratio, i.e., the ratio of Aeronautical portion to Non-Aeronautical portion of the terminal building, as presented in the table below:

Table 15: Outcome of KITCO study report regarding Terminal Area allocation

International Passenger Terminal		
Total Terminal Area	146528	Sqm
Total Non-aero area	9201	Sqm
Total Aero Area	137328	Sqm
Non-aero % in International Passenger Terminal	6.28	%
Domestic Passenger Terminal		
Total Terminal Area	74123	Sqm
Total Non-aero area	6671	Sqm
Total Aero Area	67452	Sqm
Non-aero % in Domestic Passenger Terminal	9.00	%
Combined Passenger Terminal Area of Domestic and International		
Combined Non-aero Area	15872	Sqm
Combined Aero Area	204780	Sqm
Combined Non-aero % of the Terminal in CIAL	7.19	%

Decisions taken by the Authority regarding Allocation of Assets between Aeronautical and Non-Aeronautical as per Tariff Order for the Second Control Period

4.4.27. Relevant decisions taken by the Authority regarding Aeronautical allocation of assets at the time of Tariff determination for the Second Control Period are as given below:

- *“To carry out a technical study on the area used between Aeronautical and Non-Aeronautical in the existing and new terminal once the operations are commissioned and stabilised”. (Decision No.4. a. ii)*
- *“To true up the details based on the actuals and consider the same in the next Control Period.” (Decision No. 4. a. iii)*

4.4.28. Aeronautical allocation of assets as proposed by the Authority as per Tariff Order for the Second Control Period were as given in the table below;

Table 16: Aeronautical Allocation of Assets as proposed by the Authority as per 2nd Control Period Tariff Order

Particulars (Gross Block)	% Aeronautical
Land	Not considered as RAB
Buildings and Civil Works	69.28%
Golf Course Development	0.00%
Runways, Roads and Culverts	100.00%
Plant and Equipment	86.79%
Office Equipment	74.22%
Computers and Accessories	91.85%
Furnitures and Fixtures	86.50%
Vehicles	94.81%
Intangible Assets	84.21%

Authority’s Analysis of CIAL’s submission of Allocation of Assets between Aeronautical and Non-Aeronautical

4.4.29. For the opening RAB, CIAL has used the Aeronautical allocation percentages that the Authority had decided in the tariff order for the 2nd Control Period.

4.4.30. For the purposes of segregation of assets capitalised in the Second Control Period, CIAL has divided its assets into three components – Aeronautical, Non-Aeronautical and Common. Common assets have been further apportioned in to Aeronautical and Non-Aeronautical by applying the terminal allocation ratio.

4.4.31. The Authority had commissioned a study on the allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL (summary of the study is given in Annexure 1 and the study report is attached as Appendix 1 of this Consultation Paper). The study has provided a broad framework for allocation of various classes of airport assets into Aeronautical, Non-Aeronautical and Common. The process followed in the study is as follows:

- Assets which are purely Aeronautical and purely Non-Aeronautical were identified.
- Asset which could not be attributed to purely Aeronautical or Non-Aeronautical activities were classified as Common assets.
- The Common assets were further apportioned into Aeronautical and Non-Aeronautical based on suitable ratios.

4.4.32. Based on the principles for the asset’s allocation into Aeronautical and Non-Aeronautical, the Authority observed that the various assets that were capitalised during FY 2017 to FY 2020 as per the Fixed Asset Register required reclassification, which impacted the RAB. For instance, few assets related to the Butterfly Canteen in front of T3 were classified as Aeronautical or Common by the Airport Operator. The re-classification of assets related to the Butterfly Canteen to Non-Aeronautical has resulted in the

reduction of Aeronautical additions by INR 5.1 Crores. Similarly, certain other assets belonging to Duty Free operations, Golf-course, Airport Security, Passenger Handling etc. were reclassified accordingly. Details pertaining to other such reclassifications are provided in the study on allocation of assets between Aeronautical and Non-Aeronautical assets.

- 4.4.33. The Authority noted that certain assets, including UV-C systems and IT Assets, that are projected to be capitalised in FY 2021 were categorised as Aeronautical by the Airport Operator. However, based on the study on allocation of assets between Aeronautical and Non-Aeronautical assets, the above items have been reallocated to Common or Non-Aeronautical, thus reducing the Aeronautical capital additions by INR 0.72 Crores.

Terminal area allocation:

- 4.4.34. On the terminal allocation ratio, the Authority observed that CIAL has considered only the specific areas used for Non-Aeronautical activities as Non-Aeronautical area and the remaining area has been considered as Aeronautical. Therefore, the Common areas have not been allocated into Aeronautical and Non-Aeronautical (as against AERA's direction in paragraph 9.2.4 of Order No. 07/2017-18 dated 13 July 2017 regarding determination of tariffs for Aeronautical services in respect of Cochin International Airport for the Second Control Period) and have been considered as purely Aeronautical.
- 4.4.35. Considering the detailed break-up of the terminal area, usage details and the floor plans provided by the Airport Operator, the weighted average terminal usage ratio was analysed in the study on allocation of assets between Aeronautical and Non-Aeronautical assets, based on the actual usage. The ratio was found to be as follows:

Table 17: Terminal allocation ratio as recomputed by the Authority

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

- 4.4.36. The summary of the revisions to Aeronautical capital additions in the Second Control Period as per the study on allocation of assets between Aeronautical and Non-Aeronautical assets is given below.

Table 18: Summary of revisions as per study on allocation of assets between Aeronautical and Non-Aeronautical assets

Particulars (INR Cr)	FY 17	FY 18	FY 19	FY 20	FY 21*	Total
CIAL's submission						
Aeronautical Gross Additions	1110.03	157.75	276.79	65.34	237.16	1847.08
Non-Aeronautical Gross Additions	60.94	27.63	17.88	2.22	7.88	116.54
Total Gross Additions	1170.97	185.38	294.67	67.56	245.04	1963.62
Revised as per the study						

Revised Aeronautical Gross Addition ⁵	1094.18	150.15	272.94	64.10	236.29	1817.66
Revised Non-Aeronautical Gross Additions	76.78	35.23	21.73	3.47	8.75	145.96
Revised Total Gross Additions	1170.97	185.38	294.67	67.56	245.04	1963.62

**Forecasted figures*

- 4.4.37. The Authority proposes to consider the recommendations of the study on allocation of assets between Aeronautical and Non-Aeronautical assets, regarding Aeronautical capital additions, for the true up of the Second Control Period.
- 4.4.38. The Authority noted that the Airport Operator has considered a Financing Allowance (as provided in Direction 5 – Airport Guidelines) of INR 11.9 Crores, against Interest During Construction (IDC) on the Work-in-Progress (WIP) assets worth INR 158 Crores projected to be capitalised in FY 2021.
- 4.4.39. The Airport Operator has computed Financing Allowance on the entire WIP amount whereas the Authority is of the view that such allowance is essentially the IDC for a project and should be provided only on the debt portion of the project fund. Accordingly, the Authority has considered IDC to be provided based on the changes in aeronautical capital additions discussed above and the average gearing considered for the Second Control Period (refer Section 4.6).
- 4.4.40. Based on the revisions as per the study on allocation of assets between Aeronautical and Non-Aeronautical assets and the changes in Depreciation (as discussed in section 4.5), the Authority has recomputed the RAB for true up of the 2nd Control Period as given in the table below.

Table 19: RAB Proposed by the Authority for true up of Second Control Period

Particulars (INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Opening RAB	272.50	1334.987	1391.57	1556.08	1517.64	
Less: Depreciation during year	31.80	91.99	88.49	102.24	111.01	425.54
Add: Capitalisation during year	1094.20	150.15	272.94	64.10	240.66	1822.03**
Sales/transfers/retirements	(0.01)	(1.45)	(19.95)	(0.29)	(0.00)	(21.70)
Closing RAB	1334.87	1391.57	1556.08	1517.64	1647.29	
Average RAB	803.69	1363.22	1473.82	1536.86	1582.47	

**Projections including IDC*

***Includes IDC of INR 4.4 Cr*

⁵ Includes capitalised interest costs on borrowings for capital expenditure projects

4.5. True up of Depreciation

CIAL's submission of Depreciation for the Second Control Period

4.5.1. CIAL submitted that until FY 2018, the useful lives of Assets were computed based on the rates prescribed in the Schedule II of the Companies Act 2013. From 01st April 2018 (FY 2019) onwards, CIAL has submitted that it has categorised Assets into various asset classes and the useful lives as given in the Authority's Order No.35/2017-18 dated 12 January 2018 regarding useful lives of key airport assets have been used wherever applicable. The useful lives used by CIAL until FY 2018 and beyond are given in the tables below.

Table 20: Useful Lives considered by CIAL until FY 2018

S.N.	Asset Category	Useful lives in Years (Till FY 2018)
1	Building - Civil, earth, pile, masonry, concrete, steel and RCC Works	60
2	Building - False ceiling, handrails and façade works	20
3	Building - Interior, flooring, roofing, plumbing and finishing	15
4	Elevators, Escalators, VDGS, Travellators, BHS, aerobridges, aircraft recovery equipment	15
5	HVAC Systems	4 - 15
6	Light fittings	5
7	Electrical installations, DG sets, transformers, sign boards, firefighting systems, UPS	5-10
8	CUPPS, CUSS, Networking, BRS	5
9	Apron, approach road bridge, railway over bridge	30
10	Roads, flexible pavements	10
11	Flexible pavements	5

Table 21: Useful Lives considered by CIAL and as proposed in AERA Order No. 35/2017-18 dated 12 January 2018 from FY 2019 onwards

S.N.	Asset Category	Useful lives in years from FY 2019 onwards (As per CIAL)	Useful lives in years from FY 2019 onwards (As per AERA Order No. 35/2017-18)
Assets for which useful life as per Part C of Schedule II / AERA Order No. 35/2017-18 regarding determination of useful lives of airport assets/ technical evaluation is used			
1	Building - Civil, earth, pile, masonry, concrete, steel and RCC Works	60	30/60
2	Building - False ceiling, handrails and façade works	20	-
3	Building - Interior, flooring, roofing, plumbing and finishing	15	-
4	Elevators, Escalators, Baggage Handling Systems, Travellators, HVAC equipment, aircraft recovery equipment and aerobridges	15	15
5	Light fittings	10	-
6	Runway, Apron and Taxiway	30	30
Assets for which useful life as given in AERA Order No. 35/2017-18 is applied			
7	Electrical Installation and equipment	10	10
8	Flight Information System	10	10
9	Aircraft Fire tenders and other fire Equipment	15	15
10	X - Ray, RT Sets, DFMD, HHMD and security equipment	15	15
11	Office equipment	5	5
12	Furnitures and fixtures other than trolleys	7	7
13	Furniture and fixture trolleys	3	3

14	Computer end user devices	3	3
15	Computers, servers and networks	6	6
16	CUPPS, CUSS, Networking and BRS	6	6
17	Roads and flexible pavement	10	05/10
18	Flexible pavements	5	05/10
19	Software	5	Based on Technical Justification
20	Vehicles	8	8

4.5.2. CIAL has submitted Aeronautical depreciation of assets for true up of 2nd Control Period as given in the table below.

Table 22: Aeronautical Depreciation of assets as submitted by CIAL for true up of 2nd Control Period

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Land	0.0	0.0	0.0	0.0	0.0	0
Buildings and civil works	4.6	23.6	25.2	30.5	31.0	114.8
Golf course development	0.0	0.0	0.0	0.0	0.0	0
Runway, roads and culverts	10.0	21.2	19.5	22.7	32.6	106.0
Plant and Equipment	12.5	44.2	45.7	54.0	55.6	211.9
Office Equipment	0.0	0.1	0.1	0.2	0.4	0.8
Computers and accessories	0.9	0.9	1.0	1.1	2.1	5.9
Furnitures and fixtures	0.7	0.9	1.6	1.7	1.6	6.5
Vehicles	0.5	0.6	0.6	0.9	1.1	3.7
Intangible assets	2.8	1.5	1.3	0.6	0.5	6.7
FA	0.0	0.0	0.0	0.0	0.6	0.6
Total Depreciation	31.9	92.9	94.9	111.7	125.4	456.8

*Forecasted figures

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

4.5.3. Relevant decision taken by the Authority on depreciation of assets at the time of tariff determination for the Second Control Period is as follows:

- “To true up the depreciation based on the actual capital expenditure and the change in useful lives/rates as per the results of the depreciation study.” (Decision No. 6. a. ii)

4.5.4. At the time of tariff determination of CIAL for the 2nd Control Period, the Authority had decided that the useful lives of assets would be decided based on the study that will be conducted in this regard. Further, the Authority had conducted the study and issued Order No. 35/2017-18 dated 12th January 2018 regarding determination of useful life of airport assets. The salient decisions outlined in the order are as follows:

- “To determine useful lives for key airport assets under Part B of Schedule II to Companies Act 2013” (Decision No. 1.a)
- “To consider the effective date of the order as 1st April 2018” (Decision No. 1.c)
- “To propose that the carrying amount of the asset as on date of effect shall be depreciated over the remaining useful life of asset” (Decision No. 1.d)

Authority’s Analysis of Depreciation submitted by CIAL for the Second Control Period

4.5.5. The Authority has noted that CIAL has applied its policy of depreciating assets till 95% of their original cost in its submission of Depreciation. A clarification was sought from the Airport Operator in this regard, to

which, CIAL had responded that it depreciates its assets till 95% of their original value as per its existing accounting policy complying with the Companies Act provisions.

- 4.5.6. From FY 2019, CIAL has adopted the useful lives given in AERA Order No. 35/2017-2018 dated 12 January 2018 regarding determination of useful lives of airport assets and revised the depreciation rates wherever applicable. The notes regarding revision of depreciation rates/ useful lives have been verified from the audited financial statements.
- 4.5.7. The Authority has noted that for certain assets (S.N. 2 and S.N. 3 in table 21) that are not specifically mentioned in AERA Order No. 35/2017-18 dated 13 July 2017 regarding determination of useful lives of airport assets, CIAL has used a different useful life as compared to Order No. 35, these have been evaluated and considered by the Statutory Auditors in the Annual Reports of CIAL for the year ended 31 March 2019. Further, AERA had sought clarification from the Airport Operator and CIAL mentioned that it has used these rates based on the approval of the Internal Technical Committee. The Authority has looked at CIAL's submission regarding Depreciation and has also perused the relevant clauses in the financial statements of CIAL which mention that the depreciation rates considered for key airport specific assets are aligned with the depreciation rates as per the Authority's Order no. 35/2017-2018 dated 12 January 2018 regarding determination of useful lives of airport assets.
- 4.5.8. Further, the Authority notes that the actual details available in the FAR do not include the mapping to the depreciation classes/ useful life classification suggested by AERA. Also, the description provided for the items is insufficient to understand the nature and class of asset. The Airport Operator was requested additional details and clarifications regarding the nature and useful lives of certain assets.
- 4.5.9. The justification provided by the airport was not satisfactory in the use of the two additional asset classes (Item No. 2 and 3 in table 21) defined by CIAL. The Authority revised the useful lives of these assets as given below.

Table 23: Useful lives of certain assets classes as per CIAL and as revised by the Authority

Asset Category – Buildings and Civil Works	Useful Life (As per CIAL)	Revised Useful Life (As per Authority)
Building – False Ceiling, Handrails and Façade Works	20	30
Building – Interior, Flooring, roofing and finishing	15	30

- 4.5.10. It was also observed that CIAL had not considered the useful lives of some assets in the Fixed Asset Register in order to align with the Authority's Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets. The Authority recomputed the depreciation from FY 2019, after revising the useful lives of the assets wherever necessary, in accordance with Order No. 35/2017-18 for the purpose of true-up. The Airport Operator is advised to ensure the consideration of useful lives as per Order No. 35/2017-18 for all relevant assets in future. The details of the assets for which the useful life was revised by the Authority are given in the table below.

Table 24: Details of assets for which useful life has been revised by the Authority

Unique Asset Number	Asset Description as per FAR of CIAL	Life (As per CIAL)	Revised Useful Life	Category Considered by Authority
1400000350	T3 Fly Over	30	10	Roads, Bridges and Culverts
1400000270	Approach Road Bridge	30	10	Roads, Bridges and Culverts
1400000310	Railway Overbridge	30	10	Roads, Bridges and Culverts
1500002000	T3 Light Fittings	5	10	Electrical Installation
1400000271	PMC ROB	30	10	Roads, Bridges and Culverts
1500002191	Light Fittings	5	10	Electrical Installation
1400000353	Sub Asset IDC T3 Fly Over	30	10	Roads, Bridges and Culverts
1500001991	LIGHT LUMINARES	5	10	Electrical Installation

1580000250	T1: Light Fittings for City Side facelift works	5	10	Electrical Installation
1580000160	SITC of LED lights 2.7 MWp-solar carport	5	10	Electrical Installation
1580000211	T1: 30W LED downlight fitting	5	10	Electrical Installation
1500002002	Sub Asset IDC T3 Light Fittings	5	10	Electrical Installation
1580000230	LED taxiway guidance signboards	5	10	Electrical Installation
1500002210	Additional light Fittings for T3	5	10	Electrical Installation
1410000140	Runway recarpeting	15	20	Runway Re-carpeting
1530000922	Ducting & Insulation	10	15	HVAC Equipment
1530000924	Chiller Unit	8	15	HVAC Equipment
1530000921	Floor Mounted Air Handling Units	8	15	HVAC Equipment
1870000001	Sub Asset IDC T3 Baggage Handling System	10	15	Baggage Handling System
1500002010	T3 Internal sign Boards	8	10	Electrical Installation
1530000928	ASSOCIATED ELECTRICAL WORKS	8	10	Electrical Installation
1530001191	T1: AHU,cooling Tower,chiller unit,ventilatr etc	8	15	HVAC Equipment
15300009212	VENTILATION SYSTEM	8	15	HVAC Equipment
1500002020	Electrification of Phase II -Road & ROB	8	10	Electrical Installation
1530000923	Cooling Tower	8	15	HVAC Equipment
1530001140	T1: BMS Air conditioning Management system	10	15	HVAC Equipment
1530000500	350 TR ROTARY SCREW CHILLER AND CONNECTED WORKS	8	15	HVAC Equipment
15300009215	Sub Asset IDC T3 HVAC systems	8	15	HVAC Equipment
1500001948	Capacitor panel - 500KVAR	5	10	Electrical Installation
1530001000	T3 SITC of Airconditioning Works(VRF & DX) System	8	15	HVAC Equipment
15300009216	Sub Asset IDC T3 HVAC systems	10	15	HVAC Equipment
1530000490	SITC of AHU (Air Handling Unit) at Domestic terminal	8	15	HVAC Equipment
1500001981	Transformers and Connectors	5	10	Electrical Installation
1530000550	350TR chiller for arrival block of Int.Terminal	8	15	HVAC Equipment
1700000730	ride on scrubber	10	8	Vehicles
1530000520	SITC OF AHU	8	15	HVAC Equipment
1530000810	SITC of AHU of Duty free Arrival	8	15	HVAC Equipment
1500001960	LED sign boards - Entrance Gate	8	10	Electrical Installation

4.5.11. The original runway at CIAL was commissioned in FY 2000. The life considered at the time of commissioning was 15 years. The re-carpeting of the runway was first carried out in FY 2010, the cost for the same was capitalised in the books of CIAL considering a useful life of 15 years. As per the AERA Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets, the useful life of the original runway should have been 30 years. However, prior to the issue of the Order, the runway had already been fully depreciated on the books of CIAL. Nevertheless, the life of runway re-carpeting should co-terminate with the revised life of the original runway. Therefore, the Authority revised the life of the runway re-carpeting carried out in FY 2010 to 20 years and recalculated the depreciation from FY 2019 onwards when the Order on useful lives came into effect. Depreciation was adjusted such that the book value of the asset gets depreciated over its updated balance life.

4.5.12. Similarly, the Authority revised the life of the runway re-carpeting proposed to be commissioned in FY 2021 to 9 years (as against 5 years proposed by CIAL) in order to co-terminate its life with the updated life of the original runway.

Table 25: Revised useful lives of runway re-carpeting

Item / Description	FY of Commissioning	Useful Life (as per CIAL)	Revised Useful Life (as per Authority)	Revised Year of Expiry
Original runway	2000	15	30	2030
First re-carpeting	2010	15	20	2030
Second re-carpeting	2021	5	9	2030

4.5.13. The Authority had commissioned a study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL for the Second Control Period (summary of the study is given in Annexure 1 and the study report is attached as Appendix 1 of this Consultation Paper). The study had examined the allocation of assets of CIAL and recommended revisions in the classification of certain assets and the terminal allocation ratio. Based on the recommendations of the study regarding the allocation of assets and the revision in useful lives of assets, the Authority has recomputed the Aeronautical Depreciation for all the assets and the summary of the same is given in the table below.

Table 26: Aeronautical Depreciation of assets recomputed by the Authority for true up of the 2nd Control Period

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Land	0.0	0.00	0.00	0.00	0.00	0.00
Buildings and civil works	4.54	23.11	17.56	20.23	20.74	86.18
Golf course development	0.00	0.00	0.00	0.00	0.00	0.00
Runway, roads and culverts	9.99	21.16	23.51	26.68	32.15	113.48
Plant and Equipment	12.43	43.74	42.96	51.05	52.62	202.81
Office Equipment	0.04	0.11	0.11	0.14	0.35	0.76
Computers and accessories	0.88	0.87	0.94	1.09	2.00	5.78
Furnitures and fixtures	0.70	0.93	1.56	1.64	1.49	6.31
Vehicles	0.46	0.60	0.63	0.86	1.08	3.63
Intangible assets	2.76	1.47	1.22	0.54	0.38	6.38
IDC	0.00	0.00	0.00	0.00	0.20	0.20
Total Depreciation	31.80	91.99	88.49	102.24	111.01	425.54

*Forecasted figures

4.6. True up of Fair Rate of Return

CIAL's submission of FRoR for the Second Control Period

4.6.1. CIAL submitted its outstanding Equity during the 2nd Control Period as given in the table below.

Table 27: Outstanding Equity submitted by CIAL for true up of 2nd Control Period

Particulars (in INR crores)	Formula	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*
Share Capital	A	382.60	382.60	382.60	382.60	382.60
Reserves and Surplus	B	599.80	640.70	692.30	771.80	457.30
Share Premium	C	306.10	306.10	306.10	306.10	306.10
Less: Grant	D	0.00	0.00	0.00	0.00	0.00
Less: Investment in Subsidiaries	E	230.70	230.80	235.10	239.50	239.50
Closing Equity	A+B+C-D-E	1057.70	1098.60	1145.80	1220.90	906.40
Average Equity		1015.80	1078.10	1122.20	1183.40	1063.70

*Forecasted figures

4.6.2. CIAL submitted its outstanding debt and cost of debt for true up during the 2nd Control Period as given in the table below.

Table 28: Outstanding Debt submitted by CIAL for true up of 2nd Control Period

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*
Cost of debt (%)	9.63%	9.63%	8.90%	8.50%	7.80%
Total closing Debt	379	488	570	555	749
Average Debt	264	434	529	562	652

*Forecasted figures

4.6.3. CIAL has considered refundable security deposits of INR 150 crores received from the Fuel farm operator as equivalent to debt for calculation of Fair Rate of Return for the Second Control Period.

4.6.4. The FRoR submitted by CIAL for true up for the 2nd Control Period is as given in the table below

Table 29: FRoR submitted by CIAL for true up of 2nd Control Period

Particulars (in INR crores)	Details (%)
Weighted average gearing including SD	36.9%
Share of Equity	63.1%
Weighted Average cost of debt and SD	8.7%
Cost of equity	14.0%
FRoR calculated by CIAL	12.05%

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

4.6.5. Relevant decisions taken by the Authority regarding true up of FRoR for the 2nd Control Period:

- “To commission a study on Cost of Equity for CIAL and take a view on the same for true up and for the third Control Period.” (Decision No. 10. a. ii)
- “To true up Cost of Debt based on any changes to interest rate and to true up cost of Equity based on the study and Fair rate of return based on changes to the Gearing between Equity and Debt considering actual position for the Control Period, at the time of determination of tariff for the next Control Period”. (Decision No. 10. a. v)

Authority's Analysis of FRoR submitted by CIAL for the Second Control Period

4.6.6. The Authority compared FRoR proposed by it in the previous Tariff Order and that submitted by the Airport Operator in the current MYTP. The comparison is as given below:

Table 30: Comparison of FRoR submitted by CIAL and as per 2nd Control Period Tariff Order

Particulars	As Proposed by CIAL (Current MYTP)	As proposed by the Authority (Previous tariff order)
Weighted average gearing	28.20%	39.68%
Weighted Average cost of Debt	8.72%	9.63%
Share of Equity	63.13%	52.50%
Cost of Equity	14.00%	14.00%
Share of Deposit	8.67%	7.83%
Cost of Deposit	8.72%	0.00%
FRoR	12.05%	11.17%

4.6.7. The Authority observed that there's a significant difference between the Weighted Average Gearing as proposed in the Tariff Order and as submitted by CIAL for the 2nd Control Period. The Authority compared average equity and average debt as proposed in the Tariff Order for the 2nd Control Period and as submitted by CIAL in the current MYTP. The Authority notes that CIAL had resorted largely to internal cash accrual for capital expansions in the 2nd Control Period. The comparison is as given in the table below.

Table 31: Comparison of Debt and Equity as per CIAL's submission and as per tariff order for 2nd Control Period

Particulars (INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*
Equity					
Average Equity as per tariff order for 2 nd Control Period (A)	899.0	941.0	988.0	1055.0	1147.0
Average Equity as per CIAL's submission (B)	1015.8	1078.1	1122.2	1183.4	1063.7
Difference (A-B)	(116.8)	(137.1)	(134.2)	(128.4)	(83.3)
Debt					
Average Debt as per tariff order for 2 nd Control Period (A)	369.0	639.0	775.0	933.0	1086.0
Average Debt as per CIAL's submission (B)	264.0	434.0	529.0	562.0	652.0
Difference (A-B)	105.0	205.0	246.0	370.7	434.0

*Forecasted figures

4.6.8. The Authority has observed that CIAL has raised three term loans. A term loan of INR 500 Cr. was sanctioned for commissioning of the new international terminal T3. A second loan of INR 120 Cr. was availed during FY 2019 for the renovation of the old international terminal and its conversion into domestic terminal. Another term loan of INR 100 Cr. was tied up with the second loan to meet general capital expenditures for FY 2020. The source of funds submitted by CIAL is given in the table below.

Table 32: Sources of funds submitted by CIAL

Sources of Funds (INR Cr)	FY 2017	FY 2018	FY 2019	FY 2020
Shareholders' Funds				
Share Capital	382.6	382.6	382.6	382.6
Share Premium	306.1	306.1	306.1	306.1
Reserves & Surplus	599.8	640.7	692.3	771.8
Loan Funds	369.7	437.9	506.3	489.1
Other Long-Term Liabilities	236.5	244.8	264.1	257.4
Current Liabilities	305.6	426.8	409.3	418.8
Short-Term Provisions	3.0	6.6	4.9	5.9
Deferred Tax Liability	46.3	72.7	93.5	71.9

Total	2249.6	2518.2	2659.1	2703.5
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4.6.9. The Authority has considered Cost of Debt on the basis of actual rates of interest and Gearing based on actual position of Equity and Debt during the Second Control Period, both in accordance with the decision taken at the time of Tariff Determination for the Second Control Period.

4.6.10. In the Tariff Order for the Second Control Period, the Authority had decided to commission a study with regards to determination of Cost of Equity and then true up the same in the current Control Period. For the purposes of true-up for the Second Control Period, the Authority has decided to consider the rate of 14% for cost of equity, whereas, for the Third Control Period, the Authority will advise a rate based on the cost of equity study conducted by it.

Refundable security deposit:

4.6.11. At the time of tariff determination for the 2nd Control Period, the Authority had noted that the matter of considering SD for FRoR is sub-judice. Pending decision from AERAAT, the Authority proposed to not provide any return on SD. However, the Authority as noted the following relevant extracts in the TDSAT order dated April 23, 2018 on the matter of issues raised by DIAL in the First Control Period.

- *Page No 114, Para no 105, "Whether voluntarily or mandatorily, there is no doubt that the RSD amount has been used as an investment in the project and the SSA allows a fair return on the investment which is to be proportionate to the cost of investment"*
- *Page no 115, Para no 106, "At the least, the cost would be the rate of return made available by the approved funds having required ratings of CRISIL"*

4.6.12. With reference to the above, CIAL has considered a rate equivalent to Cost of Debt on SD while calculating FRoR for the 2nd Control Period. CIAL also clarified that the amount of RSD was obtained by it during the T3 construction and was utilised during the construction. Therefore, the Refundable Security Deposit has allowed CIAL to raise lower amount of debt.

4.6.13. Therefore, in light of the above order and the fact that RSD been utilised by CIAL for the creation of assets, the Authority proposes to consider cost of debt as a return on Refundable Security Deposits of INR 150 crores deposited by the Fuel Farm Operator in line with the judgement given by TDSAAT in the case of DIAL.

4.6.14. Based on its analysis of other Regulatory Building Blocks (changes in capital additions etc.) and its decisions on components of FRoR as discussed above, the Authority proposes FRoR as given in the table below for true up of 2nd Control Period for CIAL.

Table 33: FRoR for the true up of 2nd Control Period as proposed by the Authority

Particulars (in INR crores)	Details (%)
Weighted average gearing	28.12%
Share of Equity	63.23%
Share of Deposit	8.64%
Weighted Average cost of debt	8.72%
Cost of equity	14.00%
Cost of Deposit	8.72%
FRoR calculated by the Authority	12.06%

4.7. True up of Return on Land

CIAL's submission on Return on Land for the Second Control Period

4.7.1. CIAL has submitted Return on Land during the 2nd Control Period as given below.

Table 34: Return on land for the 2nd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Land Cost	125.00	125.00	125.00	125.00	125.00	
Aero Ratio (%)	89.60%	89.60%	89.60%	89.60%	89.60%	
Aero Land	112.10	112.10	112.10	112.10	112.10	
Actual cost of debt (%)	9.63%	9.63%	8.90%	8.50%	7.80%	
SBI Rate + 2%	>11.00%	>10.50%	>10.50%	>10%	>9%	
Rate for calculation of return on land cost	9.63%	9.63%	8.90%	8.50%	7.80%	
Return on land cost	11.5	11.5	10.80	10.40	9.80	54.05

*Forecasted figures

Decisions taken by the Authority regarding Return on Land as per Tariff Order for the Second Control Period

4.7.2. At the time of tariff determination for Cochin Airport during the 2nd Control Period, The Authority had decided the following

- “A study will be conducted on manner of providing return on land investment and the Authority will decide based on the same, which will then be applied to CIAL also” (Para 10.6.2)
- “To not consider Land as part of RAB for computing return, as detailed in Para 10.6.2 above, pending study to be conducted” (Decision No. 5. a. i)

Authority's Analysis of Return on Land submitted by CIAL for the Second Control Period

4.7.3. The Authority notes that in Order No.42/2018-19 dated 05 March 2019 regarding determination of Fair Rate of Return to be provided on cost of land, the Authority after deciding on the manner in which return would be provided on Land also decided thus, “This Order of the Authority will take effect from the next Control Period.” (Decision No. 4.1.8). In the case of CIAL, the next control period as stated in the order is the 3rd Control Period starting from FY 2022.

4.7.4. The Authority thus proposes to provide return on land cost to CIAL during the 3rd Control Period and to not consider it for true up of the 2nd Control Period.

4.7.5. Return on Land cost for true up of Second Control Period as proposed by the Authority is as given in the table below.

Table 35: Return on Land as proposed by the Authority for the Second Control Period

Particulars (INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Return on cost of Land	0.00	0.00	0.00	0.00	0.00	0.00

4.8. True up of Operating Expenses

CIAL's submission on Operations and Maintenance expenses for the Second Control Period

4.8.1. The basis for allocation of O&M expenses as submitted by CIAL are as given below:

- **Employee costs:** Employees have been bifurcated into Aeronautical, Non-Aeronautical and Common. In accordance with Authority's decision in the Previous Tariff Order common employees like those in MD's office, Finance and HR Department have further been bifurcated into Aeronautical and Non-Aeronautical employees. Total employee cost has been segregated into Aeronautical and Non-Aeronautical in the respective proportion of their numbers.
- **Admin and General expenses:** Loss on sale of assets due to flood have been bifurcated into Aeronautical and Non-Aeronautical based on the ratio of Aeronautical gross block to total gross block. Flood mitigation expenses have been considered as 100% Aeronautical in nature. Remaining Admin and General expenses have been allocated as Aeronautical in the ratio of number of employees providing Aeronautical and Non-Aeronautical services.
- **Utilities cost:** The power, water and fuel generator set costs have been considered as net of utility service charges from concessionaires. The net cost thus obtained have been considered as 100% Aeronautical.
- **Repairs and Maintenance expense:** Repairs and Maintenance cost have been bifurcated into Aeronautical and Non-Aeronautical based on the ratio approved by the Authority in the previous tariff order.
- **Other operational expenses:** Other operational expenses have been bifurcated in the ratio of employees providing Aeronautical and Non-Aeronautical services as per the Tariff Order for the 2nd Control Period.
- **CUTE operational expenses:** CUTE operational expenses have been considered as 100% Aeronautical.

4.8.2. CIAL has submitted Aeronautical allocation of operations and maintenance expense as given in the table below.

Table 36: Aeronautical allocation of O&M expenses for true up of the 2nd Control Period as submitted by CIAL

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Employee costs	95.3%	95.4%	95.7%	96.0%	96.1%
Total Repairs cost	85.4%	85.4%	85.4%	85.4%	85.4%
Safety and security expense	95.3%	95.4%	95.7%	96.0%	96.1%
Utility charges	100.0%	100.0%	100.0%	100.0%	100.0%
Vehicle R&M expenses	95.3%	95.4%	95.7%	96.0%	96.1%
Housekeeping expenses	95.3%	95.4%	95.7%	96.0%	96.1%
Consumables	95.3%	95.4%	95.7%	96.0%	96.1%
Other operational expenses	95.3%	95.4%	95.7%	96.0%	96.1%
CUTE operational expenses	100.0%	100.0%	100.0%	100.0%	100.0%
Admin related expense except flood related costs and flood mitigation expenses	95.3%	95.3%	95.3%	95.3%	95.3%
Net amount of loss on sale of assets related to floods and flood related expenses	85.2%	85.1%	86.0%	86.3%	87.7%
Flood mitigation expenses	100.0%	100.0%	100.0%	100.0%	100.0%

4.8.3. Aeronautical O&M expenses, as submitted by CIAL for the 2nd Control Period, are as given in the table below.

Table 37: Aeronautical Operational and Maintenance expenses submitted by CIAL for true up of 2nd Control Period

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Payment to Employees	50.44	54.92	76.70	75.13	79.31	336.49
Repairs and Maintenance	15.18	19.35	20.81	25.22	20.18	100.73
Utility costs	17.03	26.31	27.78	31.25	23.45	125.83
Safety and Security expenses	3.76	6.42	8.21	8.45	6.77	33.60
Vehicle Repairs and Maintenance	0.85	0.87	1.38	0.94	0.57	4.61
Housekeeping expenses	6.95	9.52	9.82	11.13	10.03	47.45
Consumables	1.95	3.16	3.19	3.65	3.65	15.60
Other operational expenses	6.88	7.93	7.07	7.30	7.31	36.49
CUTE operational expenses	1.03	2.07	4.48	5.30	6.15	19.03
Admin and General expense	22.17	13.09	25.96	35.22	28.50	124.93
Total O&M expenses	126.24	143.63	185.41	203.58	185.91	844.78

Decisions taken by the Authority regarding O&M expenses as per Tariff Order for the Second Control Period

4.8.4. The Authority had, at the time of tariff determination for the 2nd Control Period taken the following decision regarding operations and maintenance expenditure:

- *“To true up the operations and maintenance expenditure for the current Control Period, at the time of determination of tariff for the next Control Period” (Decision No.8.a.iii)*

4.8.5. Aeronautical allocation of O&M expenses approved by the Authority as per Tariff Order for the Second control were as given in the table below.

Table 38: Aeronautical allocation of O&M expenses as per tariff order for 2nd Control Period

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Employee costs	82.00%	92.50%	92.50%	92.50%	92.50%
Total Repairs cost	85.36%	85.36%	85.36%	85.36%	85.36%
Safety and security expense	82.00%	92.50%	92.50%	92.50%	92.50%
Utility charges	100.00%	100.00%	100.00%	100.00%	100.00%
Vehicle R&M expenses	82.00%	92.50%	92.50%	92.50%	92.50%
Housekeeping expenses	82.00%	92.50%	92.50%	92.50%	92.50%
Consumables	82.00%	92.50%	92.50%	92.50%	92.50%
Other operational expenses	82.00%	92.50%	92.50%	92.50%	92.50%
CUTE operational expenses	100.00%	100.00%	100.00%	100.00%	100.00%
Admin expenses	82.00%	92.50%	92.50%	92.50%	92.50%

4.8.6. Aeronautical O&M expenses as per 2nd Control Period Tariff Order are as given in the table below.

Table 39: Aeronautical O&M expenses as per tariff order for 2nd Control Period

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Payment to Employees	58.79	70.96	75.93	81.25	86.93	373.86
Repairs and Maintenance	17.89	21.97	27.23	33.32	37.54	137.95
Utility costs	26.05	39.35	43.83	48.25	53.14	210.62
Safety and Security expenses	4.04	6.44	6.84	7.26	7.70	32.28
Vehicle Running expenses	0.71	0.81	0.81	0.82	0.82	3.97
Housekeeping expenses	9.86	17.83	19.39	21.10	22.96	91.14
Consumables	2.71	5.22	5.47	5.73	6.00	25.13

Miscellaneous expenses	12.06	16.17	19.22	22.85	27.16	97.46
CUTE operational expenses	3.75	3.75	3.75	3.75	3.75	18.75
Admin and General expense	12.46	15.11	16.52	17.92	19.88	81.89
Total O&M expenses	148.32	197.60	218.99	242.24	265.89	1073.04

Authority's analysis O&M expenses submitted by CIAL for the Second Control Period

- 4.8.7. The Authority has validated the actual numbers submitted by CIAL against the audited financial reports for FY 17-20.
- 4.8.8. In order to examine the issues in the allocation of operating expenses as Aeronautical and Non-Aeronautical, the Authority had decided to conduct a study on efficient O&M expenses for CIAL. In addition to examination of allocation of expenses, the study also included the examination of the baseline operating levels and benchmarking of O&M expenses incurred by the Airport Operator during the 2nd Control Period. The Authority proposes to consider the recommendations of study on efficient O&M expenses for CIAL for the true up of the Second Control Period (summary of the study is given in Annexure 2 and the study report is attached as Appendix 2 of this Consultation Paper).
- 4.8.9. The study has allocated O&M expenses into Aeronautical, Non-Aeronautical and Common based on the following principles
- **Aeronautical costs:** Expenses which are incurred for operation and maintenance of Aeronautical assets were categorised as Aeronautical costs
 - **Non-Aeronautical costs:** Expenses which are incurred for operation and maintenance of Non-Aeronautical assets were categorised as Non-Aeronautical costs
 - **Common costs:** Costs for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical were segregated as Common costs
- 4.8.10. The basis for aeronautical allocation of O&M expenses as submitted by CIAL and as proposed by the study on efficient O&M expenses for CIAL are as given below.

Table 40: Comparison of basis for allocation as submitted by CIAL and as proposed by the study

Item	Basis according to CIAL	Basis according to the study
Employee costs	Employees have been bifurcated into Aeronautical, Non-Aeronautical and Common. Common employees have further been bifurcated in the proportion of Aeronautical and Non-Aeronautical employees. Total employee costs are then bifurcated into Aero and Non-Aero in the respective proportion of their numbers.	Same as according to CIAL.
Total Repairs cost	Repairs and maintenance expenses have been bifurcated based on the ratio approved by the Authority in the Tariff Order.	Bifurcated based on revised ratio of Aeronautical Gross Block to Total Gross Block.
Safety and security expenses	Safety and security expenses have been bifurcated in proportion of number of employees providing Aeronautical and Non-Aeronautical services.	As the security expenses are incurred for the whole of Terminal building and the Airport, the same have been bifurcated using the terminal allocation ratio.
Utilities cost	Utilities costs have been considered as net of revenues from concessionaires and the net amount so obtained have been considered as 100% Aeronautical.	Same as according to CIAL.
Vehicle running and maintenance expenses	Vehicle running and maintenance expenditure have been bifurcated in the proportion of number of employees providing Aeronautical and Non-Aeronautical services.	Same as according to CIAL.

Housekeeping expenses	Housekeeping expenses have been bifurcated in the proportion of number of employees providing Aeronautical and Non-Aeronautical services.	As the housekeeping expenses are incurred for the upkeep and cleanliness of the Terminal building and the areas surrounding them, the same have been bifurcated using the terminal allocation ratio.
Consumables expenses	Consumables expenses have been bifurcated in the proportion of number of employees providing Aeronautical and Non-Aeronautical services.	As the consumables are used across the Terminal building by employees and passengers alike, consumable expenses have been bifurcated using the terminal allocation ratio.
CUTE operational expenses	CUTE operational expenses have been considered as 100% Aeronautical.	Same as according to CIAL.
Other operational expenses	Other operational expenses have been segregated in the proportion of employees providing Aeronautical and Non-Aeronautical services.	As the other operational expenses pertain to the overall Airport operations, the same have been bifurcated using the terminal allocation ratio.
Administrative and general expenses	All admin and general expenses except flood related expenses have been segregated in the proportion of employees providing Aeronautical and Non-Aeronautical services. Flood mitigation expenses have been considered as 100% Aeronautical while loss on sale of assets due to flood have been bifurcated in the ratio of aero gross block to total gross block.	Components of Admin and general expenses related to Terminal building have been segregated using the terminal allocation ratio, those related to employees have been segregated in the employee ratio and the remaining in the ratio of average aeronautical assets to total assets. Flood mitigation expenses were found to be incurred outside the airport area and have been excluded from O&M expenses.

4.8.11. Based on the study on efficient O&M expenses for CIAL, the authority proposes the Aeronautical allocation percentage of various O&M heads as given in the table below.

Table 41: Aeronautical allocation of O&M expenses as proposed by the Authority for true up of 2nd Control Period

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Employee costs	95.32%	95.36%	95.70%	96.01%	96.13%
Total Repairs cost	83.64%	83.35%	84.30%	84.58%	85.82%
Safety and security expense	91.06%	91.06%	91.06%	91.06%	91.06%
Utility charges	100.00%	100.00%	100.00%	100.00%	100.00%
Vehicle R&M expenses	95.32%	95.36%	95.70%	96.01%	96.13%
Housekeeping expenses	91.06%	91.06%	91.06%	91.06%	91.06%
Consumables	91.06%	91.06%	91.06%	91.06%	91.06%
Other operational expenses	91.06%	91.06%	91.06%	91.06%	91.06%
CUTE operational expenses	100.00%	100.00%	100.00%	100.00%	100.00%
Admin expenses	90.68%	88.91%	90.12%	89.45%	89.71%

4.8.12. The study on efficient O&M expenses for CIAL compared O&M expenses under various heads as submitted by CIAL for true up, for the entire duration of 2nd Control Period and separately for the period FY 2017 to 2020 with the expenses approved by the Authority as per Tariff Order for the 2nd Control Period.

The period FY 2017 – FY 2020 was studied separately, in order to remove the negative impact caused by COVID-19 pandemic from the analysis. The comparison is given in the tables below.

Table 42: Comparison of O&M expenses submitted by CIAL for 2nd Control Period true up and as approved by the Authority in the tariff order

Particulars	FY 2017 – FY 2020 ⁶		2 nd Control Period (FY 2017 – FY 2021)	
	Approved by the Authority	As per CIAL for true up	Approved by the Authority	As per CIAL for true up
Payment to Employees	286.93	257.19	373.86	336.49
Administrative Expenses	62.01	96.44	81.89	124.93
Repairs costs	100.41	80.56	137.95	100.73
Safety & Security costs	24.58	26.84	32.28	33.60
Power, Water and Fuel	157.48	102.37	210.62	125.83
Vehicle R&M costs	3.15	4.04	3.97	4.61
Housekeeping expense	68.18	37.42	91.14	47.45
Consumables	19.13	11.95	25.13	15.60
Other Operational	70.30	29.18	97.46	36.49
CUTE expenses	15.00	12.88	18.75	19.03
Total	807.15	658.86	1073.04	844.78

4.8.13. As can be seen from the comparison done in the study on efficient O&M expenses for CIAL, the actual costs incurred during the period FY 2017 were lower than those approved by the Authority in the Tariff order. Certain expenses like Admin and General, Safety and Security expenses and Vehicle Running and maintenance were higher than those approved by the Authority. The Authority notes that these increases were due to flood related expenses and additional requirements post completion of new International Terminal. However, at an aggregate level, the actual costs during FY 2017 – FY 2020 are lower than those approved by the Authority.

4.8.14. The Authority has made the following observations regarding CIAL's submission of O&M expenses under various heads for the 2nd Control Period.

Employee Costs

4.8.15. The growth rates in employee costs, during the 2nd Control Period as submitted by CIAL and as proposed by the Authority in the tariff order, are as given in the table below.

Table 43: Growth rate in employee costs as submitted by CIAL and as proposed by the Authority in the tariff order

Aero Employee cost	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
As per CIAL	(2)%	9%	39%	(2)%	5%
As per tariff order	25%	7%	7%	7%	7%

4.8.16. In the previous tariff order, The Authority had allowed a 25% increase in employee costs in FY 2017 owing to CIAL's submission regarding salary revision for both the staff and officers cadre employees (CIAL had submitted for an increase of 50%). In the current MYTP, CIAL has submitted that the pay revision was done in FY 2019, as a result of which there was a high growth in actual employee costs in FY 2019 (39%).

4.8.17. The Authority sought clarifications from CIAL regarding consideration of departments like Electrical Engineering and Civil engineering as Aeronautical and not as Common. The Authority asked CIAL to confirm if the services of these departments are availed by Non-Aeronautical service providers. CIAL

⁶ The figures for FY 2017 to 2020 have been compared separately since the expenses are as per the audited financial statements whereas the figures for FY 2021 are forecasted numbers

responded that these departments are completely engaged for Aeronautical activities and that the concessionaires can't avail services from these departments.

- 4.8.18. The Authority noted that the number of employees in FY 2021 has increased to 496 from 482 in FY 2020. The Authority sought clarification from CIAL regarding the increase in number of employees considering the slowdown due to the COVID-19 pandemic. CIAL responded that the requirement of additional employees was determined during the pre-COVID period and the recruitment process had begun before the start of the crisis. CIAL has further added that it hasn't retrenched any workers after the crisis hit.
- 4.8.19. The Authority has gone through CIAL's initial submission related to employee expenses and the clarifications provided afterwards and has noted that the employee expenses submitted by CIAL are lower than that proposed by the Authority in the 2nd Control Period Tariff Order. Based on its analysis of employee expenses as detailed above, the Authority proposes to consider employee expenses as submitted by CIAL for true up of 2nd Control Period.

Repairs and Maintenance

- 4.8.20. The Authority observed that CIAL has considered a COVID-19 reduction factor of 20% on repairs cost for FY 2021 and sought clarification from CIAL regarding the basis for such an assumption. CIAL responded that the reduction factor was calculated based on the expenses incurred during April 2020 to Sept 2020.
- 4.8.21. The Authority noted that CIAL has submitted R&M expenses at actuals for FY 2017 to FY 2020. For FY 2021, the Authority has studied CIAL's assumptions regarding R&M expenses as a percentage of Gross Block, Growth Factor etc. in detail. The Authority also noted that the Aeronautical allocation of R&M expenses submitted by CIAL is in line with the proposal made by the Authority in the 2nd Control Period. Accordingly, the Authority proposes to revise the R&M expenses as explained in the study on efficient O&M expenses for CIAL, based on the recomputed Aeronautical Gross Block ratio as per the study on allocation of assets between aeronautical and non-aeronautical assets.

Utilities Costs

- 4.8.22. The Authority noted that CIAL has estimated utilities consumption for FY 2021 in line with the passenger traffic growth rate. Hence, the Authority proposes to consider the same as per CIAL's submission. The Authority had also studied the Power Purchase Agreement with CIAL Infra in detail and understood that the unit power charges from CIAL Infra is in line with the PPA.
- 4.8.23. The Authority noted that the Utility service charges for FY 2020 was 17.2% of utility costs during the same year and an average of 19% during FY 2017 to FY 2020, while CIAL has forecasted utility service charges for FY 2021 as 10% of utilities cost. The Authority sought clarifications regarding this, to which CIAL responded that the ratio was reduced to account for the closing of businesses by concessionaires due to the impact of COVID-19 and that the actual charges during April-September 2020 was 7.4% of utility costs during the same period, which is lower than the original assumption of 10%.
- 4.8.24. The Authority noted that CIAL has considered Utilities costs (Power, Water and Fuel Generator sets) as net of revenue from concessionaires. The costs thus obtained have been considered as Aeronautical, in line with the decision taken by the Authority in the 2nd Control Period Tariff Order. The Authority, on the basis of CIAL's submissions and its analysis of the same, proposes to consider Utilities Cost as submitted by CIAL for the 2nd Control Period.

Safety and Security expenses

- 4.8.25. The Authority noted that the safety and security expenses during FY 2018 has increased by 71% while the CAGR during the period FY 2012 - FY 2017 is 10%. The Authority sought clarifications from CIAL in

this regard and CIAL responded that the increase was due to additional requirements after commissioning of international terminal T3.

- 4.8.26. The Authority proposes to consider Aeronautical Allocation of Safety and Security expenses as per the study regarding efficient O&M costs and recompute Aeronautical Safety and Security expenses for the 2nd Control Period.

Housekeeping expenses

- 4.8.27. The Authority noted that the housekeeping expenses during FY2018 has increased by 37% while the CAGR during FY 2012 – FY 2017 is 19%. The Authority sought clarifications from CIAL in this regard and CIAL responded that the increase was due to additional requirements after the commissioning of the new international terminal T3.

- 4.8.28. The Authority proposes to consider Aeronautical allocation of Housekeeping expenses as per the study on efficient O&M costs for CIAL and recompute the same for the 2nd Control Period.

Admin and General expenses

- 4.8.29. Admin and General expenses consider various miscellaneous expenses including flood mitigation expenses. During the site visit, it was observed that certain flood mitigation measures were carried out outside the airport premises, on public land. The Authority asked CIAL to provide a detailed breakup of flood mitigation expenses for the 2nd Control Period.

- 4.8.30. Since these measures benefit the general public in the adjoining areas of the airport that include farmlands and households, the responsibility of these measures cannot be entirely attributed to the Airport Operator. Based on the break-up of flood mitigation expenses provided by CIAL, the Authority proposes to consider only the expenses incurred within the airport area for ARR calculations.

- 4.8.31. The Authority noted that different COVID-19 reduction factors are used for items like printing and stationery and repairs to office equipment (15% for repairs to office equipment and 50% for printing and stationery). The Authority sought clarifications from CIAL in this regard and CIAL responded that the reduction factors were estimated based on internal assessment of these expenses. The Authority proposes to revise Admin and General expenses based on the changes discussed above and the revised allocation based on the study conducted regarding efficient O&M costs for CIAL.

- 4.8.32. CIAL had excluded the Provision for Doubtful Debt from Aeronautical O&M expenses in its MYTP submission. However, it was noticed that the figures of the preceding year were deducted from the O&M expenses instead of deducting the Provision for Doubtful Debt figures of the same year. In the study on efficient O&M expenses for CIAL, this error was rectified, and the Admin and General expenses were adjusted accordingly.

Working Capital Interest:

- 4.8.33. The Authority has noted that CIAL has not included working capital interest under O&M expenses and instead considered it separately in its computation of ARR.

- 4.8.34. The Authority sought clarification regarding the working capital needs of CIAL and its source of funds in this regard. CIAL responded that working capital is required to meet short-term cash requirements for expenses like payment of salaries and preventive maintenance etc. CIAL further added that working capital was required for payment of dividends as well and that working capital is financed in the form of overdraft facilities from banks. However, CIAL has considered the entire interest on working capital as an Aeronautical expense.

- 4.8.35. Working capital requirements cannot be purely attributed to the aeronautical activities at the airport. Since this is a general corporate requirement the Authority proposes to bifurcate the working capital interest

expenses using the gross fixed asset ratio and consider the same as part of operational expenses for true up of the Second Control Period.

- 4.8.36. Based on its analysis of CIAL's submissions, the decisions taken in the 2nd Control Period tariff order and the proposals made by the study for determination of efficient O&M expenses for CIAL (summary of the study is given in Annexure 2 and the study report is attached as Appendix 2 of this Consultation Paper), the Authority proposes the following operations and maintenance expenditure for true up during the 2nd Control Period.

Table 44: Aeronautical O&M expenses as proposed by the Authority for true up of 2nd Control Period

Particulars (in INR crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Payment to Employees	50.44	54.92	76.70	75.13	79.31	336.49
Repairs and Maintenance	14.87	18.89	20.55	24.99	20.28	99.58
Utility costs	17.03	26.31	27.78	31.25	23.45	125.83
Safety and Security expenses	3.59	6.13	7.81	8.02	6.41	31.96
Vehicle Repairs and Maintenance	0.85	0.87	1.38	0.94	0.57	4.61
Housekeeping expenses	6.64	9.09	9.35	10.56	9.50	45.13
Consumables	1.87	3.01	3.03	3.46	3.46	14.83
Other operational expenses	6.58	7.57	6.73	6.92	6.92	34.72
CUTE operational expenses	1.03	2.07	4.48	5.30	6.15	19.03
Admin and General expense	19.36	12.98	25.53	20.01	15.72	93.60
Working Capital Interest	0.16	0.87	0.29	1.61	4.28	7.21
Total O&M expenses	122.41	142.71	183.63	188.19	176.06	812.99

*Forecasted figures

4.9. True up of Non-Aeronautical Revenues

CIAL's submission on Non-Aeronautical Revenues for the Second Control Period

4.9.1. CIAL submitted Non-Aeronautical revenues for 2nd Control Period as given in the table below.

Table 45: CIAL's submission of Non-Aeronautical revenue for true up of 2nd Control Period

Particulars (INR Crores)	F Y 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Non-Aeronautical royalties, license fees and lease rentals	69.11	79.45	97.46	124.91	34.45	405.37
Duty free revenues	133.15	100.35	97.48	98.05	12.57	441.59
Interest Income	7.97	8.58	7.34	11.97	1.77	37.62
Other Income	10.48	7.39	8.25	7.18	3.98	37.29
Income from Golf Course, Trade Fair Centre and Commercial complex	5.12	6.14	6.25	6.41	3.09	27.02
Total NAR	225.82	201.90	216.78	248.51	55.86	948.88

*Forecasted Figures

4.9.2. In accordance with the Authority's decision at the time of tariff determination for the 2nd Control Period, CIAL has made the following adjustments while calculating Non-Aeronautical revenue

- Utility charges have been excluded from Non-Aeronautical revenue calculations and have been netted out from utility costs incurred by CIAL for the purpose of calculation of Aeronautical utilities cost.
- Airline space rentals have been excluded from Non-Aeronautical revenue calculations and have been considered as Aeronautical revenues
- Fuel hydrant space rentals have been considered as Aeronautical revenues.

4.9.3. CIAL has excluded lease rentals from subsidiaries from the calculation of Non-Aeronautical revenue as the equity investments in subsidiaries are not considered in the calculation of Fair Rate of Return.

4.9.4. The detailed break-up of the Non-Aeronautical revenues submitted by CIAL is provided below:

Table 46: Detailed break-up of Non-Aeronautical revenues submitted by CIAL for the 2nd Control Period

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Duty free revenues	133.1	100.3	97.5	98.0	12.6	441.5
Non-Aero Royalties						
Royalty - Engineering	0.3	0.3	0.3	0.2	0.2	1.3
Royalty – Security	4.0	3.3	1.5	1.1	1.1	11.1
Royalty – Terminal Handling & Valet	1.8	0.4	0.2	0.1	0.1	2.6
License Fees						
License Fee – Car Park	11.2	12.1	11.5	11.6	0.7	47.1
License Fee – Catering	4.0	4.0	4.8	4.6	0.9	18.3
Other License Fees						
F&B	10.8	12.1	18.8	30.0	3.0	74.7
Retail Shops	9.2	9.6	11.9	23.8	4.1	58.6
GH Agency Space	1.0	1.8	1.7	3.9	8.9	17.3
Hoarding/Board	10.3	11.3	12.6	14.1	2.7	51.0
Airline Space	0.0	0.0	0.0	0.0	0.0	0.0
Land Space (excluding BPCL)	2.0	5.9	8.0	8.7	2.4	27.1
Baggage Wrapping Space	1.4	1.6	5.2	7.1	2.6	17.9
Forex Counter	4.5	4.1	8.2	9.8	1.0	27.5
Forex Counter –SBT and Federal Bank	0.0	3.2	3.9	3.6	0.7	11.4
Antenna Space	1.4	2.4	2.2	2.4	2.1	10.6
ATM	0.9	1.1	1.3	1.5	1.4	6.1

Duty Free Shop Rentals	4.7	3.6	0.7	0.8	0.8	10.6
Mobile Counter	0.9	1.9	2.1	1.7	0.2	6.7
Miscellaneous	0.6	0.8	2.6	0.1	1.4	5.5
Interest Income	8.0	8.6	7.3	12.0	1.8	37.6
Other Income	10.5	7.4	8.3	7.2	4.0	37.3
Income from Golf Course, Trade Fair Centre and Commercial complex	5.1	6.1	6.3	6.4	3.1	27.0
Total Non-Aeronautical revenues	225.8	201.9	216.8	248.5	55.9	948.9

Decisions taken by the Authority regarding Non-Aeronautical Revenues as per Tariff Order for the Second Control Period

4.9.5. Relevant decision taken by the Authority with regards to non-aeronautical revenue at Cochin International Airport at the time of tariff determination for 2nd Control Period is as given below

- *“To true up the non-aeronautical revenues at actuals, at the time of determination of tariff for the next Control Period” (Decision No.9. a. ii)*

4.9.6. Regarding Duty free revenues, the Authority had stated in its Order No. 07/2017-18 dated 13 July 2017 regarding determination of tariffs for Aeronautical services in respect of Cochin International Airport for the Second Control Period, in paragraph 14.6.3, *“Since the income would be earned by the wholly owned subsidiary, the Authority sees no reason in a part of the revenues earned by CIAL through the wholly owned subsidiary to be kept outside the purview of being considered as Non-Aeronautical revenues and hence, the entire profits from that activity should be considered as Non-Aeronautical revenues for computing the Aggregate Revenue Requirement. The Authority has hence decided to consider 30% as revenue share and true up the same based on actual revenues and profits of the subsidiary.”*

4.9.7. Regarding revenues collected from Aeronautical service providers and their consideration as Aeronautical revenue, the Authority had stated in its Order No. 07/2017-2018 dated 13 July 2017 regarding determination of tariffs for Aeronautical services in respect of Cochin International Airport for the Second Control Period, in paragraph 14.2.3, *“However, as these relate to revenues realised from Aeronautical service providers, the Authority proposed to consider this revenue as part of Aeronautical Revenue. Similarly, the Authority proposed to consider revenue/rentals collected from Airlines and other agencies allied with the Aeronautical Services as Aeronautical Revenue”.*

4.9.8. The Authority had proposed Non-Aeronautical Revenues as given in the table below at the time of Tariff determination for the Second Control Period.

Table 47: Non-Aero Revenue proposed by the Authority as per 2nd Control Period Tariff Order

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Duty Free Revenues	72.17	82.46	99.58	120.26	145.23	519.70
Non-Aero Royalty, License Fees and Lease Rentals						
Non – Aero Royalties	7.71	8.48	9.33	10.26	11.29	47.07
License Fee - Car Park	7.90	8.69	9.56	10.52	11.57	48.24
License Fee – Catering	2.56	2.74	3.04	3.37	3.73	15.44
Meet and Greet Revenue Share	0.08	0.09	0.10	0.11	0.12	0.50
Revenue Sharing Rent (Retail and F&B)	5.68	6.24	6.87	7.56	8.31	34.66
Fixed Rent – Airline Office and Commercial	12.22	13.44	14.78	16.26	17.89	74.59
Fixed Rent – Retail Space Rent	4.73	10.40	15.81	21.70	24.46	77.10
Fixed Rent – F&B	0.32	0.63	0.69	0.83	0.92	3.39
Minimum Annual Guarantee	26.55	42.72	53.42	64.41	65.60	252.7
Fuel Throughput lease rentals	Considered as Aeronautical Revenue					
Lease Rentals – CIAL Infra	0.07	0.07	0.07	0.07	0.07	0.35

Interest Income	2.69	0.94	0.94	0.94	0.94	6.45
Utility Service Charges	Reduced from O&M expenses					
Other Income	8.20	9.02	9.93	10.92	12.01	50.08
Golf Course, Trade Centre and Commercial Complex	4.61	4.86	6.33	7.94	9.72	33.46
Total Non-Aero Revenue	155.50	190.72	230.39	275.08	311.78	1163.47

Authority's analysis of Non-Aeronautical Revenues submitted by CIAL for the Second Control Period

4.9.9. The following table summarises the difference between the Non-Aeronautical Revenues submitted by CIAL based on actuals and the Non-Aeronautical Revenues determined by the Authority in the tariff order for the Second Control Period

Table 48: Comparison of NAR submitted by CIAL and as proposed by the Authority in tariff order for 2nd Control Period

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Non-Aeronautical royalties, license fees and lease rentals						
As per CIAL (A)	69.11	79.45	97.46	124.91	34.45	405.37
As per tariff order for 2 nd Control Period (B)	67.75	93.43	113.60	135.02	143.89	553.69
Difference (A – B)	1.36	(13.98)	(16.14)	(10.11)	(109.44)	(148.31)
Duty free revenues						
As per CIAL (A)	133.15	100.35	97.48	98.05	12.57	441.60
As per tariff order for 2 nd Control Period (B)	72.17	82.46	99.58	120.26	145.23	519.70
Difference (A-B)	60.98	17.89	(2.10)	(22.21)	(132.66)	(78.10)
Interest Income						
As per CIAL (A)	7.97	8.58	7.34	11.97	1.77	37.63
As per tariff order for 2 nd Control Period (B)	2.69	0.94	0.94	0.94	0.94	6.45
Difference (A-B)	5.28	7.64	6.40	11.03	0.83	31.18
Other Income						
As per CIAL (A)	10.48	7.39	8.25	7.18	3.98	37.28
As per tariff order for 2 nd Control Period (B)	8.20	9.02	9.93	10.92	12.01	50.08
Difference (A-B)	2.28	(1.63)	(1.68)	(3.74)	(8.03)	(12.80)
Income from Golf Course, Trade Fair Centre and Commercial complex						
As per CIAL (A)	5.12	6.14	6.25	6.41	3.09	27.01
As per tariff order for 2 nd Control Period (B)	4.61	4.86	6.33	7.94	9.72	33.46
Difference (A-B)	0.51	1.28	(0.08)	(1.53)	(6.63)	(6.45)
Total Non-Aeronautical Revenues						
As per CIAL (A)	225.82	201.90	216.78	248.51	55.86	948.87
As per tariff order for 2 nd Control Period (B)	155.50	190.72	230.39	275.08	311.78	1163.47
Difference (A-B)	70.32	11.18	(13.61)	(26.57)	(255.92)	(214.60)

- 4.9.10. The Authority has verified the revenues as submitted by CIAL with the audited financial reports for FY 17-20 and the actual numbers submitted by CIAL are correct. However, the allocation between Aeronautical and Non-Aeronautical revenues required revisiting.
- 4.9.11. The Authority has studied the submissions made by CIAL with respect to Non-Aeronautical revenues in detail and the analysis made by the authority in this regard is discussed below.
- 4.9.12. It was observed that the Non-Aeronautical revenues projected for FY 2021 were lower compared to the figures approved by the Authority in the tariff order for the Second Control Period. Also, there is more than 75% drop in the revenues in FY 2021 when compared to FY 2020. However, it would be pertinent to note that the passenger traffic in FY 2021 has dropped by ~70% (close to 80% drop in international and 65% drop in domestic) compared to FY 2020 due to the negative impact of the COVID-19 pandemic.
- 4.9.13. Non-Aeronautical revenues like Duty-Free revenues are driven primarily by passenger traffic. The drop in traffic had severely affected the concessionaires at the airport. As per the data shared by the Airport Operator, 10 concessionaires had already requested termination in June 2020. In order to ensure quality of service at the airport, CIAL has provided interim relief to concessionaires having Minimum Annual Guarantee or revenue share agreements (mainly in retail, F&B and FOREX) so as to retain them. The minimum monthly guarantees to be paid by the concessionaires as per the agreements with them were discounted in proportion to the drop in monthly traffic in FY 2021 as against the figures of FY 2020.
- 4.9.14. The components of Non-Aeronautical revenue have been discussed in detail in the subsequent sections.

Non-Aero Royalties and License fees

- 4.9.15. The Authority noted that the license fees for car park had remained almost a constant during the period FY 2017 – FY 2020, while in FY 2021, it has dropped by 94% to INR 0.72 crores. The Authority had asked clarification from CIAL for such a decline. To this, CIAL had responded that for FY 2021, CIAL had to re-tender the contract due to the contract expiry. As a result of sharp fall in passenger numbers, there weren't enough takers for this tender and based on bids received, the contract was then renewed for 6 months (October 2020 - March 2021) at INR 12 lakhs per month.
- 4.9.16. The Authority observed that the Non-Aero royalties during FY 2017 to 2020 had been following a downward trajectory with a CAGR of -14%. The Authority has further observed that this reduction in Non-Aero royalties had occurred despite a growth in total passenger traffic during the same period (CAGR of 3%). For FY 2021, CIAL has assumed that the royalty revenue will be equal to that in FY 2020.
- 4.9.17. The Authority sought clarifications from CIAL regarding the decline in royalty revenue to which CIAL responded that the royalty is charged from those airlines that avail engineering and security services from other airlines and third-party agencies. According to CIAL, airlines have become increasingly self-reliant and hence availed less of these services from the Airport Operator during the period FY 2017 – FY 2020. Hence, the numbers projected for FY 2021 by the Airport Operator are found to be acceptable.

Rentals and Other License fees

- 4.9.18. The Authority noted that CIAL has excluded fuel throughput lease rentals from Non-Aeronautical revenues in the 2nd Control Period.
- 4.9.19. CIAL has considered airline space rentals as Aeronautical revenues for the 2nd Control Period and this is line with the decision taken by the Authority with respect to such revenues in the Tariff Order for the Second Control Period.
- 4.9.20. The Authority has observed that CIAL has considered Ground Handling agency space as Non-Aeronautical revenues. As per Tariff Guidelines, Ground Handling services are Aeronautical in nature and hence, the revenues received from these agencies must be considered as Aeronautical in nature. The

Authority proposes to consider revenues received from GH agencies in any form to be considered as Aeronautical Revenues for true up of 2nd Control Period.

4.9.21. The Authority asked CIAL to submit a detailed break up of 'Land space excluding BPCL fuel hydrant rent' with the details of concessionaires for FY 2017 – 2020. The Authority noted that the land space rentals include land allotted to ground handling agencies and to other services such as engineering and maintenance. The Authority proposes to consider land space rentals from agencies related to aeronautical services (such as Ground Handling) as aeronautical revenue.

Table 49: Details of rentals considered under Land Space excluding BPCL fuel hydrant

Customer	Name	Revised Classification
Air India Ltd	Space allocated in ULD area	Aeronautical
Airways	Space allocated to Jet Airways in front of Bay no. 9	Aeronautical
BWFS	Space allocated to BWFS at eastern side	Aeronautical
Air India Ltd	Space allocated to Air India to the northern side	Aeronautical
Air India Ltd	Space allocated to Air India in the west bay 9	Aeronautical
Pawan Hans	Space allocated to Pawan Hans in the eastern side of bay 1	Aeronautical
Anjali Hotels	Restaurant in CGGC	Non-Aeronautical
Interglobe Aviation Limited	Airside space allotted to Indigo in the Airside, East end o	Aeronautical
Indian Navy	Space allotted to Indian Navy for laying optical fibre thro	Aeronautical
Celebi Airport Services India	Equipment parking space allotted to Celebi in the eastern side	Aeronautical
BWFS	Space allocated to BWFS at eastern side of bay 18	Aeronautical
Celebi Airport Services India	Equipment charging area at Northern side of T3 pier	Aeronautical
Bird Worldwide Flight Services	Equipment parking area in the Westside of Bay #1	Aeronautical
Bird Worldwide Flight Services	Equipment parking area in front of Bays # 10-13	Aeronautical
BWFS	BWFS equipment charging area	Aeronautical
Air India Ltd	Equipment parking area no:01 East side of T3 pier	Aeronautical
Air India Ltd	Equipment parking area no:02 East side of T3 pier	Aeronautical
Air India Ltd	Equipment parking area no:03 in front of Bays 09 to 13	Aeronautical
Air India Ltd	Equipment parking area no:04 East side of T3 pier	Aeronautical
Air India Ltd	ULD Parking area in front of International Cargo Bldg.	Aeronautical
Bharat Petroleum Corporation Ltd	Equipment parking space for BPCL in the northern side of T3 pier	Aeronautical
Bharat Petroleum Corporation Ltd	Equipment parking space for BPCL	Aeronautical
Go Airlines (India) Ltd	Equipment parking area in the eastern side of T3 pier	Aeronautical
Celebi Airport Services India	Equipment parking space allotted to Celebi in front of Bay#15	Aeronautical
Bharat Petroleum Corporation Ltd	Land Lease allotted to BPCL for setting up Fuel Hydrant	Aeronautical
Indian Oil Corporation	Land Lease allotted to IOCL for setting up of Auto LPG Dispenser	Non-Aeronautical
Ministry of Defence (Coast Guard)	Land Lease Deed - Indian Coast Guard	Aeronautical
Reliance Jio Infocomm Limited	Space allotted to Reliance Jio along the VIP road for laying	Non-Aeronautical
Reliance Jio Infocomm Limited	Space allotted to Reliance Jio for laying optical fibre thro	Non-Aeronautical
Vodafone Idea Limited	Space allotted to Idea for laying optical fibre through CIAL	Non-Aeronautical

Bharat Petroleum Corporation Ltd	Land space allotted to BPCL for Retail Petroleum Outlet	Non-Aeronautical
Bharat Petroleum Corporation Ltd	Land space allotted to BPCL for Retail Petroleum Outlet	Non-Aeronautical
Bharat Petroleum Corporation Ltd	Land Lease allotted to BPCL in T3 pier area	Aeronautical

*The entry to match MIS with audited financials has been considered Aeronautical

Table 50: Adjustments to Land Space Rentals Excluding BPCL Fuel Hydrant

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
As per CIAL's submission (Non-Aeronautical Revenues)						
Land Space excluding BPCL Fuel Hydrant Space – As per CIAL	2.04	5.93	8.01	8.72	2.40	27.14
As per Authority's assessment						
Land to Ground Handling, Equipment Parking etc. (Considered Aero) – (A)	1.21	4.81	6.26	7.03	0.71	20.02
Land to other Aero Services (Considered Aero) – (B)	0.14	0.16	0.18	0.19	0.20	0.87
Total - Land to Ground Handling/ equipment parking and other Aero Services (Considered Aero) – (A) + (B)	1.35	4.97	6.43	7.22	0.91	20.89
Land to Non-Aero Services (Considered Non-Aero)	0.70	0.95	1.58	1.50	1.53	6.25

*Forecasted figures

4.9.22. The Authority sought detailed breakup of all royalty revenues with details including type of contract (MMG, Fixed rentals and revenue share), MMG value, revenue share percentage and the annual escalation percentage. It was understood that the Airport Operator on account of strong impact of COVID-19 on the Non-Aeronautical business, has linked the MMG payments from Concessionaires to traffic in order to sustain the revenues from Non-Aeronautical services for the time the recovery from COVID-19 is not attained.

4.9.23. For FY 2017 - 2020, the Authority proposes to consider revenue as provided in CIAL's audited financial statements. The Authority has recomputed the royalty revenue for FY 2021, based on actual passenger traffic. The details regarding forecast basis are provided below:

- Food and Beverages – These contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. The Minimum Monthly Guarantee figures for FY 2021 were computed by linking the corresponding figures of FY 2020 based on the passenger traffic growth rate obtained on the basis of actual traffic.
- Retail – These contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. The Minimum Monthly Guarantee figures for FY 2021 were computed by linking the corresponding figures of FY 2020 based on the passenger traffic growth rate obtained on the basis of actual traffic.
- Hoarding Board - These contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. The Minimum Monthly Guarantee figures for FY 2021 were computed by linking the corresponding figures of FY 2020 based on the passenger traffic growth rate obtained on the basis of actual traffic.
- GH Agency Space – The Authority proposes to consider revenues from GH Agency Space as Aeronautical Revenues.
- Airline Space Rentals – Airline Space Contracts follow Fixed Rental model with annual escalation rates. The Authority proposes to consider these revenues as per CIAL's submission of the same and consider them as Aeronautical revenues.
- Land Space excluding BPCL Fuel Hydrant – The Authority has noted that these spaces include those that are rented out to GH Agencies and other Aeronautical service providers. Hence, the revenues were bifurcated into Aeronautical and Non-Aeronautical streams and are considered accordingly.

- Baggage Wrapping Space - Baggage Wrapping Space contracts follow Fixed Rental Model with annual escalation rates. The Authority proposes to consider this revenue as per CIAL's submission of the same.
- Forex Counters – Forex Counters have a Revenue Share model. The Revenue for FY 2021 were computed by linking the corresponding figures of FY 2020 to passenger traffic growth obtained on the basis of actual traffic.
- Antenna Space - Antenna Space contracts follow Fixed Rental Model with annual escalation rates. The Authority proposes to consider this revenue as per CIAL's submission of the same.
- ATM Space – ATM Space contracts follow Fixed Rental Model with annual escalation rates. The Authority proposes to consider this revenue as per CIAL's submission of the same.
- Duty Free Shop Rentals - Duty Free Shop contracts follow Fixed Rental Model with annual escalation rates. The Authority proposes to consider this revenue as per CIAL's submission of the same.
- Mobile Counters – Mobile Counter contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. The Minimum Monthly Guarantee figures for FY 2021 were computed by escalating the corresponding figures of FY 2020 based on the passenger traffic growth rate obtained on the basis of actual traffic.

Duty free revenues

- 4.9.24. In the 2nd Control Period Tariff Order, the Authority had decided to consider entire profit generated by CDRSL as royalty revenue as CDRSL is a 100% subsidiary of CIAL. The Authority had decided to consider 30% as revenue share for forecast purpose at the time of tariff determination and then true up the same based on actual revenue and profit (14.6.3, Order No.07/2017-18 dated 13th July 2017). As per the agreement between CIAL and its subsidiary CDRSL, 45 % of revenues (total revenue from sale of goods and advertisements, net of discounts) is to be paid to CIAL as the royalty. CIAL has therefore considered a revenue share of 45% for the 2nd Control Period.
- 4.9.25. Based on the assessment of the financials of CDRSL, it was observed that the gross profit margin (gross profit/revenue from operations) for CDRSL excluding royalty paid to CIAL during the period FY 18-20 lies in the range 45-48%. As per the tariff order of the Second Control Period, the Authority had noted that the income would be earned by the wholly owned subsidiary of CIAL (i.e., CDRSL) from duty free operations and the Authority sees no reason in a part of the revenue earned by CIAL through its subsidiary to be kept outside the purview of being considered as Non-Aeronautical revenue and hence, the entire profits from that activity should be considered as Non-Aeronautical revenues for computing the Aggregate Revenue Requirement. In line with this, for the purposes of tariff determination and true up, the Non-Aeronautical Revenues for CIAL from duty free operations is proposed to be the sum of royalty received from CDRSL plus the net profits of CDRSL for any given year.
- 4.9.26. For FY 2021, CIAL has considered a 15% drop in per pax duty free sales. The Authority asked CIAL to provide the actual revenues during April-November 2020. It was observed that the duty-free revenues were nil during April and May, while for the remaining period, the average per pax sales has reduced by only 5% compared to FY 2019. Based on the factors discussed above, the Authority has recomputed the Duty-free revenues to CIAL for FY 2021.

Interest Income

- 4.9.27. CIAL has considered interest income based on actuals for FY 2017-2020. For FY 2021, interest income is calculated on the average balance in deposit account that CIAL intends to maintain based on its

projected internal cash accruals and capital expenditures. CIAL has forecasted Interest Income for FY 2021 by assuming an Interest Rate of 5%.

- 4.9.28. The Authority, based on its analysis of historic rates of interest to CIAL, proposes to consider a 10% interest rate for FY 2021. The Authority has recomputed Interest Income for FY 2021 accordingly.

Other Income

- 4.9.29. Other income comprises of rent and services from other activities, public admission fees and miscellaneous income. For FY 2017-2020, the Airport Operator has submitted these revenues at actuals. For FY 2021, CIAL has computed these revenues by linking actual revenues during FY 2020 to pax growth during FY 2021. Authority has revised these revenues based on actual traffic numbers for FY 21.

Revenue from golf course, trade fair centre and commercial complex

- 4.9.30. CIAL has submitted that for FY 2021 revenue from Golf-course is forecasted to remain the same as that in FY 2020 as this revenue is in the form of prepaid membership fees.
- 4.9.31. For FY 2021, CIAL has submitted that the revenue from trade fair centre is estimated to be nil as the facility was taken over by the District Administration and converted as COVID-19 treatment centre. The Authority asked CIAL if any revenue is envisaged from the District or State Administration in this regard, to which CIAL responded that no such revenue is forecasted. Additionally, CIAL has submitted that there's an ambiguity regarding the time by which the facility will be returned by the Government for resumption of commercial activities.
- 4.9.32. Based on its analysis, the Authority proposes Non-Aeronautical Revenues as given in the table below for true up of 2nd Control Period.

Table 51: Non-Aeronautical Revenues proposed by the Authority for true up of 2nd Control Period

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Non-Aeronautical royalties, license fees and lease rentals	66.74	72.68	89.36	113.77	29.88	372.43
Duty free revenues	135.68	103.56	103.24	107.25	18.26	468.00
Interest Income	7.97	8.58	7.34	11.97	4.84	40.68
Other Income	10.48	7.39	8.25	7.18	4.10	37.41
Income from Golf Course, Trade Fair Centre and Commercial complex	5.12	6.14	6.25	6.41	3.09	27.02
Total Non-Aeronautical Revenues	225.99	198.35	214.45	246.58	60.17	945.54

**Forecasted figures*

4.10. True up of Aeronautical Revenues

CIAL's submission of Aeronautical Revenues for the Second Control Period

- 4.10.1. CIAL has submitted that the Aeronautical revenues are primarily in the form of Landing, Parking, Housing, Aerobridge charges, PSF, Royalties (Fuel Hydrant, Ground Handling, CUTE services, etc.), X-Ray inspection charges and income from cargo operations. The Airport Operator has submitted that Aeronautical revenues for FY 2017-2020 in its submission are as per actuals. For FY 2021, CIAL has forecasted these revenues on the basis of estimated traffic (passenger, ATMs and cargo) for FY 2021.
- 4.10.2. CIAL has submitted that it has included Airline Space Rentals and Land lease rentals for Fuel Hydrant as Aeronautical revenues as per the decision taken by the Authority in the Tariff Order for 2nd Control Period.
- 4.10.3. The Authority, vide letter No. AERA/20015/FT/2010-11/Vol. II dated 15.01.2020 had advised all major airports to implement the MOCA order regarding discontinuation of levy of FTC in any manifestation at all airports (MoCA letter No:AV13030/216/2016-ER (Pt.2), dated 08.01.2020) pursuant to which the Authority had directed all the major airports to submit their proposal for compensation, if any due to discontinuation of FTC.
- 4.10.4. CIAL had submitted its proposal for compensation for a shortfall of INR 46.77 crores due to discontinuation of FTC (letter No. CIAL/FIN/AERA/2019-20 dated 24.01.2020) and the Authority vide Order No. 06/2020-21 dated 19th May 2020 had decided to increase the Landing charges at CIAL by 30.87% for FY2020-21 effective from 01.06.2020 to recover the shortfall in lieu of abolition of collection of FTC. The Authority had also ordered to true up the revenue on actuals while determining tariff for the 3rd Control Period. However, CIAL has considered a higher rate (~37%) for projection of landing charges for FY 21.
- 4.10.5. CIAL has submitted that it has discontinued the levy of Fuel Throughput charges as per Authority's decision and that the revenue forecasted from FTC is nil during FY 2021.
- 4.10.6. CIAL submitted details of aeronautical revenues for true up of 2nd Control Period as given in the table below;

Table 52: Aeronautical revenues submitted by CIAL for true up of 2nd Control Period

Aeronautical revenues (INR Cr)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Landing Fee	62.8	92.5	108.4	102.5	43.4	409.6
Parking and housing fee	0.8	1.1	1.5	2.3	0.8	6.5
Aerobridge charges	6.3	7.1	8.4	10.6	3.4	35.8
Passenger service fees	36.0	39.4	39.3	37.4	6.7	158.8
X-ray inspection charges	1.1	1.4	1.5	0.0	0.0	4.0
Inline X-Ray screening charges	24.0	23.7	25.2	39.5	13.0	125.4
Aero Royalty						
Royalty – ATF/Fuel	6.4	22.0	29.8	28.5	0.0	86.7
Land space rentals- fuel hydrant	2.1	2.4	2.7	3.0	3.4	13.6
Airline space rentals	4.6	6.4	6.8	8.8	6.8	33.4
Royalty – Ground handling	55.7	75.5	85.2	83.3	22.	322.2
Royalty – CUTE services	33.2	41.6	41.4	39.6	8.5	164.3
Income from cargo operations	22.5	29.8	35.7	35.5	22.3	145.8
Total Aeronautical revenues	255.5	342.7	385.9	391.3	130.7	1506.1

*Forecasted figures

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

4.10.7. Relevant decisions taken by the Authority for Aeronautical revenues at the time of tariff determination for the Second Control Period is as follows:

- *“To continue with waiver of landing charges for a) aircraft with a maximum certified capacity of less than 80 seats being operated by domestic scheduled operators b) helicopters of all types (Decision No. 12.a.ii)”*
- *“Provide waiver of landing charges for flights operating under Regional Connectivity Scheme in line with Order No. 20/2016-17 dated 31st March 2017 of the authority (Decision No. 12.a.iii)”*
- *“To true up the ARR and Revenues based on actuals at the end of the Control Period, in computation of tariff for the next Control Period and at the time of determination of tariff for the next Control Period (Decision No. 12.a.iv.)”*

Authority’s Analysis of Aeronautical Revenues submitted by CIAL for the Second Control Period

4.10.8. The Authority has verified the revenues as submitted by CIAL with the audited financial reports for FY17-20 and the actual numbers submitted CIAL are correct. However, the allocation between Aeronautical and Non-Aeronautical revenues required re-visiting.

4.10.9. The Authority classified Aeronautical Revenue streams according to their linkage to passenger, ATM and cargo Traffic as given below:

- Pax traffic related – The revenue streams that are linked to pax traffic are Passenger Service Fee (PSF) and CUTE (Common User Terminal Exchange).
- ATM traffic related – The revenue streams that are linked to ATM traffic are Landing, Parking, Housing, Fuel Throughput, Aerobridge, X-Ray Inspection, Inline X-Ray screening charges and Ground Handling Royalties. Fuel Throughput Royalties have been considered as Aeronautical revenue until FY 2020 while, the same have been excluded in FY2021 as per the decisions by the Authority in this regard.
- Cargo Traffic related – All cargo related revenues have been linked to cargo traffic for the purpose of estimation.

4.10.10. Fuel Throughput Charges have been discontinued by MoCA vide letter F.No. AV-13030/216/2016-ER dated 08 January 2020. Therefore, these charges have not been considered in the projections for FY 2021.

4.10.11. The Authority noted that CIAL has considered Ground Handling Agency royalties and land lease rentals from GH agencies and other aeronautical services (under the head – ‘Land space excluding BPCL fuel hydrant rent’) as NAR during the 2nd Control Period. As per the Tariff Guidelines and as per the previous tariff order, Ground Handling is classified as an Aeronautical Service. Hence, the Authority proposes to consider all revenues collected from Ground Handling agencies as Aeronautical revenues. Accordingly, the reclassification has been made and the following revenues have been considered as Aeronautical revenues:

Table 53: Reclassification of GH related revenues to Aeronautical revenues

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
As per CIAL’s submission (Considered as Non-Aeronautical Revenues)						
Land Space excluding BPCL Fuel Hydrant Space – As per CIAL	2.04	5.93	8.01	8.72	2.40	27.14
GH Agency Space	1.00	1.80	1.70	3.90	8.90	17.25
As per Authority’s assessment (Considered as Aeronautical Revenues)						

Land to Ground Handling, Equipment Parking etc. (Considered Aero) – (A)	1.21	4.81	6.26	7.03	0.71	20.02
GH Agency Space	1.00	1.80	1.70	3.90	8.90	17.25

*Forecasted figures

- 4.10.12. Further, there were some other revenues which had been considered as Non-Aeronautical Revenues by the Airport Operator under the head – ‘Land space excluding BPCL fuel hydrant rent’. On obtaining clarifications from this aspect from CIAL, the Authority noted that land lease from Coast Guard and Navy are considered as Non-Aeronautical. The same have been proposed to be reclassified as Aeronautical revenues.

Table 54: Space rental revenues reclassified to Aeronautical revenues

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Other Aero revenues (Land space rentals)	0.14	0.16	0.18	0.19	0.20	0.87

*Forecasted figure

Lease rentals from subsidiaries:

- 4.10.13. The Authority notes that CIAL hasn't considered lease rentals from subsidiaries neither as Aeronautical nor as Non-Aeronautical revenues. However, the Authority had included lease rentals from CIAL Infra in its calculation of NAR in the tariff order for 2nd Control Period (Clause 14.2.6, Order No. 07/2017-18 dated 13 July 2017 regarding determination of tariffs for Aeronautical services with respect to Cochin International Airport for the Second Control Period) while, CIAL hasn't included the same in its calculations. The Authority sought clarifications from CIAL regarding the same, to which CIAL has responded that this is excluded as equity investment in subsidiaries are excluded from FRoR calculation.
- 4.10.14. The Authority proposes to consider lease rentals from subsidiaries as Aeronautical revenues during the 2nd Control Period as the land given to the subsidiaries are considered as Aeronautical Land. Accordingly, following revenues are proposed to be considered as Aeronautical revenues:

Table 55: Lease rentals from subsidiaries

Particulars (INR Crores)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Lease rentals from subsidiaries	0.11	0.11	0.11	0.23	0.23	0.80

*Forecasted figure

- 4.10.15. The Authority notes that X-Ray Inspection charges for FY 2020 and FY 2021 are nil as per CIAL's submission. The Authority sought clarification from CIAL in this regard, to which CIAL has submitted that until FY 2019 X-Ray inspection charges were collected from Domestic ATMs after which they were charged for Inline X-Ray screening along with International ATMs. Hence, the revenue from X-Ray inspection charges were nil during FY 2020 and are estimated to remain the same during FY 2021.
- 4.10.16. The Authority observes that in the Tariff Order for the 2nd Control Period, Airline space rentals were proposed to be considered as Aeronautical revenues basis which the Authority proposes to consider Airline space rental as Aeronautical revenue for the 2nd Control Period.
- 4.10.17. Based on revised passenger, ATM and cargo traffic proposed by the Authority in the previous section and based on the changes proposed in the current section, the Authority proposes Aeronautical revenues for true up of 2nd Control Period as given in the table below.

Table 56: Aeronautical revenues proposed by the Authority for true up of 2nd Control Period

Aeronautical revenues (INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Landing Fee	62.80	92.47	108.38	102.54	50.19	416.37
Parking and housing fee	0.81	1.11	1.53	2.33	0.97	6.76
Aerobridge charges	6.25	7.05	8.44	10.64	4.01	36.40
Passenger service fees	35.98	39.43	39.30	37.44	8.71	160.86
X-ray inspection charges	1.12	1.36	1.48	0.00	0.00	3.95
Inline X-Ray screening charges	23.97	23.67	25.21	39.54	15.78	128.16

Royalty – ATF/Fuel	6.35	22.00	29.78	28.55	0.00	86.69
Land space rentals- fuel hydrant	2.11	2.38	2.68	3.01	3.39	13.56
Airline space rentals	4.58	6.36	6.84	8.83	6.76	33.37
Royalty – Ground handling	55.70	75.45	85.19	83.27	33.23	332.85
Royalty – CUTE services	33.23	41.62	41.40	39.64	11.06	166.95
Lease rentals from subsidiaries	0.11	0.11	0.11	0.23	0.23	0.80
Ground Handling & Equipment Parking Space rentals	2.24	6.60	7.92	10.94	9.57	37.27
Lease Rentals – Other Aero agencies	0.14	0.16	0.18	0.19	0.20	0.87
Income from cargo operations	22.55	29.82	35.66	35.50	21.14	144.67
Total Aeronautical revenues	257.94	349.59	394.11	402.65	165.24	1569.52

**Forecasted figures*

4.11. True up of Aeronautical Taxation

CIAL's submission on Aeronautical Taxes for the Second Control Period

4.11.1. CIAL submitted its calculation of Aeronautical taxes for the 2nd Control Period as given in the table below.

Table 57: CIAL's submission of Aeronautical tax computation for true up of 2nd Control Period

Particulars (INR Cr)	Formula	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Aero revenues	A	255.50	342.70	385.90	391.30	130.70	1506.06
30% non-aero revenues	B	67.70	60.60	65.00	74.60	16.80	284.66
Less: Aero OPEX	C	126.20	143.60	185.40	203.60	185.90	844.78
Less: Aero depreciation	D	31.90	92.90	94.90	111.70	125.40	456.79
Less: Interest	E	3.00	36.30	39.20	44.00	47.70	170.16
PBT	A+B-C-D-E	162.10	130.50	131.40	106.60	-211.50	319.00
Tax rate applicable (%)		34.90%	34.90%	34.90%	25.20%	25.20%	
Aero Tax	F	56.60	45.60	45.90	26.80	0.00	174.97
70% of non-aero revenues	G	164.10	150.10	160.10	183.60	39.10	696.94
Less: Non-aero OPEX	H	62.40	21.90	66.30	27.60	20.20	198.34
Less: Non-aero depreciation	I	6.90	10.70	11.30	13.40	12.30	54.62
Less: Interest	J	0.50	6.30	6.40	7.00	6.70	26.86
PBT	G-H-I-J	94.20	111.20	76.10	135.60	-0.1	417.12
Tax rate applicable (%)		34.90%	34.90%	34.90%	25.20%	25.20%	
Non-Aero tax	K	32.90	38.90	26.60	34.10	0.00	132.52
Aero tax (%)	F/(F+K)	63%	54%	63%	44%	0%	
Tax as per IT returns till FY20 and as per P&L statement for FY21		54.30	48.20	52.10	48.50	0.00	203.16
Aero tax for ARR		34.30	26.00	33.00	21.40	0.00	114.72

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

4.11.2. The decisions taken by the Authority regarding taxation at the time of tariff determination for the 2nd Control Period is as given below

- *"To consider tax outflow estimate after adjusting MAT credit for computation of ARR." (Decision No.11. a.i)*
- *"To true up projections based on actuals at the end of the Control Period, in computation of tariff for the next Control Period." (Decision No.11.a. ii)*
- *"To not consider any cost towards contingent liabilities in the computation of ARR." (Decision No.11. a. iii)*

Authority's analysis of Aeronautical taxes submitted by CIAL for the Second Control Period

4.11.3. The Authority noted that CIAL has considered 30% Non-Aeronautical revenues in its calculation of Aeronautical PBT. The fact that a part of Non-Aeronautical revenues is used for cross-subsidisation as per the hybrid till mechanism doesn't change the nature of such revenues to Aeronautical. Cross

subsidisation as per Hybrid-Till mechanism is done in order to reduce tariff pressure on passengers and to incentivise the Airport Operator to make effective investments in Non-Aeronautical revenue generating sources.

4.11.4. The consideration of 30% Non-Aeronautical revenues for computation of Aeronautical tax will increase tax reimbursement beyond the requirement pertaining to aeronautical services leading to an artificial tax benefit. The same could lead to the effective cross subsidy benefit being passed on to the airport user being less than 30% to the extent of the artificial tax benefit the airport operator receives in the event of considering 30% Non-Aeronautical revenues as part of revenue from Aeronautical services.

4.11.5. Therefore, the Authority is of the view that:

- 30% Non-Aeronautical revenues should not be treated as a subsidy for the airport operator as the airport operator has already earned it from Non-Aeronautical services and is meant as a cross subsidy to the airport user.
- Consideration of 30% Non-Aeronautical revenues as part of revenues from Aeronautical services would result in undeserved enrichment to the airport operator effectively reducing the cross-subsidy benefit to the airport user from the present 30% of Non-Aeronautical revenues.
- Further, this issue has been decided by AERA in Chapter 8 of DIAL Tariff Order No. 57/2020-21 dated 30 December 2020 for the Third Control Period.

4.11.6. The Authority thus proposes to consider only Aeronautical revenues and expenses in the calculation of Aeronautical PBT.

4.11.7. The Authority has recomputed the taxes based on changes proposed in the other building blocks and based on the proposal as discussed above. The Aeronautical taxes for the 2nd Control Period as proposed by the Authority is as given in the table below:

Table 58: Aeronautical Taxes as proposed by the Authority for true up of 2nd Control Period

Particulars (INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021*	Total
Aeronautical Taxes	21.38	16.00	21.08	14.18	0.00	72.63

**Forecasted figure*

4.12. True up of Aggregate Revenue Requirement

CIAL's submission of ARR for the 2nd Control Period

4.12.1. CIAL has submitted ARR for the 2nd Control Period as given below.

Table 59: ARR proposed by CIAL for true up of 2nd Control Period

Particulars (INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Average RAB	811.6	1382.4	1495.0	1552.7	1591.2	
FRoR	12.05%	12.05%	12.05%	12.05%	12.05%	
Return on RAB	97.8	166.6	180.2	187.2	191.8	823.7
Return on Land	11.5	11.5	10.8	10.4	9.8	54.0
Depreciation	31.9	92.9	94.9	111.7	125.4	456.8
OPEX	126.2	143.6	185.4	203.6	185.9	844.8
Tax	34.3	26.0	33.0	21.4	0.0	114.7
Working Capital Interest	0.2	1.0	0.3	1.9	5.1	8.6
Less:30% Non-Aero Revenues	67.7	60.6	65.0	74.6	16.8	284.7
ARR	234.2	381.2	439.7	461.6	501.2	2017.9
Aero Revenues	255.5	342.7	385.9	391.3	130.7	1506.1
Over Recovery/ shortfall	21.2	(38.5)	(53.8)	(70.3)	(370.5)	(511.8)
PV of over recovery/short fall	37.5	(60.6)	(75.7)	(88.3)	(415.1)	(602.2)
Total Shortfall of 2nd Control Period	(602)					

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

4.12.2. The Authority had taken the following decision regarding ARR in the Tariff Order for the 2nd Control Period

- *“To true up the ARR and Revenues based on actuals, at the end of the Control Period, in computation of Tariff for the next Control Period and consider shortfall in revenue during the determination of tariff for the third Control Period”. (Decision No.12. a. iv)*

Authority's analysis of ARR submitted by CIAL for the Second Control Period

4.12.3. CIAL has considered working capital interest separately in the computation of ARR. The Authority is of the view that this should be part of O&M expenses and therefore has proceeded to analyse the same under O&M expenses (refer section 4.8).

4.12.4. Based on the analysis of various building blocks for the 2nd Control Period as discussed in the previous sections and the decisions taken regarding the same, the Authority proposes ARR as given in the table below for true up of 2nd Control Period.

Table 60: ARR proposed by the Authority for true up of 2nd Control Period

Particulars (INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Average RAB (refer Table 19) (A)	803.69	1,363.22	1,473.82	1,536.86	1,582.47	
FRoR (refer Table 33) (B)	12.06%	12.06%	12.06%	12.06%	12.06%	
Return on RAB (C = A * B)	96.92	164.40	177.74	185.34	190.84	815.25
Return on Land (refer Table 35) (D)	-	-	-	-	-	-
Depreciation (refer Table 26) (E)	31.80	91.99	88.49	102.24	111.01	425.54
OPEX (refer Table 44) (F)	122.41	142.71	183.63	188.19	176.06	812.99
Tax (refer Table 58) (G)	21.38	16.00	21.08	14.18	-	72.63
Less:30% Non-Aero Revenues (refer Table 51) (H)	67.80	59.51	64.33	73.97	18.05	283.66
ARR (I = C+D+E+F+G-H)	204.71	355.60	406.60	415.97	459.86	1842.74
Aero Revenues (refer Table 56) (J)	257.94	349.59	394.11	402.65	165.24	1569.52
Over-recovery / Shortfall (K = J - I)	53.22	(6.00)	(12.50)	(13.32)	(294.62)	(273.22)
Present Value Factor (L)	1.77	1.58	1.41	1.26	1.12	
PV of Over-recovery / (Shortfall) (K * L)	94.05	(9.47)	(17.58)	(16.73)	(330.15)	(279.89)
Total Over-recovery / (Shortfall) of 2nd Control Period	(279.89)					

4.13. Authority's proposals regarding true up of Second Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to true up of the Second Control Period:

- 4.13.1. Authority proposes to consider the Passenger, ATM and Cargo traffic as detailed in Para 4.3.11 (Table 6) for true up of the Second Control Period.
- 4.13.2. Authority proposes to consider capital additions and Aeronautical allocation of assets as suggested by the study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL for the Second Control Period (the Study is attached as Appendix 1 to this Consultation Paper).
- 4.13.3. Authority proposes to consider RAB as detailed in Para 4.4.40 (Table 19) for true up of the Second Control Period.
- 4.13.4. Authority proposes to revise the useful lives of assets as per AERA Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets and recompute Depreciation considering the allocation of Gross Block as recommended by the study on allocation of assets between Aeronautical and Non-Aeronautical assets.
- 4.13.5. Authority proposes to consider Aeronautical Depreciation as detailed in Para 4.5.13 (Table 26) for true up of the Second Control Period.
- 4.13.6. Authority proposes to provide a return equivalent to cost of debt on Refundable Security Deposits and consider Cost of Equity as 14%.
- 4.13.7. Authority proposes to consider FRoR as detailed in Para 4.6.14 (Table 33) for true up of the Second Control Period.
- 4.13.8. Authority proposes to not provide any return on the cost of land in the Second Control Period.
- 4.13.9. Authority proposes to consider only the flood mitigation expenses incurred within the airport premises under Aeronautical O&M expenses.
- 4.13.10. Authority proposes to consider working capital interest under O&M expenses and allocate the same in the gross fixed asset ratio
- 4.13.11. Authority proposes to consider O&M expenses and their allocation as suggested by the study on efficient O&M expenses for CIAL and as detailed in Para 4.8.36 (Table 44) for true up of Second Control Period.
- 4.13.12. Authority proposes to consider airline space rentals and land lease rentals from agencies related to Aeronautical services like Ground Handling as Aeronautical revenues.
- 4.13.13. Authority proposes to consider the entire profits of CDRSL and royalty paid to CIAL as Duty-Free revenues of CIAL.
- 4.13.14. Authority proposes to consider Non-Aeronautical revenue as detailed in Para 4.9.32 (Table 51) for true up of the Second Control Period.
- 4.13.15. Authority proposes to consider lease rentals from subsidiaries as Aeronautical revenues.
- 4.13.16. Authority proposes to consider Aeronautical revenue as detailed in Para 4.10.17 (Table 56) for true up of the Second Control Period.
- 4.13.17. Authority proposes to not consider 30% of Non-Aeronautical revenues as part of Aeronautical revenue base for Aeronautical tax determination as detailed in Para 4.11.5.
- 4.13.18. Authority proposes to consider Aeronautical Tax as detailed in Para 4.11.7 (Table 58) for true up of the Second Control Period.

- 4.13.19. Authority proposes to consider ARR as detailed in Para 4.12.4 (Table 60) for true up of the Second Control Period and allow the Airport Operator to recover the shortfall of INR 279.89 Crores in the Third Control Period.
- 4.13.20. Authority proposes to consider the figures for FY 2021 based on actuals in the tariff order for the Third Control Period.

5. TRAFFIC FOR THE THIRD CONTROL PERIOD

5.1. CIAL's submission of Traffic for the Third Control Period

Passenger traffic

5.1.1. CIAL has submitted that the passenger traffic growth at the airport had been consistent until FY 2019. The domestic passenger traffic at Cochin International Airport had a CAGR of 13.5% while the international passenger traffic had a CAGR of 4.7% during the period FY 2015-2020.

Table 61: Passenger traffic at Cochin Airport during FY 2015 - FY 2021

Traffic (in millions)	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	CAGR (FY15-20)
Domestic	2.7	3.1	3.9	4.9	5.3	5.0	1.55	13.5%
International	3.7	4.6	5.0	5.2	4.9	4.7	0.92	4.7%
Total	6.4	7.7	8.9	10.1	10.2	9.7	2.47	8.7%

5.1.2. The Airport Operator has stated that the lockdown that was imposed nationally and internationally on account of the COVID-19 pandemic has had a huge impact on the aviation sector. The passenger traffic for the 3rd Control Period has been forecasted by considering the impact of the pandemic. According to CIAL, the domestic and international passenger traffic in FY 2022 are estimated to be at 67% and 44% of their respective levels in FY 2020.

5.1.3. CIAL estimates that the domestic passenger traffic will reach pre-COVID levels by FY 2023 while the international passenger traffic will reach pre-COVID levels by FY 2024. CIAL also estimates that, post recovery, the domestic passenger traffic would grow at a rate of 12.1% (10-year CAGR 2008-2018) and international traffic would grow at a rate of 7.7% (10-year CAGR 2010-2020).

5.1.4. CIAL's estimation of passenger traffic for the Third Control Period is as given in the table below.

Table 62: Passenger traffic for the Third Control Period as submitted by CIAL

Passenger traffic (in millions)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Domestic	3.4	5.4	6.1	6.8	7.6	29.3
% recovery (Base FY 2020)	67%	108%				
International	2.1	3.5	4.7	5.1	5.5	20.9
% recovery (Base FY 2020)	44%	76%	100%			
Total	5.4	9.0	10.8	11.9	13.1	50.2

Air Traffic Movements (ATMs)

5.1.5. CIAL has submitted that the ATMs at the Airport had been on a path of steady growth until FY 2019. During the period FY 2015-2020, domestic ATMs had grown at a CAGR of 7.5% while international ATMs had grown at a CAGR of 2.4%.

Table 63: ATMs during FY 2015-2021 at Cochin International Airport

ATMs (in nos.)	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	CAGR (FY 15-20)
Domestic	26,823	27,907	31,164	36,752	41,104	38,463	7.5%
International	25,970	29,861	31,653	32,909	30,762	29,267	2.4%
Total	52,793	57,768	62,817	69,661	71,866	67,730	5.1%

5.1.6. The passengers per ATM in FY 2020 for domestic operations was 130 and that for international was 161. According to CIAL, rattled passenger sentiments and restrictions due to COVID-19 has resulted in a slump in number of passengers per ATM both in the case of domestic and international flights. Accordingly, CIAL

has estimated that the domestic pax/ATM would reach pre-COVID levels by FY 2024 while the international pax per ATM would not reach pre-COVID levels (or FY 2020 levels) in the 3rd Control Period.

5.1.7. CIAL has submitted pax/ATM for the Third Control Period as given in the table below.

Table 64: pax / ATM at Cochin Airport during FY 2022-2026

Pax per ATM (in nos.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Domestic	115	129	133	136	139
% recovery (Base FY 2020)	88%	99%			
International	129	150	154	155	156
% recovery (Base FY 2020)	80%	93%	96%	97%	97%

5.1.8. Based on the estimated passenger traffic and pax/ATM, CIAL has forecasted the domestic and international ATMs during the 3rd Control Period as given in the table below.

Table 65: ATM Traffic as submitted by CIAL for the Third Control Period

ATMs (in nos.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Domestic	29,234	42,100	45,629	50,004	54,824	221,791
% recovery (Base FY2020)	76%	109%				
International	16,157	23,695	30,543	32,767	35,074	138,235
% recovery (Base FY2020)	55%	81%	104%			
Total	45,390	65,796	76,172	82,770	89,897	360,026

Air Cargo

5.1.9. CIAL has submitted that, the domestic cargo traffic at the airport had grown at a CAGR of 7.8% during FY 2015-20 while the international cargo traffic has grown at a CAGR of 1.4% during the same period.

5.1.10. According to CIAL, air cargo traffic will witness a faster recovery owing to sustained demand and lesser restrictions on air cargo movements compared to passenger traffic. The air cargo traffic for the 3rd Control Period as submitted by CIAL is given in the table below.

Table 66: Air cargo traffic for the 3rd Control Period as submitted by CIAL

Air cargo (in MT)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Domestic						
Outbound	2,701	4,157	4,523	4,922	5,356	21,659
Inbound	7,633	11,662	12,531	13,464	14,467	59,757
Total Domestic	10,334	15,819	17,054	18,386	19,823	81,416
International						
Export	42,580	46,788	53,981	62,281	71,857	2,77,487
Import	10,292	11,718	12,619	13,588	14,633	62,850
Total International	52,873	58,505	66,600	75,869	86,490	3,40,337
Total	63,207	74,324	83,654	94,256	1,06,313	4,21,753

5.2. Authority's analysis of CIAL's submission of Traffic for the 3rd Control Period

5.2.1. The Authority has taken into consideration the effect that COVID-19 pandemic has had on the aviation sector and the consequent disruption in air traffic demand (international and domestic) while analysing CIAL's submission of traffic forecast for the Third Control Period. The Authority also studied in detail the recent trends in air traffic (Passenger, ATMs and Cargo) for the purpose of estimation of the same.

Passenger traffic

5.2.2. Based on the study conducted by various agencies and based on its own internal assessment, CIAL has estimated that the domestic passenger traffic would reach pre-COVID levels (FY 2020 levels) by FY 2023 while the international passenger traffic would reach pre-COVID levels by FY 2024. Post recovery, CIAL has estimated that the domestic passenger traffic would grow at 12.1% (CAGR of FY 2008-2018) and international passenger traffic would grow at 7.7% (CAGR of FY 2010-2020). The growth rates submitted by CIAL for international and domestic traffic during the 3rd Control Period are as given below.

Table 67: Annual growth rate of pax traffic over the previous year as submitted by CIAL

Growth Rate (%)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Domestic pax	182%	62%	12%	12%	12%
International pax	193%	71%	33%	8%	8%
Total pax	187%	65%	20%	10%	10%

5.2.3. The Authority has studied the traffic at Cochin International Airport after the pandemic-induced lockdown in the country was revoked in a phased manner. The Authority notes that the domestic passenger traffic growth in FY 2021 was robust and consistent. Even in the case of international passenger traffic, the recovery vis-à-vis pre-COVID period was quicker than expected till the second wave of COVID-19. The Authority is cognizant of the impact that the second wave of COVID-19 has had on the aviation sector and accordingly has remained conservative in its estimation of traffic. The Authority has also taken into consideration the outlook, projections and reports of various international agencies like ICAO⁷ and IATA⁸ regarding the impact of the pandemic on the aviation industry.

5.2.4. Based on the trends observed in monthly traffic figures of FY 2021 and reconsiderations on the backdrop of potential drop in traffic in the initial months of FY 2022 due to the impact of the second wave of the pandemic, the Authority expects a 70% recovery in domestic passenger traffic and a 50% recovery in international passenger traffic to pre-COVID levels in FY 2022 (vis-à-vis FY 2020).

5.2.5. The Authority finds the estimates of CIAL, with respect to full recovery (100% recovery) of domestic passenger traffic in FY 2023 and that of international passenger traffic in FY 2024 to pre-COVID levels (vis-à-vis FY 2020), to be reasonable.

5.2.6. In the case of international passenger traffic, the projections made by CIAL (using the 10-year CAGR during FY 2010-2020) from FY 2023 onwards are found to be in line with the estimates of the Authority. Hence, the Authority proposes to consider the traffic for FY 2023 to FY 2026 as submitted by CIAL.

5.2.7. With respect to domestic passenger traffic, the Authority looked at the historical growth from FY 2010 to FY 2019 (FY 2020 was not considered in order to avoid influence of COVID-19 on the trend). The growth rate (13.6%) during this period was observed to be higher than the rate used by CIAL to make projections of domestic pax traffic post full recovery to pre-COVID level. Hence the Authority proposes to revise the projections of domestic pax traffic from FY 2024 to FY 2026 considering an annual growth rate of 13.6% (as against 12.1% considered by CIAL). The recovery of passenger traffic to pre-COVID levels (FY 2020 levels) as considered by the Authority is given below.

Table 68: Recovery of passenger traffic to pre-COVID levels (FY 2020 levels) as considered by the Authority

Recovery to pre-COVID levels (%)	FY 2020 (Million)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Domestic pax	5.01	70%	108%	123%	140%	159%
International pax	4.70	50%	76%	100%	108%	117%
Total pax	9.71	60%	92%	112%	124%	138%

⁷ Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic Impact Analysis

⁸ Outlook for the global airline industry – April 2021 update

Air Traffic Movements

5.2.8. The Authority has studied the recent trends in ATM and passenger traffic in Cochin Airport and has observed that the domestic and international pax per ATM were on an upward trajectory since the restrictions on air travel was lifted in a phased manner. Based on its observations and analysis on the backdrop of the potential interim decline due to the second wave of the pandemic, the Authority conservatively estimates that the domestic and international pax per ATM would reach pre-COVID levels of 130 and 160 respectively, only in FY 2023.

5.2.9. Once pax per ATM attains pre-COVID levels, the Authority has assumed conservative growth rates for domestic and international pax per ATM for the rest of the Third Control Period. The Authority has estimated domestic and international ATM traffic for the 3rd Control Period based on its projections of passenger traffic and pax per ATM as discussed above.

Air Cargo

5.2.10. The Authority analysed CIAL's submission of cargo traffic for the 3rd Control Period in detail. The growth rates for domestic and international cargo traffic assumed by the Airport Operator for the 3rd Control Period are given below.

Table 69: Annual growth rate over the previous year in Cargo traffic for the 3rd Control Period as submitted by CIAL

Growth Rate (%)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Domestic Cargo	40.8%	53.1%	7.8%	7.8%	7.8%
International Cargo	23.1%	10.7%	13.8%	13.9%	14.0%

5.2.11. The Authority studied the historical growth rates in domestic and international cargo traffic in detail. Air cargo handled by CIAL during the period FY 2015 – FY 2020 is as given in the tables below.

Table 70: Domestic cargo at Cochin Airport during FY 2015-2020

Domestic Air cargo (in MT)	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	CAGR (FY 2015-20)
Outbound	2,630	2,815	3,291	3,658	3,831	4,013	2,345	8.82%
Inbound	7,677	8,543	9,867	9,765	11,087	10,993	7,857	7.45%
Total	10,307	11,359	13,159	13,423	14,919	15,007	10,202	7.80%

Table 71: International cargo at Cochin Airport during FY 2015-2020

International Air cargo (in MT)	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	CAGR (FY 2015-20)
Export	42,394	63,095	64,102	62,794	49,454	47,727	29,410	2.40%
Import	12,239	4,634	7,239	6,068	11,993	10,855	6,232	-2.37%
Total	54,633	67,729	71,250	68,862	61,447	58,582	35,643	1.41%

5.2.12. The Authority notes that, according to CIAL, the domestic cargo traffic would reach pre-COVID levels (FY 2020 levels) by FY 2023. For the period FY 2024-2026 CIAL has assumed that the domestic cargo traffic would grow at a CAGR of 7.8% (CAGR of FY 2015-2020). In the case of international cargo, the Authority notes that CIAL has assumed that the traffic would reach pre-COVID levels by FY 2023. For the period FY 2024-2026, CIAL has assumed that the international cargo traffic would grow at a rate of ~14% while, the CAGR during the period FY 2015-2020 was 1.4%.

5.2.13. CIAL has stated that they face space congestion in both export and import areas of the existing facility during peak season. The Authority observes that CIAL has already started the construction of the new import warehouse, which is expected to be completed in FY 2022. In addition, CIAL has also planned the modification of the existing cargo warehouse to an export warehouse facility, which is expected to be completed in FY 2023 by when the cargo traffic would recover to pre-COVID levels (FY 2020 levels).

According to CIAL, the import and export warehouses, both of which are currently housed in the same facility, have a handling capacity of 50,000 MTPA each. Upon completion of both the projects mentioned above, the handling capacity of export would increase to 1,50,000 MTPA to meet the forecasted demand up to 2031. Hence, with the completion of these projects, the capacity constraints would be addressed, and the Airport Operator would be able to handle the projected growth in cargo volumes.

- 5.2.14. The Authority notes that the construction of new import warehouse and the modification of existing cargo warehouse to an exclusive warehouse facility for export would have a significant impact on the growth rate of air cargo traffic at Cochin Airport. Due, to the above reasons, the Authority is of the view that it would not be practical to apply the CAGR of past periods for projecting cargo traffic for CIAL for the 3rd Control Period. Further, it is pertinent to note that the traffic expected in light of the expansion of cargo facilities cannot be estimated at this stage and that the actual traffic realised might have drastic variations.
- 5.2.15. The Authority has analysed CIAL's submission of cargo traffic in detail and its basis for projection of the same. Also, the Authority has analysed the recent trends in the air cargo traffic at Cochin Airport and has observed that though the cargo traffic had gone down in the earlier months of FY 2021, the recovery in later months was quicker.
- 5.2.16. In the case of domestic cargo traffic, CIAL estimates that the recovery to FY 2020 levels would happen in FY 2023 and hence has assumed aggressive growth rates for FY 2022 and FY 2023. The Authority too expects the domestic cargo traffic to recover 100% in FY 2023 vis-à-vis FY 2020. However, the Authority, based on its analysis considering the actual traffic till April 2021, has applied suitable discount factors on CIAL's growth rates for FY 2022 and FY 2023 for the purpose of estimation. For FY 2024-2026, the Authority proposes to consider CIAL's estimation of growth rate. The Authority proposes to consider the traffic as estimated by it for the Third Control Period and true up the same based on actuals at the time of tariff determination for the Fourth Control Period.
- 5.2.17. In the case of international cargo, the Authority has gone through CIAL's submission of traffic in detail and proposes to consider the same for the Third Control Period. However, the Authority notes that the estimation of cargo traffic is dependent on various factors like the commissioning of new warehouse facilities and traffic stabilisation post the pandemic. Hence, the Authority proposes to consider international cargo traffic as submitted by CIAL for the Third Control Period and true up the same based on actuals at the time of tariff determination for the Fourth Control Period.
- 5.2.18. Based on its analysis of Passenger, ATM and Air Cargo Traffic, the Authority proposes the traffic for CIAL for the 3rd Control Period as given below.

Table 72: Traffic proposed by the Authority for the 3rd Control Period

FY ending 31st March	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Passengers (in Millions)						
Domestic	3.51	5.42	6.16	7.00	7.95	30.03
International	2.35	3.55	4.72	5.09	5.49	21.20
Total Pax	5.86	8.97	10.88	12.09	13.44	51.23
ATMs (in no's)						
Domestic	28,340	41,694	46,900	52,756	59,343	2,29,033
International	15,403	22,041	29,015	31,019	33,085	1,30,563
Total ATMs	43,743	63,735	75,915	83,775	92,428	3,59,596
Air Cargo (in MT)						
Domestic Outbound	3,193	4,718	5,086	5,483	5,912	24,392
Domestic Inbound	9,006	13,308	14,347	15,468	16,677	68,807
Domestic Total	12,199	18,026	19,434	20,951	22,589	93,198
International Export	42,580	46,788	53,981	62,281	71,857	2,77,487
International Import	10,292	11,718	12,619	13,588	14,633	62,850

International Total	52,873	58,505	66,600	75,869	86,490	3,40,337
Total Cargo	65,071	76,532	86,033	96,821	109,078	4,33,536

5.3. Authority's Proposal regarding Traffic for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to Traffic for the Third Control Period:

- 5.3.1. Authority proposes to consider traffic projections as given in Para 5.2.18 (Table 72) above for determination of tariff for the Third Control Period.
- 5.3.2. Authority proposes to true up the traffic for the Third Control Period based on actuals, at the time of determination of tariff for the Fourth Control Period.

6. REGULATORY ASSET BASE (RAB) AND DEPRECIATION FOR THE THIRD CONTROL PERIOD

6.1. CIAL's submission of RAB and Depreciation for the Third Control Period

Capital expenditure for the 3rd Control Period

6.1.1. CIAL has submitted the capital expenditure forecasted to be incurred during the 3rd Control Period. The summary of capital expenditure envisaged by CIAL for the 3rd Control Period is as given in the table below.

Table 73: Summary of capital expenditures forecasted by CIAL for the 3rd Control Period

Sl. No	Particulars	Cost Proposed (INR Crores)	Considered Aeronautical (INR Cr)
1	Construction of import warehouse	52.7	52.7
2	Modification of existing warehouse	35.9	35.9
3	Mechanisation of export warehouse after modification	10.3	10.3
4	Construction of parking bays phase 2	145.5	145.5
5	Development of northern side of T3 pier	189.9	179.0
6	Flood control measures	93.1	93.1
7	CCTV Surveillance system	43.8	43.8
8	CT based Hand baggage X-BIS T3	30.0	30.0
9	CT based Hand baggage X-BIS T1	25.1	25.1
10	Smart Lane – T3	22.5	22.5
11	Smart Lane – T1	19.9	19.9
12	Digi yatra – IT systems	30.7	30.7
13	Passenger processing IT systems	31.4	31.4
14	Perimeter intrusion detection systems	22.3	22.3
15	SOC & NOC for IT	15.9	15.9
16	Fire Tenders	68.5	68.5
17	Satellite fire station	15.5	15.5
18	Widening of roads for ACFTs	4.3	4.3
19	Emergency Rescue Tender	11.0	11.0
20	Hydraulic platform for High Rise Building	10.7	10.7
21	Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J Up to H and Construction of Taxiway K & Taxiway, West of A to Isolation parking bay	73.4	73.4
22	CISF Quarters	74.0	74.0
23	Regrading of side strips beyond 30 m	44.0	44.0
24	GPU and PCA South and North of T3	21.5	21.5
25	Security Equipment's - X-BIS, ETD, DFMD, HHMD etc.	19.1	19.1
26	Other major capital expenditures	152.4	152.4
	Total of Major Capex Items	1263.2	1252.3
27	Miscellaneous. Expenses for 3 rd Control Period	152.9	151.7
	Grand Total	1416.1	1404.1
	Financing Allowance	46.3	36.2
	Total (including FA)	1462.4	1440.3

6.1.2. The major Non-Aeronautical capital expenditures proposed to be undertaken by CIAL during the Third Control Period is given in the table below:

Table 74: Major Non-Aeronautical capital expenditure proposed by CIAL for the Third Control Period

No.	Particulars	Cost Proposed (INR Cr.)
1	Commercial building in NDB area	111

2	Conversion of commercial building to Hotel	106
3	Transit Accommodation Hotel	52
4	Hotel with dormitory style options	32
5	Commercial complex/ hotel	-
6	Retail – Street Shopping, State Garments & Handicraft Emporiums, Traditional art	11
7	F&B facilities	11
8	Flower show (Phase 1)	11
9	Shopping, F&B, Warehouses and showrooms on both sides or under the bridges	10
10	Flower show (Phase 2)	6
11	Arts & Cultural Centre	5
	Total of major Non-Aeronautical capex	354
	Miscellaneous Expenses for 3 rd Control Period	84
	Grand total	438

6.1.3. The total capital expenditure proposed by CIAL for the Third Control Period is shown in the table below:

Table 75: Total capital expenditure proposed by CIAL for the Third Control Period

Particulars (INR Cr)	Capital Expenditure proposed by CIAL	Financing Allowance	Capital Expenditure proposed by CIAL (including FA)
Aeronautical and Common capital expenditure	1416.1	36.2	1452.4
Non-Aeronautical capital expenditure	437.8	10.1	447.9
Total	1854.0	46.3	1900.2

Aeronautical allocation of assets

6.1.4. CIAL has submitted its basis for segregation of new assets proposed to be capitalised in the 3rd Control Period as given below:

- T3 pier expansion work and minor civil works have been apportioned into Aeronautical and Non-Aeronautical based on the terminal area ratio.
- All other assets other than T3 pier expansion and minor works have been apportioned based on the usage of such assets

6.1.5. Summary of Aeronautical and Non-Aeronautical allocation of new assets capitalised in the 3rd Control Period as per CIAL's submission is given in the table below

Table 76: Aeronautical allocation of assets proposed to be capitalised in the 3rd Control Period as submitted by CIAL

Particulars	Aeronautical (%)	Non-Aeronautical (%)
Buildings and civil works	44.6%	55.4%
Golf course development	0.0%	100.0%
Runways, Roads and Culverts	98.8%	1.2%
Plant and Equipment	97.2%	2.8%
Office Equipment	100.0%	0.0%
Computers and Accessories	96.7%	3.3%
Furnitures and Fixtures	94.9%	5.1%
Vehicles	100.0%	0.0%
Intangible assets	100.0%	0.0%
Total	75.7%	24.3%

6.1.6. Accordingly, the bifurcation of the proposed capital expenditure (including FA) considered by CIAL is as follows:

Table 77: Allocation of capital expenditure proposed by CIAL for the Third Control Period

Particulars	Aeronautical	Non-Aeronautical	Total
Capital expenditure	1440.3	459.9	1900.2

Depreciation

6.1.7. CIAL has submitted that, as per their company policy, a salvage value of 95% has been considered while calculating depreciation.

6.1.8. CIAL has considered useful life of assets as per Authority's order in this regard (Order No.35/2017-18, dated 12 January 2018). For the new assets, CIAL has considered 50% of the asset value while calculating depreciation during the year of capitalisation.

6.1.9. CIAL's submission of Aeronautical depreciation for various assets for the 3rd Control Period is as given in the table below.

Table 78: Aeronautical Depreciation for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Land	0.0	0.0	0.0	0.0	0.0	0.0
Buildings and civil works	31.4	32.9	35.6	37.6	37.0	174.5
Golf course development	0.0	0.0	0.0	0.0	0.0	0.0
Runway, roads and culverts	46.5	49.4	56.3	55.0	46.5	253.7
Plant and Equipment	58.5	59.7	68.7	77.6	80.5	344.9
Office Equipment	0.6	0.6	0.6	0.6	0.4	2.9
Computers and accessories	5.6	11.4	15.6	16.1	14.3	63.0
Furnitures and fixtures	1.5	1.8	1.9	1.7	1.6	8.5
Vehicles	1.4	1.7	1.7	1.8	1.7	8.3
Intangible assets	1.2	2.8	3.8	3.9	4.1	15.7
FA	0.9	1.3	1.8	2.1	2.3	8.3
Total Depreciation	147.5	161.5	186.0	196.5	188.4	879.8

Regulatory Asset Base

6.1.10. CIAL has considered the net closing RAB at the end of FY 2021 as the opening RAB for FY 2021. The closing RAB for an FY is calculated by adding the capital expenditures during the respective financial year and reducing the annual depreciation. Average of opening and closing RAB has been used for the computation of RAB for tariff determination for the control period.

6.1.11. CIAL has submitted RAB for the 3rd Control Period as given in the table below.

Table 79: RAB for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Opening RAB	1653.0	1723.3	1956.9	2239.5	2301.1	
Add: Capitalisation during year	217.8	395.1	468.5	258.1	100.7	1440.3
Less: Depreciation during year	147.5	161.5	186.0	196.5	188.4	879.8
Sales/transfers/retirements	0.0	0.0	0.0	0.0	0.0	
Closing RAB	1723.3	1956.9	2239.5	2301.1	2213.4	
Average RAB	1688.2	1840.1	2098.2	2270.3	2257.3	

6.2. Authority's analysis of RAB and Depreciation for the Third Control Period

Capital Expenditure for the 3rd Control Period

While analysing the Multi Year Tariff Proposal ('MYTP') regarding capital expenditure for the Third Control Period, AERA has taken into consideration reduced traffic due to COVID-19 pandemic and has appropriately rationalised the proposed capex as given in the following paragraphs.

6.2.1. The Authority has grouped the proposed capital expenditure into the following groups for evaluation:

Table 80: Authority's analysis of capital additions for the 3rd Control Period

Reference	Project / Group	No.	Particulars	Proposed Cost (INR Cr)
A	Cargo Facilities	A.1	Construction of import warehouse	52.70
		A.2	Modification of existing warehouse	35.94
		A.3	Mechanisation of export warehouse after modification	10.35
		A	Cargo Facilities (sub-total)	98.99
B	Construction of parking bays phase 2 and Development of northern side of T3 pier	B.1	Construction of parking bays phase 2	145.52
		B.2	Development of northern side of T3 pier	189.86
		B	Pier expansion & parking bays phase 2 (sub-total)	335.38
C	Flood control measures			93.07
D	CISF Quarters			74.01
E	IT Systems	E.1	CCTV Surveillance system	43.81
		E.2	CT based Hand baggage X-BIS T3	29.98
		E.3	CT based Hand baggage X-BIS T1	25.12
		E.4	SOC & NOC for IT	15.92
		E.5	Digi yatra – IT systems	30.69
		E.6	Perimeter intrusion detection systems	22.35
		E.7	Smart Lane (Automated Tray Retrieval System) – T1	19.88
		E.8	Smart Lane – T3	22.48
		E.9	Passenger processing IT systems	31.40
		E	IT Systems (sub-total)	241.62
F	Fire and Safety Measures	F.1	Fire Tenders	68.51
		F.2	Satellite fire station	15.46
		F.3	Widening of roads for ACFTs	4.26
		F.4	Emergency Rescue Tender	10.95
		F.5	Hydraulic platform for High Rise Building	10.71
		F	Fire and Safety Measures (sub-total)	109.89
G	Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J Up to H and Construction of Taxiway K & Taxiway, West of A to Isolation parking bay			73.37
H	Regrading of side strips beyond 30 m			43.95
I	GPU and PCA South and North of T3			21.51
J	Security Equipment's - X-BIS, ETD, DFMD, HHMD etc.			19.05
K	Other major capital expenditures			152.36
L	Total of Major Capex Items (A+B+C+D+E+F+G+H+I+J+K)			1263.21
M	Misc. Expenses for 3rd Control Period			152.92
N	Total (L+M)			1416.13
O	Commercial projects – Commercial Complex, hotels, retail spaces, F&B facilities etc.			437.82
P	Grand Total (N+O)			1853.95
Q	IDC			46.26
	Total (including IDC) (P+Q)			1900.21

(A) Cargo facilities

6.2.2. The capital expenditure projects for cargo facilities proposed by CIAL are discussed below. The projects were presented to and agreed upon by Stakeholders at the AUCC meeting held on 05 April 2018, the Airport Operator has submitted the minutes of the meeting vide their email dated 15 December 2020 ("Data point IV Reply to AERA Query 1"). As per the MYTP submission, the construction and modification work are under progress, though, with some delays due to the pandemic.

(A.1) Construction of import warehouse

6.2.3. The present cargo warehouse at Cochin Airport handles both Export and Import activities. CIAL has stated capacity constraints with respect to cargo handling observed over the past few years. As per CIAL, the handling capacity for export and import cargo is 50,000 MTPA each. During the period FY 2016-2018, the average export cargo traffic handled was 63,300 MTPA. Further, ~85% of the total cargo capacity at CIAL was already being utilised in 2017. The expansion plans were delayed due to drop in traffic owing to various reasons including the COVID-19 pandemic and economic slowdown in the Middle East. The construction of the new building for handling import cargo is now underway and is expected to be completed in FY 2022.

(A.2) Modification of existing warehouse

6.2.4. Post commissioning of the new import warehouse, the Airport Operator plans to convert the existing warehouse with little modifications to a dedicated facility for export cargo. With this proposed modification using the same roofing structure and no additional area requirement, CIAL expects to augment the handling capacity of exports from the present 50,000 MTPA to 150,000 MTPA such that it can meet the cargo requirement up to 2031.

(A.3) Mechanisation of export warehouse after modification

6.2.5. The Airport Operator has submitted that the current activities at cargo like unloading, moving, stacking, palletisation and loading ULD Storage are done manually using tractors and forklifts and that the proposed mechanisation would enhance efficiency, increase speed, improve quality of service, help in meeting global standards and reduce human dependency thereby reducing safety related incidents. The automated systems suggested are:

- Hydraulic loading platforms with automatic arrangement for ULD weighment.
- Hydraulic platform with castor wheels for shifting loaded ULD's.
- Automated storage system for storing stuffed cargo kept ready for the flight.
- Automated temperature & humidity control system for perishable handling area and cold rooms.
- Advanced ACIS (X Rays) with dual imaging.
- Lorry dock arrangement for easy unloading.

6.2.6. The facilities are now under construction and all projects are expected to be capitalised by FY 2023, when the cargo traffic is expected to reach pre-COVID levels (FY 2020 levels).

6.2.7. Considering that the project was approved in the previous Tariff Order and the justification given by the Airport Operator for the postponement of the plans, the Authority proposes to consider the cost estimate as submitted by CIAL as given below.

Table 81: Capital expenditure for cargo facilities considered by the Authority

Reference	Particulars	Cost Considered (INR Cr.)
A.1	Construction of import warehouse	52.70
A.2	Modification of existing warehouse	35.94
A.3	Mechanisation of export warehouse after modification	10.35
A	Total	98.99

(B) Construction of Parking Bays Phase II and Development of Northern side of T3 Pier

6.2.8. The new international terminal at Cochin Airport was designed with a pier having aircraft docking facilities at its southern, eastern and northern sides. The southern side pier currently caters to the requirements of Code-C and Code-E Aircrafts. Apart from these, there are 4 remote bays, which are suitable for accommodating narrow body aircrafts in the eastern side of T3 Pier. The northern side of the pier was earmarked by the Airport Operator for future use.

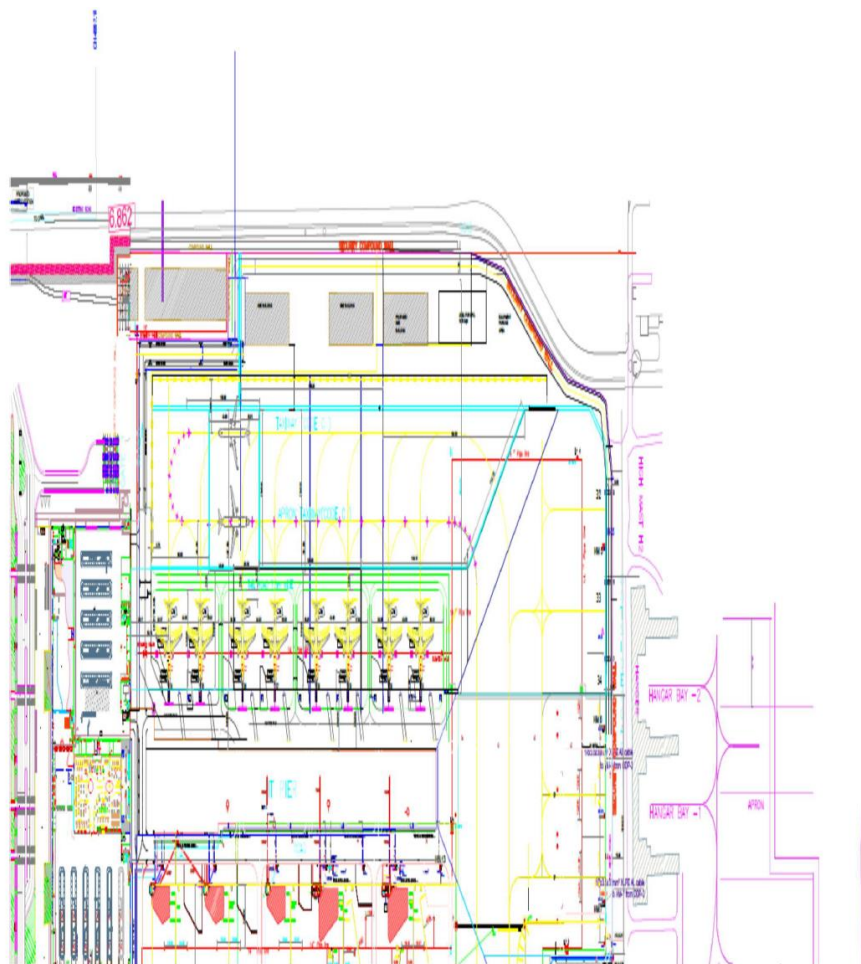
(B.1) Construction of Parking Bays Phase 2

6.2.9. The current proportion of Code C to Code E aircrafts operating from CIAL is 4:1. According to CIAL, Code-C aircrafts are mainly used for international operations and they expect that this trend would continue. To meet the forecasted growth in demand, the Airport Operator had planned to construct 8 contact bays with aerobridges and AVDGS at the northern side of T3 pier. This would result in faster turn-around times for aircrafts. CIAL has further added that the southern side would then be completely dedicated for wide body aircraft operations.

6.2.10. The Authority notes that the construction of additional parking bays was included in the capital expenditure approved by it in the tariff order for the Second Control Period. CIAL had initially planned to carry out the work in FY 2021 but has now deferred it to the Third Control Period due to the decline in traffic towards the end of the Second Control Period. The Authority has observed that from the capital expenditure approved by it in the tariff order for the Second Control Period, CIAL has deferred a cost of INR 145 Cr due to the postponement of the construction of parking bays phase 2.

6.2.11. The proposed design for construction of Parking bays phase 2 is provided in the figure below.

Figure 2: Proposed plan for Parking bays phase 2



6.2.12. The Authority referred the Project Investment File (PIF), presented to AUCC on 05 April 2018, that explains the need for the project. The proposed project was envisaged during pre-COVID times and the traffic projections considered at the time are no longer valid in the current situation. The ATM projections considered in the PIF were compared against the current projections of the Authority. The comparison is given below.

Table 82: Comparison of ATM projections considered in PIF against revised projections of the Authority

FY ending 31st March	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Total ATMs as per PIF ('000)	85	92	99	106	114	123
Peak Hour ATM as per PIF	26	28	30	34	36	38
ATM traffic projections considered by the Authority ('000)	27.02	43.74	63.74	75.92	83.78	92.43
Revised Peak Hour ATM*	8	14	20	25	27	29
ATM projections as per CIAL's MYTP ('000)	22.30	45.39	65.80	76.17	82.77	89.90

*Revised in proportion to the change in projected ATM traffic

6.2.13. From the above it can be observed that the ATM traffic levels for FY 2021, considered at the time of envisioning the project, can now be expected only in FY 2025. As per the PIF, the Airport Operator had initially planned to undertake the project in FY 2021. Though CIAL has now postponed the same to FY 2024, the Authority believes that given the current business scenario and the revised traffic projections in light of recent developments, the need for this project would not arise until FY 2025 and hence proposes to defer the timing of this project and related projects by one more year.

6.2.14. The cost and phasing plan for construction of Parking bays phase 2 as readjusted by the Authority is given in the table below.

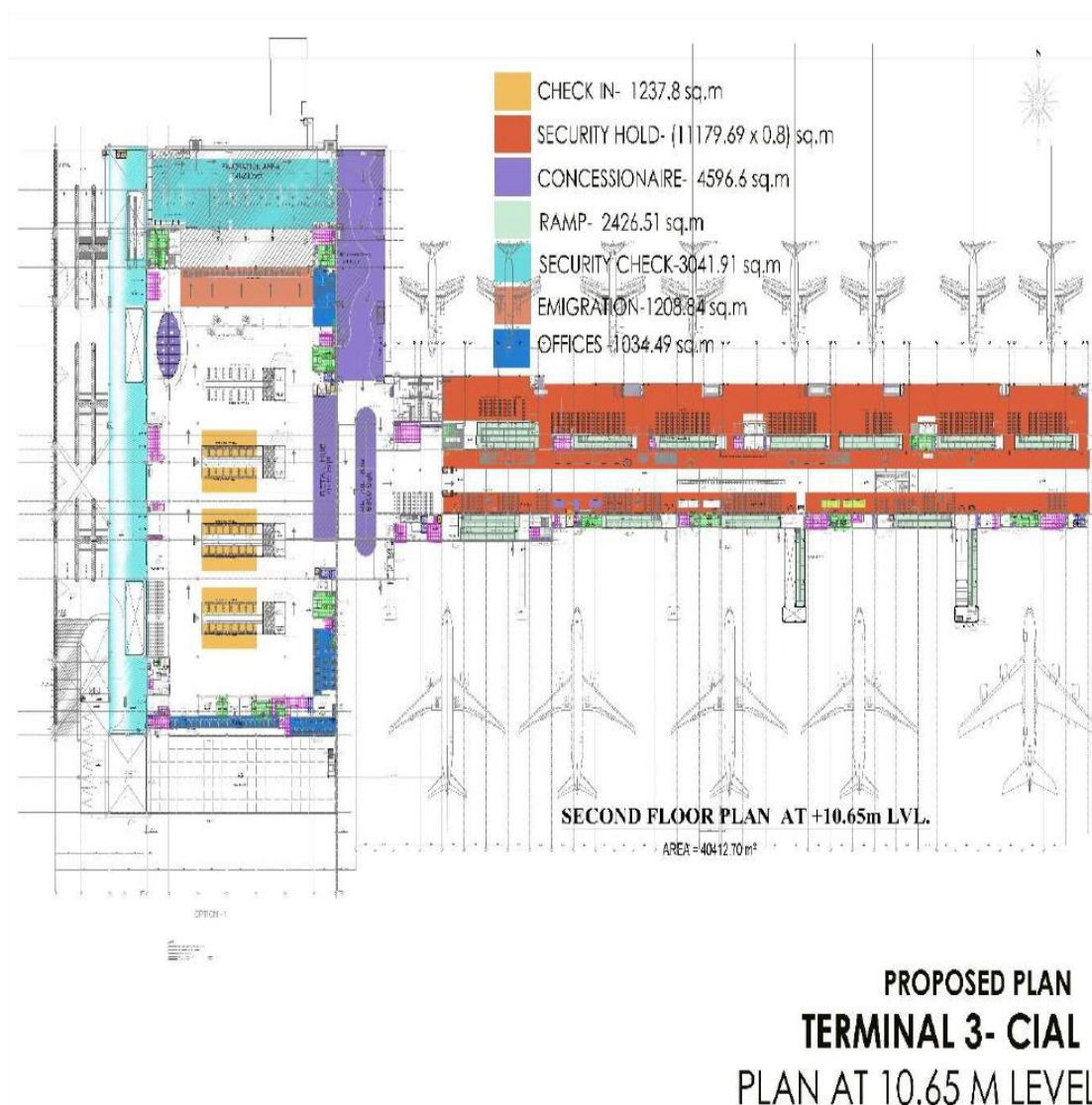
Table 83: Revision of cost and timing for Construction of parking bays phase 2

Particulars	FY 2023	FY 2024	FY 2025	Total
Phasing plan as per MYTP	40.8%	59.2%		100%
Cost as per AUCC for FY 21 (INR Cr.)	53.66	77.86		131.52
Phasing plan proposed by the Authority		40.8%	59.2%	100%
Cost as per AUCC for FY 21 (INR Cr.)		53.66	77.86	131.52
Inflation factor (base year FY 2021)	1.07	1.11	1.15	
Revised cost as per Authority (INR Cr.)		59.49	89.35	148.84

(B.2) Development of northern side of T3 pier

6.2.15. Modification of the pier, based on the feedback from two years of operations, is planned to be undertaken during this period to avoid operational closure in future. The terminal was designed for a peak hour capacity of 2000 Peak-Hour Passenger (PHP) in Departure as well as Arrival areas based on Airport Design Reference Manual (7th edition). As per the Airport Operator, based on the latest version (10th edition) of the Manual, the Departure Entry Checkpoint and Restaurant seating area are insufficient for the design capacity. The expansion of the pier from a width of 35 m to 55 m will result in enhanced peak-hour passenger boarding and seating capacity along with additional concessionaire and retail areas. The Airport Operator has planned to undertake the proposed modification alongside the construction of Parking bays phase 2, so as to avoid operational closure in future. The proposed design is provided in the figure below.

Figure 3: Proposed plan for T3 pier expansion



6.2.16. The Airport Operator had conducted AUCC meetings on 05 April 2018 and the Stakeholders had agreed to the development of northern side of T3 pier which would be undertaken in the 3rd Control Period. CIAL has submitted that the AUCC approved cost for development of northern side of T3 pier to be undertaken in FY 2021 was INR 149.06 crores. However, since the development would be undertaken in FY 2023 and FY 2024, the inflation adjusted cost as per the Airport Operator is INR 189.9 crores.

6.2.17. The Authority observed that since the AUCC meetings were conducted in FY 2019, the cost has been revised by CIAL in its MYTP. The Authority analysed the same and found the escalation in cost for modification of T3 to be high compared to the inflation adjustment done for other capital expenditures, and hence readjusted the cost based on the phasing plan in the MYTP and the figures agreed on by AUCC. The inflation rates considered by the Authority are given below.

Table 84: Rate of inflation considered by the Authority⁹

Financial Year	2017	2018	2019	2020	2021	2022-2026
Inflation	1.73%	2.96%	4.26%	1.67%	0.50%	3.50%

⁹ Figures till FY 2020 are actual rates from - https://eaindustry.nic.in/Key_Economic_Indicators/Price_Statistics.pdf and the figures for FY 2021 and onwards are from - <https://m.rbi.org.in/scripts/PublicationsView.aspx?id=20324>

6.2.18. Since the expansion of the T3 pier has been planned alongside the construction of Parking bays phase 2, the Authority has deferred the timing of the expansion by another year as done for the construction of Parking bays phase 2. The cost and phasing plan for T3 pier expansion as readjusted by the Authority is given in the table below.

Table 85: Revised cost and phasing plan for T3 pier expansion

Particulars	FY 2023	FY 2024	FY 2025	FY 2026	Total
Phasing plan as per MYTP	28.1%	62.9%	9.0%		100.0%
Cost as per AUCC for FY 21 (INR Cr.)	41.89	93.76	13.41		149.06
Phasing plan proposed by the Authority		28.1%	62.9%	9%	100%
Cost as per AUCC for FY 21 (INR Cr.)		41.89	93.76	13.41	149.06
Inflation factor (base year FY 2021)	1.07	1.11	1.15	1.19	
Revised cost as per Authority (INR Cr.)		46.46	107.64	15.91	170.01

Table 86: Comparison of cost as per AUCC, MYTP submission by CIAL and as revised by the Authority

Particulars	Cost as per AUCC for FY 2021 (INR Cr.)	Inflation adjusted cost as per MYTP (INR Cr.)	Inflation adjusted cost as per Authority (INR Cr.)
Modification of T3	149.06	189.86	170.01
Parking bays phase II	131.52	145.52	148.84

6.2.19. The Authority sought the Project Investment File for the proposed capital expenditure for modification of T3 pier. Based on the details received regarding the additional area planned to be constructed and the phasing plan of the project, it was observed that the cost for modification of T3, as revised by the Authority, is not within the inflation adjusted normative costs prescribed, as per AERA Order No. 07/2016-17 dated 13 June 2016 regarding normative approach to building blocks in economic regulation of major airports – capital costs reg., with respect to terminal buildings. The Authority computed the allowable costs for this project based on normative limits as given below.

Table 87: Comparison of inflation adjusted cost as per AUCC and the Normative costs decided by the Authority

Particulars	Based on AUCC	As per Normative Costs	Difference
FY 2024			
Area of terminal expansion (SQ. M.)	5730.30	5730.30	
Cost as revised by Authority (INR Cr.)	46.46	46.08	0.38
Cost per SQ. M. (INR)	81077.81	80413.43	
FY 2025			
Area of terminal expansion (SQ. M.)	12826.90	12826.90	
Cost as revised by Authority (INR Cr.)	107.64	106.76	0.88
Cost per SQ. M. (INR)	83917.42	83227.90	
FY 2026			
Area of terminal expansion (SQ. M.)	1835.33	1835.33	
Cost as revised by Authority (INR Cr.)	15.91	15.81	0.10
Cost per SQ. M. (INR)	86687.56	86140.88	
Total cost for T3 expansion (INR Cr.)	170.01	168.64	1.37
Total area of terminal expansion (SQ. M.)	20392.52	20392.52	

6.2.20. The cost and timing for Modification of T3 pier and Construction of parking bays phase 2 as considered by the Authority is given in the table below.

Table 88: Cost and timing of T3 pier modification and parking bays phase 2 as considered by the Authority

Reference	Particulars (INR Cr)	FY of commissioning as per		Total cost as per		Difference
		CIAL	Authority	MYTP	Authority	
B.1	Parking bays phase II	2024	2025	145.52	148.84*	(3.32)
B.2	Modification of T3	2024 & 2025	2025 & 2026	189.86	168.65	21.21
B	Total			335.38	317.49	17.89

*including adjustment for inflation on account of postponement

(C) Flood control measures

6.2.21. The airport operations at CIAL were hampered due to severe floods that occurred in August 2018 leading to suspension of airport operations for 15 days. CIAL was also affected by floods in 2019. To address this issue, CIAL had undertaken flood mitigation expenses recommended by KITCO in the 2nd Control Period and has proposed additional capital expenditure in this regard in the 3rd Control Period.

6.2.22. During the site visit it was observed that the flood mitigation measures are necessary for continuing operations during periods of heavy rains. However, it was also noticed that some of these measures were carried out beyond the operational area of the airport, i.e., outside the airport premises, on public land. Since it is found that the measures undertaken outside the airport also benefit the adjoining areas of the airport, including farmlands and households, the responsibility of these measures cannot entirely be attributed to the Airport Operator. Therefore, only the work carried out on area belonging to the airport has been considered Aeronautical. The same has been discussed in the subsequent section on allocation of assets.

Table 89: Capital expenditure for Flood control measures as considered by the Authority

Reference	Particulars	Cost Considered (INR Cr.)
C	Flood Control Measures	93.07

(D) CISF Quarters

6.2.23. CIAL has submitted that there are 824 CISF staff working at CIAL and barrack accommodation has to be provided for 40% of the strength. Due to difficulty in finding adequate rented facilities in the vicinity of the airport, the CISF staff had requested for staff quarter facility and barrack accommodation at a single location.

6.2.24. The Authority sought the cost benefit analysis for CISF Quarters from the Airport Operator, and they have provided the same vide their email dated 15 December 2020 ("DATA POINT 1 Replies to QUERY 1-"). The analysis submitted by the CIAL is given in the table below:

Table 90: Cost benefit analysis for CISF Quarters submitted by the Airport Operator

Components	Family accommodation	Barrack accommodation	Rentals per month	Maintenance system costs	Total savings	Remarks
Average salary per month (INR)	60000	60000				
Average basic pay per month (INR)	30000	30000				
HRA (%)	18%	5%				for barrack reduction from 16% to 11%.
Monthly savings (INR)	5400	1500				

Number of accommodations for sanctioned strength	474	443				
Savings per month (INR Lakhs)	25.6	6.6	36			
Savings per annum (INR Cr.)	3.1	0.8	4.3			
Cost per annum (INR Cr.)				1.1		
Total benefit per annum (INR Cr.)					7.1	
Construction cost (INR Cr.)	74					
Recovery period of the cost (Years)	10.5					

6.2.25. The cost benefit analysis submitted by the Airport Operator seems to be devoid of other factors such as costs towards the return on RAB and depreciation accrued to the Airport Users as part of the ARR. Prima facie it appears that the additional return to be provided would be higher than the benefits realised. Also, the cost benefit analysis is conditional to the capital expenditure incurred which is only on estimated basis at this stage.

6.2.26. Therefore, the Authority proposes to not consider the capital expenditure towards CISF quarters at this stage, till additional inputs as discussed above are available.

Table 91: Capital expenditure for CISF Quarters as considered by the Authority

Reference	Particulars (INR Cr.)	Cost as per CIAL	Cost considered by the Authority
D	CISF Quarters	74.01	0.00

(E) IT Requirements

6.2.27. The capital expenditure projects proposed by CIAL towards IT systems are discussed below.

(E.1) CCTV Surveillance System

6.2.28. The Airport Operator has submitted that they have a CCTV Surveillance System as per the guidelines of Bureau of Civil Aviation Security (BCAS) that includes nearly 3,300 full HD cameras with 30 days full HD recording facility along with 7 days redundant recording facility at reduced resolution (total storage capacity of the system is 6.7 PB). The recording and management are undertaken through around 80 servers and the system runs through an independent IP network consisting of more than 200 network switches.

6.2.29. The hardware associated with the system operates 24 x 7 and has a typical life cycle of 6 to 7 years. The existing system was implemented by M/s Honeywell Automation India Ltd in March 2017 and is under a 7-year contract with M/s Honeywell wherein all the maintenance activities, including spares and replacements, are undertaken by them. This contract will end in March 2024 and therefore CIAL has proposed the revamp of the CCTV surveillance system in FY 2025.

(E.2) CT based Hand baggage X-BIS T3

6.2.30. CIAL has stated that as per current BCAS guidelines registered baggage screening is carried out using CT based Explosive Detection System. The Airport Operator has proposed to implement CT based Explosive Detection System for hand baggage screening at pre-embarkation security check at International Terminal (T3) for better screening. Accordingly, 6 single view-based X-BIS are to be replaced with CT based X-BIS in T3.

(E.3) CT based Hand baggage X-BIS T1

6.2.31. Similar to the proposed upgrade in T3, another 6 replacements, of single view-based X-BIS with CT based X-BIS, are proposed in the Domestic Terminal (T1).

(E.4) SOC & NOC for IT

6.2.32. As per the MYTP, CIAL has a total of more than 12000 IT equipment, which include critical equipment like physical and virtual servers, baggage handling system, check-in systems, network switches, firewalls, EPABX systems, TETRA radios, SCADA systems and UPS powering these. The system's external connectivity exists to places outside India like London and Atlanta (for check-in systems), New Zealand (BHS System), Singapore (AODB system), Malaysia (Tetra radios), Czechoslovakia (AFAS system), USA (CT Machines), Sweden (VDGS), Germany (SAP) etc.

6.2.33. Hence, the Airport Operator has proposed to establish a Network Operation Centre (NOC) and IT Security Operation Centre (SOC) in line with standard industry practices to monitor the security and performance of the critical network at the Airport round the clock, audit internal servers for presence of vulnerabilities and prevent external threats including hacking, viruses, ransomware etc. using latest security tools.

(E.5) Digi yatra – IT Systems

6.2.34. Ministry of Civil Aviation (MoCA) had published the Digi Yatra policy document covering guidelines for implementation of the Digi Yatra system at Airports, which would ensure paperless and hassle-free journey to all passengers and enhance the security of travel through biometric passenger authentication. Further, DGCA has published the Civil Aviation Requirement (CAR) document mandating the Airports to implement the Digi-Yatra E-Boarding system. CIAL has proposed to implement the system in the Third Control Period. AERA fully supports such digital initiatives aimed at operational efficiency and benefit of the users. However, the costs for this project are still not firmed up, which the Authority would require to evaluate the reasonableness of the cost proposed by the Airport Operator. Therefore, the Authority proposes to not consider the cost of this project in the capital expenditure for the Third Control Period but true it up on incurrence and completion basis at the time of determination of tariff for the next control period.

(E.6) Perimeter intrusion detection system

6.2.35. Vide circular 5/2017 dated 05/04/2017, BCAS has published technical specification and guidelines for implementing Perimeter Intrusion Detection System (PIDS) at airports across India. The system is intended to detect people crossing over to the airport through the restricted perimeter area.

6.2.36. CIAL has proposed to implement Non-lethal Power Fence on top of the perimeter wall (for a length of 9 km), Fibre Optic Mesh System on top of perimeter wall (on locations where power fence is not practical like ILS area and areas having vegetation, for a length of 3 km), Fibre Optic vibration sensor on the perimeter wall (to detect intrusion attempt through wall penetration, for a length of 13 km) and Intrusion Detection Grid at the outlets of the rain water drains. The above technologies are to be integrated with a thermal camera-based CCTV Surveillance System for day and night surveillance.

(E.7) Smart Lane - T1

6.2.37. CIAL has submitted that 7 Smart Lane systems integrated with the hand baggage X-BIS are proposed to be implemented in the 3rd Control Period for fast and efficient passenger, baggage and tray handling at pre-embarkation security checks in the Domestic Terminal (T1). The system will consist of roller trays for automated diversion of security cleared and suspicious baggage based on the security screener's decision and will have automatic tray return feature that will eliminate the need to transport trays manually.

(E.8) Smart Lane – T3

6.2.38. Similar to the implementation in T1, another 7 Smart Lane systems are planned to be installed in the International Terminal (T3).

(E.9) Passenger processing IT systems

6.2.39. According to CIAL, the existing passenger processing IT systems that includes CUPPS, CUSS and BRS will reach their end of life by December 2022. These are major IT systems required for passenger processing at the Airport and needs to be revamped in the 3rd Control Period.

6.2.40. Given the criticality of the IT assets at the airport with respect to security and efficiency, the Authority proposes to consider CIAL's submission of capital additions for IT requirements (except Digi yatra – IT systems) as discussed in detail above for the 3rd Control Period. The capital expenditure towards IT Systems as considered by the Authority is given below.

Table 92: Capital expenditure for IT Systems as considered by the Authority

Reference	Particulars (INR Cr.)	Cost as per CIAL	Cost considered by Authority
E.1	CCTV Surveillance system	43.81	43.81
E.2	CT based Hand baggage X-BIS T3	29.98	29.98
E.3	CT based Hand baggage X-BIS T1	25.12	25.12
E.4	SOC & NOC for IT	15.92	15.92
E.5	Digi yatra – IT systems	30.69	0.0
E.6	Perimeter intrusion detection systems	22.35	22.35
E.7	Smart Lane – T1	19.88	19.88
E.8	Smart Lane – T3	22.48	22.48
E.9	Passenger processing IT systems	31.40	31.40
E	Total	241.62	210.93

(F) Fire and Safety measures

6.2.41. The capital expenditure projects proposed by CIAL towards Fire and Safety measures are discussed below.

(F.1) Fire Tenders

6.2.42. CIAL has proposed to procure two 12,000 litre Air Crash Fire Tenders (ACFTs) and two 10,000 litre crash fire tenders to replace the four 1998 model Rosenbauer fleet that is nearing end of life. Additionally, two more ACFTs are proposed to be procured in FY 2024 to replace the 2004 model Rosenbauer vehicle and the 2013 model Iveco Magirus vehicle due to delays faced by the Airport Operator in service support and availability of spare parts.

6.2.43. However, the Authority observed that the cost projected by CIAL for the procurement of two ACFTs in FY 2024 was much higher compared to the costs projected for the other fire tenders planned to be purchased in FY 2022 and FY 2023. The costs proposed by CIAL are given in the table below.

Table 93: Capital expenditure for crash fire tenders as proposed by CIAL

Particulars (INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
ACFTs (2 numbers)	0.0	0.0	37.5	0.0	0.0	37.5
Crash Fire Tenders (total 4 numbers)	15.3	15.7	0.0	0.0	0.0	31.0
Total	15.3	15.7	37.5	0.0	0.0	68.5

6.2.44. The Authority compared the inflation adjusted costs incurred at other airports in the past, for the procurement of imported ACFTs (including five-year comprehensive maintenance). The cost proposed by CIAL is found to be more than double the cost estimated by the Authority. Therefore, in the absence of further details in this regard from the Airport Operator, the Authority proposes to consider the cost for

procurement of ACFTs in FY 2024 at 50% of the cost submitted by CIAL and true up the same based on the actual cost incurred. The revised cost considered by the Authority is given in the table below.

Table 94: Capital expenditure for crash fire tenders as considered by the Authority

Particulars (INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
ACFTs (2 numbers)	0.00	0.00	18.74	0.00	0.00	18.74
Crash Fire Tenders (total 4 numbers)	15.35	15.70	0.00	0.00	0.00	31.04
Total	15.35	15.70	18.74	0.00	0.00	49.78

(F.2) Satellite fire station

6.2.45. CIAL has proposed to construct a satellite fire station at the western side of the airfield as the location of the current fire station poses a risk of delay in response due to obstructions (vehicles, equipment or aircraft) on Taxiway C in the event of emergencies at the domestic terminal building, cargo area or the city side.

(F.3) Widening of roads for ACFTs

6.2.46. The Airport Operator has proposed widening of access roads at necessary locations with sufficient strength and vertical clearance to facilitate the passage of ACFTs in both directions as per the guidelines of ICAO (Doc 9137, Part 1, Chapter 3).

(F.4) Emergency Rescue Tender

6.2.47. An emergency rescue tender is proposed to be purchased by CIAL to handle various emergency situations like infrastructure collapse, confined space rescue etc.

(F.5) Hydraulic platform for High Rise Building

6.2.48. A hydraulic platform to enable access to high rise buildings in case of fire is proposed to be procured by the Airport Operator to ensure safety.

6.2.49. The Authority has studied the requirements in detail and proposes to consider capital additions, except for ACFTs discussed above, as proposed by CIAL, towards fire and safety measures, for the 3rd Control Period.

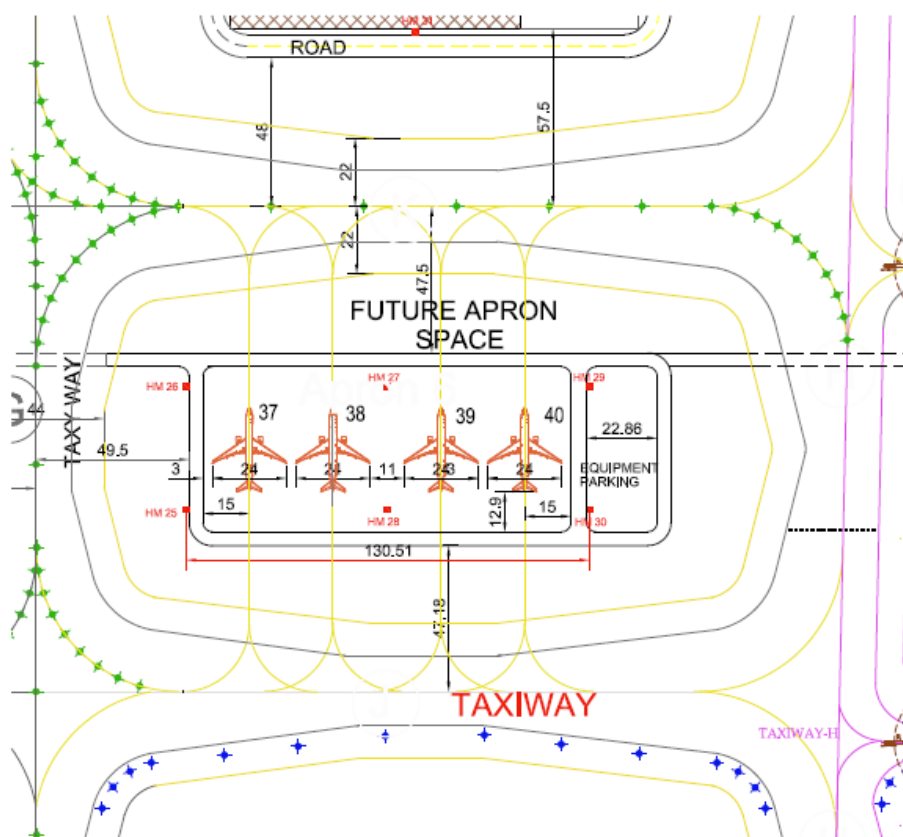
Table 95: Capital expenditure for Fire & Safety measure as considered by the Authority

Reference	Particulars (INR Cr.)	Cost (As per CIAL)	Cost (As per Authority)
F.1	Fire Tenders	68.51	49.78
F.2	Satellite fire station	15.46	15.46
F.3	Widening of roads for ACFTs	4.26	4.26
F.4	Emergency Rescue Tender	10.95	10.95
F.5	Hydraulic platform for High Rise Building	10.71	10.71
F	Total	109.89	91.16

(G) Construction of parking bays 37 to 40, extension of taxiway J up to H, construction of taxiway K and taxiway west of A to Isolation parking bay

6.2.50. CIAL has submitted that it plans to construct four parking bays (No. 37-40), extend Taxiway J up to H and construct Taxiway K & Taxiway west of A to isolation parking bay for use by Code C Aircrafts. These works are proposed to be completed by FY 2026.

Figure 4: Developing Apron 6 & adding TWY K and extension of Taxiway J from TWY G till TWY H



6.2.51. As per the DPR submitted by CIAL vide their email dated 15 December 2020 ("DATA POINT 1 Replies to QUERY 1 –"), the main feeder taxiways for Parking bays phase 2 will be Taxiway F and Taxiway G. However, once all the proposed parking bays are operational, the existing Taxiways would face congestion. Therefore, the Airport Operator has proposed the construction of Taxiway K and provision of complete interconnectivity with existing taxiways. With the addition of the new taxiway, the land between Taxiway J and Taxiway K would be completely locked for construction, hence CIAL proposes to develop this land parcel as parking stands for non-scheduled aircraft (Parking bays 37-40) thereby addressing any inadequacies in parking stands for smaller non-scheduled aircraft.

6.2.52. The Authority notes that the need for this project is subject to the commissioning of Parking bays phase 2. Since the Authority has proposed to defer the commissioning of Parking bays phase 2 by a year, the same would be applicable to this project. Therefore, this project may now be considered to be taken up in the Fourth Control Period as the revised year of commissioning would be FY 2027. Hence, the Authority has proceeded to exclude the proposed capital expenditure for this project from the capital additions considered by it for the Third Control Period.

Table 96: Capital expenditure for Parking bays 37-40 and associated works as considered by the Authority

Reference	Particulars (INR Cr.)	FY of commissioning as per		Cost as per	
		CIAL	Authority	CIAL	Authority
G	Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J Up to H and Construction of Taxiway K &	2026	2027	73.37	0.00

	Taxiway, West of A to Isolation parking bay				
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(H) Regrading of side strips beyond 30 m

6.2.53. CIAL has submitted that the Californian Bearing Ratio (CBR) has been found to be less at some locations and the same has been noted by DGCA. Stabilisation of side strip up to 30 m was completed in the 2nd Control Period. The stabilisation of side strip beyond 30m is proposed to be undertaken in the 3rd Control Period.

Table 97: Capital expenditure for regrading of side strips as considered by the Authority

Reference	Particulars	Cost Considered (INR Cr.)
H	Regrading of side strips beyond 30 m	43.95

(I) Ground Power Unit and Pre-Conditioned Air Unit south and north of T3

6.2.54. As per the guidelines issued by the Central Pollution Control Board, noise monitoring needs to be done at all civil airports which has more than 50,000 aircraft movements per year. Since CIAL has crossed this threshold, in accordance with DGCA order with regards to implementation of noise abatement procedures, CIAL has proposed to undertake installation of bridge-mounted electrically driven fixed GPU and PCA at the Airport to minimise the use of diesel-powered GPU and aircraft fuel powered APU.

6.2.55. Since the installations are planned for the contact bays including the ones proposed to be developed on the northern side of T3 pier, the Authority has deferred the commissioning of this project by an year, as done for Parking bays phase 2.

Table 98: Capital expenditure towards GPU and PCA as considered by the Authority

Reference	Particulars	FY of commissioning as per		Cost as per (INR Cr.)	
		CIAL	Authority	CIAL	Authority
I	GPU and PCA South and North of T3	2025	2026	21.51	23.11*

*including adjustment for inflation on account of postponement

(J) Security Equipment – DFMD, HHMD, X-BIS, ETD

6.2.56. The Authority proposes to consider the capital expenditure as submitted by the Airport Operator towards additional requirements and replacement of critical security equipment like X-BIS, ETD, DFMD, HHMD etc.

Table 99: Capital expenditure towards security equipment as considered by the Authority

Reference	Particulars	Cost Considered (INR Cr.)
J	Security Equipment's - X-BIS, ETD, DFMD, HHMD etc.	19.05

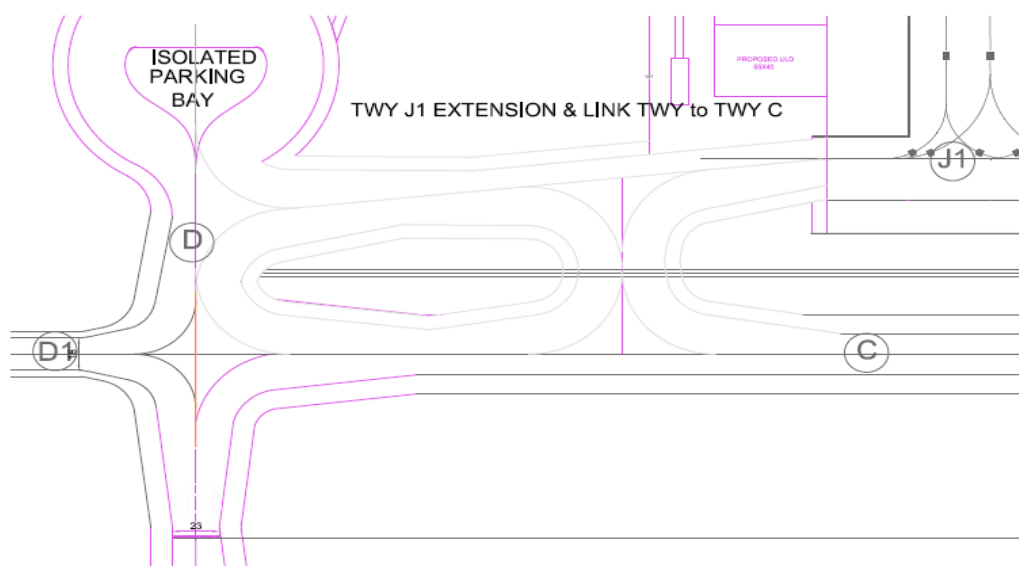
(K) Other major capital expenditures

6.2.57. CIAL, as part of its plans to venture into allied activities on cargo operations, plans to build a non-bonded warehouse as part of development of Logistics Park. Since this is not a part of the core operations of the airport the allocation of this project has been revisited in the next section regarding allocation of assets.

6.2.58. Extension of Taxiway J1 up to isolated parking bay:

6.2.58.1. CIAL has planned the extension of Taxiway J1 up to isolated parking bay to provide an additional exit point for the stands in Apron 1, so as to reduce the turnaround time, the taxiway occupancy time and the taxiing distances for domestic flights.

Figure 5: Plan for extension of Taxiway J1 up to isolated parking bay



6.2.58.2. The cost submitted by CIAL for this project was INR 12.5 Cr as per the MYTP. In their email dated 15 December 2020 ("DATA POINT 1 Replies to QUERY1-"), regarding replies to queries of the Authority with respect to the MYTP submission, CIAL has requested that this figure be revised by adding the cost for pavement for code E aircraft of INR 12 Cr (not adjusted for inflation).

6.2.58.3. The Authority analysed this additional cost submitted by CIAL against the normative costs for pavement prescribed as per AERA Order No. 7/2016-17 dated 13 June 2016 regarding normative approach to building blocks in economic regulation of major airports – capital costs reg. It was observed that the cost submitted by CIAL is beyond the normative costs prescribed by the Authority, adjusted for inflation. Hence, the Authority proposes to limit the allowable cost for the pavement for code E aircraft as detailed in the table below.

Table 100: Normative capping of cost for Extension of Taxiway J1 up to isolated parking bay

Particulars	As per CIAL	As per Normative Costs	Difference
Area of Pavement for Code E aircraft (Sq. m.)	14855.00	14855.00	
Cost per Sq. m. (INR)	8455.07	5617.88	
Cost of Pavement (INR Cr)	12.56	8.35	4.21

6.2.58.4. Based on the above, the Authority proposes to consider the revised cost for Extension of Taxiway J1 up to isolated parking bay as given in the table below.

Table 101: Revised cost for Extension of Taxiway J1 up to H considered by the Authority

Particulars (INR Cr.)	Cost proposed by CIAL as per MYTP	Revised cost submitted by CIAL	Cost proposed by the Authority
Extension of Taxiway J1 up to isolated parking bay	12.51	25.07	20.86

6.2.59. Based on the above revision, the total change in "Other major capital expenditure" is as given below.

Table 102: Other major capital expenditure as revised by the Authority

Reference	Particulars (INR Cr.)	Cost proposed by CIAL as per MYTP	Revised cost submitted by CIAL	Cost considered by the Authority
K	Other major capital expenditure	152.36	164.92	160.70

(M) Miscellaneous Expenses for Third Control Period

6.2.60. CIAL has proposed Miscellaneous expenses of INR 153 Cr for the Third Control Period and given the item-wise break-up of the same along with its phasing plan. The Authority notes that several minor general capex items (including Bird Control Management equipment, minor repair works, sweeping machines etc) that are required to meet the operational needs of the airport are clubbed under this expense. The expense also includes the provision for replacement of old assets (like Information display systems, vehicles, furniture, garbage bins etc). The Authority has gone through the items in detail and noticed that the allocation of some of these assets needs to be revisited, the same has been analysed in the subsequent section on allocation of assets.

Table 103: Miscellaneous expenses as considered by the Authority

Reference	Particulars	Cost Considered (INR Cr.)
M	Misc. Expenses for 3rd Control Period	152.92

(Q) Interest During Construction

6.2.61. The Authority noted that financing allowance and the methodology for computation of the same was detailed in the airport guidelines and the same would need to be provided to the Airport Operator. However, the Airport Operator has computed financing allowance on the entire WIP amount being capitalised, whereas the Authority is of the view that such an allowance is essentially the IDC for a project and should be provided only on the debt portion of the project funds. Accordingly, the Authority has considered IDC to be provided based on revisions in the proposed capital expenditure discussed above and the notional gearing considered for the Third Control Period (refer Section 7). IDC as considered by the Authority is given below.

Table 104: IDC as considered by the Authority

Particulars (INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
As per CIAL	11.57	9.31	11.72	8.14	5.51	46.26
As recomputed by the Authority	5.55	4.47	1.79	4.55	3.52	19.87

Table 105: IDC as considered by the Authority

Reference	Particulars (INR Cr.)	As per CIAL	As considered by the Authority
Q	IDC	46.26	19.87

6.2.62. The Authority noted that other than the works related to Cargo facilities, Modification of T3 pier and Construction of parking bays phase 2, no user consultation was initiated for the other projects. The Authority expected that CIAL will carry out user consultations with all stakeholders at appropriate time for projects beyond the limit of Rs 50 Crores as detailed in the Airport Guidelines.

6.2.63. The Authority notes that the estimated project costs may undergo a change based on actual incurred amount and date of capitalisation. Thus, the Authority proposes to true up capital expenditure at the time of determining Aeronautical tariffs in the next control period after studying the reasonableness and reviewing the actual spend. The capital expenditure considered by the Authority for the Third Control Period is given in the table below.

Table 106: Capital expenditure for the Third Control Period considered by the Authority

Reference		Particulars (INR Cr.)	Cost Proposed by CIAL	Cost Considered by the Authority
A	A.1	Construction of import warehouse	52.70	52.70
	A.2	Modification of existing warehouse	35.94	35.94
	A.3	Mechanisation of export warehouse after modification	10.35	10.35
		Cargo Facilities (sub-total)	98.99	98.99
B	B.1	Construction of parking bays phase 2	145.52	148.84*
	B.2	Development of northern side of T3 pier	189.86	168.65
		Pier expansion and parking bays phase 2 (sub-total)	335.38	317.49
C		Flood control measures	93.07	93.07
D		CISF Quarters	74.01	0.00
		IT Systems:		
E	E.1	CCTV Surveillance system	43.81	43.81
	E.2	CT based Hand baggage X-BIS T3	29.98	29.98
	E.3	CT based Hand baggage X-BIS T1	25.12	25.12
	E.4	SOC & NOC for IT	15.92	15.92
	E.5	Digi yatra – IT systems	30.69	0.00**
	E.6	Perimeter intrusion detection systems	22.35	22.35
	E.7	Smart Lane (Automated Tray Retrieval System) – T1	19.88	19.88
	E.8	Smart Lane – T3	22.48	22.48
	E.9	Passenger processing IT systems	31.40	31.40
		IT Systems (sub-total)	241.62	210.93
		Fire and Safety Measures:		
F	F.1	Fire Tenders	68.51	49.78
	F.2	Satellite fire station	15.46	15.46
	F.3	Widening of roads for ACFTs	4.26	4.26
	F.4	Emergency Rescue Tender	10.95	10.95
	F.5	Hydraulic platform for High Rise Building	10.71	10.71
		Fire and Safety Measures (sub-total)	109.89	91.16
G		Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J Up to H and Construction of Taxiway K & Taxiway, West of A to Isolation parking bay	73.37	0.00
H		Regrading of side strips beyond 30 m	43.95	43.95
I		GPU and PCA South and North of T3	21.51	23.11*
J		Security Equipment's - X-BIS, ETD, DFMD, HHMD etc.	19.05	19.05
K		Other major capital expenditures	164.92 ¹⁰	160.70
L		Total of Major Capex Items (A+B+C+D+E+F+G+H+I+J+K)	1275.77	1058.45
M		Misc. Expenses for 3rd Control Period	152.92	152.92
N		Total (L+M)	1428.69	1211.37
O		Commercial projects – Commercial Complex, hotels, retail spaces, F&B facilities etc.	437.82	437.82
P		Grand Total (N+O)	1866.51	1649.19
Q		IDC	46.26	19.87
		Total (including IDC) (P+Q)	1912.77	1669.07

*including inflation adjustment on account of postponement

**to be trued up on incurrence and completion basis

6.2.64. The Authority notes that ~13% of the total asset additions are brought forward from the Second Control Period (Cargo facilities and Parking bays phase 2). Considering the quantum of capital expenditure and its impact on the tariff, the Authority proposes a reduction in the project cost to be considered for true up, whereby if the project is committed to be completed by CIAL in each control period and if the same is not

¹⁰ The figure is higher than CIAL's initial submission due to the revision of cost requested by CIAL as explained in Para 6.2.58

completed, then 1 % of the total project cost shall be reduced from the capital expenditure considered for true up at the time of determination of tariffs for the next control period.

Aeronautical allocation of assets for the 3rd Control Period:

- 6.2.65. The Airport Operator has classified the assets proposed to be capitalised in the Third Control Period in to Aeronautical, Non-Aeronautical and Common. The Common assets were further apportioned into Aeronautical and Non-Aeronautical using the terminal allocation ratio.
- 6.2.66. CIAL has considered a terminal allocation ratio of 7.19% (Non-Aeronautical portion) in its MYTP submission. The Authority observed that CIAL has considered only the specific areas used for Non-Aeronautical activities as Non-Aeronautical area and the remaining area has been considered as Aeronautical. Therefore, the Common areas have not been allocated into Aeronautical and Non-Aeronautical (as against the AERA's direction in paragraph 9.2.4 of Order No. 07/2017-18 dated 13 July 2017 regarding determination of tariffs for Aeronautical services in respect of Cochin International Airport for the Second Control Period) and have been considered as purely Aeronautical.
- 6.2.67. The terminal allocation ratio was analysed in the study on allocation of assets between Aeronautical and Non-Aeronautical assets (summary of the study is given in Annexure 1 and the study report is attached as Appendix 1 of this Consultation Paper). The study has revised the terminal allocation ratio to 8.94% (international – 8.47% and domestic – 9.88%) after considering the detailed break-up of the terminal area, usage details and the floor plans provided by the Airport Operator.
- 6.2.68. The terminal allocation ratio as determined by the study on allocation of assets between Aeronautical and Non-Aeronautical assets is given in the table below.

Table 107: Terminal allocation ratio as recomputed by the Authority

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

- 6.2.69. The Authority had also conducted a benchmarking of the terminal allocation proposed by CIAL against select comparable airports in the country. The details of the benchmarking exercise have been discussed in detail in Annexure 4 of this Consultation Paper. The methodology and recommendations of the benchmarking exercise can be summarised as follows:
- For the purpose of benchmarking, eight comparable airports were selected based on the following criteria: Airports with similar passenger profile (passengers travelling to UAE/ gulf countries for jobs or visiting friends/ families); Airports having significantly high proportion of international traffic in total passenger traffic; Airports with comparable range of total traffic (8-12 MPPA)

- The comparable airports considered for benchmarking were Trivandrum, Calicut, Mangalore, Hyderabad, Lucknow, Trichy, Ahmedabad and Pune. The selected airports were assigned scores on three parameters viz., Operational proximity (a measure of similarity in traffic profile), Ownership structure (Public /PPP) and Location of the airport (whether located in Kerala or in other states).
- Based on these parameters, a relevance/proximity score was calculated for each of the comparable airports. The proximity scores were then used to arrive at a weighted average terminal allocation ratio that would be suitable for CIAL.
- The benchmarking study (proximity analysis) suggests an allocation of at least 9.50-10.00% of terminal area towards the provision of Non-Aeronautical services/ activities, whereas, the IATA and IMG norms recommend the allocation to be between 8-12%. Therefore, based on the benchmarking analysis, the Airport Operator is recommended to allocate more area for Non-Aeronautical activities in future.

6.2.70. The Authority has gone through the segregation of individual forecasted assets proposed by CIAL for the Third Control Period and is of the view that some of the proposed capital additions need to be reclassified based on the principles given in the study on allocation of assets between Aeronautical and Non-Aeronautical assets. Accordingly, the Authority has reallocated certain capital expenditure considered as Aeronautical by the Airport Operator as explained in the table below.

Table 108: Forecasted assets for the Third Control Period reallocated by the Authority

S. No.	Particulars	Allocation as per the Authority
1	CBT (Computer based training)	Common (Employee)
2	Regulator cum bridge	Non - Aero
3	Alternate water Source for Airport	Common
4	Computers, servers and peripherals	Common (Employee)
5	Applications and system software	Common (Employee)
6	Information Displays (for terminal area)	Common
7	UPS Systems (terminal and office areas)	Common (Employee)
8	Local Area Networking	Common
9	Vehicle Access Control Systems	Common (Employee)
10	Presentation Systems (Commercial displays)	Non - Aero
11	Non-Bonded Warehouse – Development of Logistics Park	Non - Aero
12	Lighting and other amenities -T2	Common
13	Streetlight/ High Mast revamping - City side	Non - Aero
14	Chiller upgradation and associated electrical works- T1	Common
15	Upgradation of AHU and Fixing of UVC lights to improve IAQ	Common
16	Additional Water Cooler, water dispenser, purifier, hand drier etc. for terminals	Common
17	Additional Access platforms	Common
18	Fire Alarm system in terminals and ancillary buildings	Common
19	Terminal Fire protection system- Fire Pump house, sump, hydrant, sprinklers -installation in new buildings	Common
20	Furniture Budget	Common
21	Garbage bins for Terminals	Common
22	Office Equipment Budget	Common (Employee)
23	Terminal HK Equipment	Common
24	Training Books & CD & DGRs	Common (Employee)
25	Signage for trade centre & CGC	Non - Aero
26	CIAL Museum at T1	Non - Aero
27	Creation of Online Training Platform for employees	Common (Employee)
28	CIAL Administrative Block	Common (Employee)
29	Vehicle Procurement	Common (Employee)

6.2.71. As discussed in the previous section only the flood mitigation measures implemented on the area belonging to the airport have been considered Aeronautical. The Airport Operator was asked to share the break-up of flood control measures carried out inside and outside the airport premises. Accordingly, the Authority has classified the capital expenditures as given in the table below.

Table 109: Allocation of proposed capital expenditure towards flood mitigation measures considered by the Authority

Particulars	FY 2022	FY 2023	3 rd Control Period	Allocation
Expenditure incurred outside the airport area				
Construction of Regulator cum Bridge		41.73	41.73	Non-Aeronautical
Expenditure incurred inside the airport area				
Flood Control Measures on Airport Premises	23.30	28.07	51.37	Aeronautical
Total Flood Control Measures	23.30	69.80	93.10	

6.2.72. CIAL has considered the capital expenditure towards Non-Bonded warehouse as Aeronautical, as discussed in the previous section. Since this is not a core part of the operations at the airport, the Authority proposes to reclassify this asset as Non-Aeronautical.

6.2.73. Based on the above reclassification and revised terminal allocation ratio, the revised capital expenditure considered Aeronautical by the Authority is as given in the table below.

Table 110: Capital expenditure for the Third Control Period considered Aeronautical by the Authority

Reference	Particulars (INR Cr)	As per CIAL	As per Authority		
		Total Capex	Total	Aero	Non-Aero
A	A.1 Construction of import warehouse	52.70	52.70	52.70	0.00
	A.2 Modification of existing warehouse	35.94	35.94	35.94	0.00
	A.3 Mechanisation of export warehouse after modification	10.35	10.35	10.35	0.00
	Cargo facilities (sub-total)	98.99	98.99	98.99	0.00
B	B.1 Construction of parking bays phase 2	145.52	148.84*	148.84	0.00
	B.2 Development of northern side of T3 pier	189.86	168.65	157.01	11.64
	Pier expansion and parking bays phase 2 (sub-total)	335.38	317.49	305.85	11.64
C	Flood control measures in airport area	93.07	93.07	51.34	41.73
D	CISF Quarters	74.01	0.00	0.00	0.00
	IT Systems:				
E	E.1 CCTV Surveillance system	43.81	43.81	43.81	0.00
	E.2 CT based Hand baggage X-BIS T3	29.98	29.98	29.98	0.00
	E.3 CT based Hand baggage X-BIS T1	25.12	25.12	25.12	0.00
	E.4 SOC & NOC for IT	15.92	15.92	15.92	0.00
	E.5 Digi yatra – IT systems	30.69	0.00	0.00**	0.00
	E.6 Perimeter intrusion detection systems	22.35	22.35	22.35	0.00
	E.7 Smart Lane – T1	19.88	19.88	19.88	0.00
	E.8 Smart Lane – T3	22.48	22.48	22.48	0.00
	E.9 Passenger processing IT systems	31.40	31.40	31.40	0.00
	IT Systems (sub-total)	241.62	210.93	210.93	0.00
	Fire and Safety Measures:				
F	F.1 Fire Tenders	68.51	49.78	49.78	0.00
	F.2 Satellite fire station	15.46	15.46	15.46	0.00
	F.3 Widening of roads for ACFTs	4.26	4.26	4.26	0.00
	F.4 Emergency Rescue Tender	10.95	10.95	10.95	0.00
	F.5 Hydraulic platform for High Rise Building	10.71	10.71	10.71	0.00
	Fire and Safety Measures (sub-total)	109.89	91.16	91.16	0.00
G	Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J Up to H and Construction of Taxiway K & Taxiway, West of A to Isolation parking bay	73.37	0.00	0.00	0.00

H	Regrading of side strips beyond 30 m	43.95	43.95	43.95	0.00
I	GPU and PCA South and North of T3	21.51	23.11*	23.11	0.00
J	Security Equipment's - X-BIS, ETD, DFMD, HHMD etc.	19.05	19.05	19.05	0.00
K	Other major capital expenditures	164.92	160.70	152.15	8.55
L	Total of Major Capex Items (A+B+C+D+E+F+G+H+I+J+K)	1275.77	1058.45	996.53	61.92
M	Misc. Expenses for 3rd Control Period	152.92	152.92	148.26	4.66
N	Total (L+M)	1428.69	1211.37	1144.79	66.58
O	Commercial projects – Commercial Complex, hotels, retail spaces, F&B facilities etc.	437.82	437.82	0.00	437.82
P	Grand Total (N+O)	1866.51	1649.19	1144.79	504.40
Q	IDC	46.26	19.87	14.57	5.30
	Total (including IDC) (P+Q)	1912.77	1669.07	1159.38	509.69

*including inflation adjustment on account of postponement

**to be trued up on incurrence and completion basis

6.2.74. The Aeronautical allocation of proposed capital addition considered for the Third Control Period is based on estimates, hence, the Authority proposes to true up the Aeronautical asset allocation as per efficient costs incurred and the review of line by line classification of capital additions into Aeronautical and Non-Aeronautical based on the broad framework provided by the study on allocation of assets between Aeronautical and Non-Aeronautical assets (summary of the study is given in Annexure 1 and the study report is attached as Appendix 1 of this Consultation Paper).

Depreciation for the 3rd Control Period

6.2.75. Authority has looked at CIAL's submission of Depreciation for the Third Control Period which includes the depreciation on existing assets and the assets proposed to be commissioned in the Third Control Period. Considering the revised allocation of assets as per the study on allocation of assets between Aeronautical and Non-Aeronautical assets (summary of the study is given in Annexure 1 and the study report is attached as Appendix 1 of this Consultation Paper) and the revised useful lives for certain assets and asset classes as per AERA Order No. 35/ 2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets, the Authority has recomputed the depreciation of existing assets projected for the Third Control Period.

6.2.76. Authority has also noted in the tariff submission that the depreciation rates considered by CIAL for certain assets (and asset classes) proposed to be capitalised in the Third Control Period are not in line with the useful lives prescribed as per AERA Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets. The Authority revised the useful lives of these assets and asset classes and recomputed the Aeronautical depreciation on assets proposed to be capitalised in the Third Control Period after considering the changes in the terminal allocation ratio, revised capital expenditure and the reallocation of forecasted assets into Aeronautical and Non-Aeronautical. The details of the proposed assets for which the useful lives were revised by the Authority are given in the table below.

Table 111: Useful lives of proposed assets revised by the Authority

Item Description	Useful Life (CIAL)	Revised Useful Life	Revised Asset Category
Smart-lane System	6	15	Baggage Handling Systems
Re-carpeting of runway	5	9	Runway Re-carpeting
Purchasing plastic / wooden skids	10	7	Furnitures and Fixtures other than Trolleys
Software upgradation for paperless transaction	6	5	Intangible assets
Purchase of Telescopic Forklift	10	15	Elevators, Escalators, ETV Equipment
Commercial RO water plant	15	10	Electrical Installation and equipment
Replacement of STP Equipment	15	10	Electrical Installation and equipment
Modification of existing cargo to an integrated export warehouse - Building (Civil Works)	15	30	Terminal Building / Building in Operational Area
CISF Quarters (Civil Works)	20	30	Residential Building
CISF Quarters (Civil Works)	15	30	Terminal Building / Building in Operational Area

Development of northern side of T3 Pier (Civil Works)	20	30	Terminal Building / Building in Operational Area
Development of northern side of T3 Pier (Civil Works)	15	30	Terminal Building / Building in Operational Area
Minor works (Civil Works)	15	30	Terminal Building / Building in Operational Area
Roof storage on main fire station terrace (Civil Works)	15	30	Terminal Building / Building in Operational Area
ATC Tower refurbishment	15	30	Terminal Building / Building in Operational Area

6.2.77. Revised Depreciation for the Third Control Period, after accounting for the changes discussed above, is provided in the table below.

Table 112: Revised Aeronautical Depreciation for the Third Control Period proposed by the Authority

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Land	0.00	0.00	0.00	0.00	0.00	0.00
Buildings and civil works	21.13	21.80	21.88	22.83	22.14	109.79
Golf course development	0.00	0.00	0.00	0.00	0.00	0.00
Runway, roads and culverts	41.80	45.02	50.77	50.29	52.80	240.69
Plant and Equipment	55.52	58.69	67.17	73.73	80.25	335.37
Office Equipment	0.57	0.53	0.55	0.57	0.39	2.61
Computers and accessories	3.04	4.73	5.56	5.31	4.67	23.30
Furnitures and fixtures	1.46	1.67	1.83	1.62	1.47	8.04
Vehicles	1.38	1.66	1.68	1.79	1.72	8.23
Intangible assets	0.48	1.53	2.50	2.69	2.85	10.05
IDC	0.33	0.48	0.53	0.73	0.81	2.87
Total Depreciation	125.71	136.10	152.48	159.57	167.10	740.95

Regulatory Asset Base for the 3rd Control Period:

6.2.78. Based on the revision in proposed capital expenditure, allocation of assets and depreciation discussed above, the recomputed Aeronautical RAB proposed to be considered by the Authority for tariff determination for the Third Control Period is as shown in the table below.

Table 113: Revised RAB for the Third Control Period as considered by the Authority

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Opening RAB	1647.29	1702.88	1921.64	1918.60	2145.92	
Less: Depreciation during year	125.71	136.10	152.48	159.57	167.10	740.95
Add: Capitalisation during year	181.29	354.87	149.44	386.89	86.89	1159.38
Sales/transfers/retirements	0.00	0.00	0.00	0.00	0.00	0.00
Closing RAB	1702.88	1921.64	1918.60	2145.92	2065.72	
Average RAB	1675.09	1812.26	1920.12	2032.26	2105.82	

6.3. Authority's Proposal regarding RAB and Depreciation for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to Regulatory Asset Base for the Third Control Period:

6.3.1. Authority proposes to consider capital expenditure for the Third Control Period as given in Para 6.2.73 (Table 110) and true up the same based on actuals after studying the reasonableness and reviewing the actual spend and line by line classification of capital additions into Aeronautical and Non-Aeronautical based on the broad framework provided by the study on allocation of assets between Aeronautical and Non-Aeronautical assets, undertaken for the Second Control Period (the Study is attached as Appendix 1 to this Consultation Paper).

- 6.3.2. Authority proposes to reduce 1% of the total project cost from the capital expenditure considered for true up, at the time of determination of tariff for the Fourth Control Period, in case of non-completion of projects as per proposed timelines.
- 6.3.3. Authority proposes to revise the useful lives of assets as per AERA Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets and consider Aeronautical Depreciation as given in Para 6.2.77 (Table 112).
- 6.3.4. Authority proposes to consider Aeronautical RAB as given in Para 6.2.78 (Table 113) for determination of tariff for the Third Control Period.
- 6.3.5. Authority proposes to true up RAB and Depreciation based on actuals at the time of tariff determination for the Fourth Control Period subject to reasonable justifications for any escalation in cost beyond efficient costs considered by AERA.

7. FAIR RATE OF RETURN FOR THE THIRD CONTROL PERIOD

7.1. CIAL's submission of FRoR for the 3rd Control Period

Debt and Cost of Debt

- 7.1.1. CIAL submitted that they would require debt for capital expenditures that are envisaged to be taken up during the 3rd Control Period. Based on their estimates, CIAL has submitted the outstanding debt (existing and forecasted long-term borrowings) during each financial year of the next control period.
- 7.1.2. According to CIAL's submission, cost of debt is assumed to be 7.8% based on the actual cost of debt in FY 2021.
- 7.1.3. CIAL's submission of outstanding debt and cost of debt for the 3rd Control Period are as given in the table below.

Table 114: CIAL's submission of Debt and Cost of Debt for the 3rd Control Period

Particulars (in INR Crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Total Closing Debt	896.3	1203.5	1130.1	958.6	787.2
Average Debt	822.4	1049.9	1166.8	1044.4	872.9
Cost of Debt	7.8%	7.8%	7.8%	7.8%	7.8%

Equity and Cost of Equity

- 7.1.4. CIAL made the following submissions regarding equity and cost of equity for the 3rd Control Period:
- *"The impact of COVID 19 on the aviation sector has led to increased riskiness of the investments made in the Airport. This increased riskiness has led to the investors requiring a higher Cost of Equity"*
 - *"CIAL had charged low tariffs during the initial years due to which the returns given to the investors had been lower than their expected RoE"*
 - *"CIAL would require funds to acquire land for future expansion of the Airport"*
 - *"Shareholders including the GoK and the PSU's have been demanding higher dividends and this has led to lower retained earnings for CIAL"*
 - *"Due to the reasons mentioned above, CIAL proposes to consider a 16% Cost of Equity during the 3rd Control Period"*
- 7.1.5. CIAL has excluded equity investments in subsidiaries and grants received from GoK from the calculation of FRoR for the 3rd Control Period in line with the decision taken by the Authority at the time of tariff determination for the 2nd Control Period regarding the same.
- 7.1.6. CIAL in its submission of MYTP for the 3rd Control Period has projected equity as given in the table below.

Table 115: Equity computation for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	Formula	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Share Capital	A	382.6	382.6	382.6	382.6	382.6
Reserves and Surplus	B	561.0	792.3	1164.5	1634.7	2236.0
Share Premium	C	306.1	306.1	306.1	306.1	306.1
Grant	D	0.0	0.0	0.0	0.0	0.0
Investment in Subsidiaries	E	239.5	239.5	239.5	239.5	239.5
Equity without investment in subsidiaries and grant	A+B+C-D-E	1010.1	1241.4	1613.6	2083.8	2685.1

Average Equity without investment in subsidiaries and grant	F	958.3	1125.8	1427.5	1848.7	2384.4
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Security Deposit

7.1.7. CIAL has considered security deposit of INR 150 crores deposited by the fuel farm operator at cost of debt in the calculation of FRoR during the 3rd Control Period for the airport. Regarding consideration of RSD in FRoR, CIAL has stated thus, *“In line with the TDSAT order dated 23 April 2018, CIAL has also considered refundable security deposit of INR 150 Cr. for computation of FRoR. While CIAL requests AERA for cost of equity to be applied on refundable security deposits, CIAL has considered cost of debt as the return on the security deposits for the purpose of calculation.”*

Weighted Average Gearing

7.1.8. CIAL has submitted weighted average gearing for the 3rd Control Period as given in the table below.

Table 116: Computation of Weighted Average Gearing as submitted by CIAL

Particulars (In INR Crores)	Formula	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Equity	A	958.3	1125.8	1427.5	1848.7	2384.4
Debt	B	822.4	1049.9	1166.8	1044.4	872.9
Security Deposit	C	150.0	150.0	150.0	150.0	150.0
Total Funds	A+B+C	1930.7	2325.7	2744.3	3043.0	3407.3
Weighted Average Gearing		42.42%				

Fair Rate of Return (FRoR)

7.1.9. Based on the factors discussed above, CIAL has computed Fair Rate of Return (FRoR) for the Third Control Period and submitted the same as given in the table below.

Table 117: FRoR computation as submitted by CIAL

Weighted average gearing (SD included)	42.42%
Weighted average cost of debt	7.80%
Cost of security deposit	7.80%
Share of Equity	57.58%
Cost of Equity	16.00%
FRoR	12.52%

7.2. Authority's analysis of CIAL's submission of FRoR

Cost of Debt

7.2.1. The Authority has studied the capital requirements of CIAL during the 3rd Control Period and its current and forecasted sources of funds (Equity, Debt and Security Deposits), based on which the debt forecasted by CIAL for the 3rd Control Period was understood.

7.2.2. The Authority notes that the cost of debt submitted by CIAL for the 3rd Control Period is 7.80%. The Authority sought documents in support of assumption of cost of debt. CIAL has submitted relevant bank documents in this regard, on the basis of which the Authority proposes to consider cost of debt as 7.80% and true up the same based on actuals at the time of tariff determination for the next control period.

Cost of Equity and Weighted Average Gearing

7.2.3. In its submission of FRoR for the 3rd Control Period, CIAL has considered 16% as its cost of equity.

7.2.4. The Authority had commissioned an independent study for the evaluation of cost of equity for CIAL. The study carried out by Indian Institute of Management Bangalore (IIM-B) has used a set of comparable international airports to estimate the systematic risk exposure of the Aeronautical assets of CIAL under a

target gearing ratio. The study has also taken into consideration the specific attributes of CIAL such as revenue till structure, ownership structure and scale of operations to determine its closeness to the set of comparable airports. The Study on Determinants of Cost of Capital of CIAL has recommended a cost of equity of 15.16% as shown in the table below (summary of the study is given in Annexure 3 and the study report is attached as Appendix 3 of this Consultation Paper).

Table 118: Computation of cost of equity as per independent study

Variables	CIAL
Asset Beta based on Proximity Score Weights of comparable set	0.572651
Target gearing ratio (Debt/Debt/Equity)	48.00%
Target gearing ratio (Debt/Equity)	0.9231
Equity Beta	0.9427
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.16%

7.2.5. The Authority proposes to adopt the recommendations of the independent Study on Determinants of Cost of Capital of CIAL in the tariff determination for the Third Control Period.

Weighted Average Gearing

7.2.6. The independent study had looked into select infrastructure firms in India and analysed their market value of Debt Equity Ratio (MDE) and book value of Debt Equity Ratio (BDE) in order to estimate notional Debt – Equity Ratio (DER) for CIAL. Based on its analysis the notional DER proposed by the independent study is 48%:52%, which is also close to the gearing ratio used on average by the international airports compared in the study. The Authority proposes to consider the notional DER recommended by the independent study on determinants of cost of capital of CIAL for computing the FRoR for the 3rd Control Period.

Refundable Security Deposits

7.2.7. Since the RSD of INR 150 crores deposited by the fuel farm operator was utilised by CIAL for the creation of assets, the Authority proposes to provide a return on RSD at the cost of debt in line with the judgement of TDSAT in the case of DIAL.

7.2.8. According to the notional gearing ratio considered for calculation of FRoR for the third controlling period, the composition of debt in the total funds is 48%. As refundable security deposits are treated as debt, they are effectively included in the notional gearing ratio of 48% and hence do not require any separate treatment.

Fair Rate of Return

7.2.9. Based on the factors discussed above, the Authority proposes Fair Rate of Return for the 3rd Control Period as computed in the table below.

Table 119: FRoR proposed by the Authority for the 3rd Control Period

Weighted average gearing (SD included)	48.00%
Weighted average cost of debt	7.80%
Cost of security deposit	Treated as debt
Share of Equity	52.00%
Cost of Equity	15.16%
FRoR	11.63%

7.3. Authority's Proposal regarding FRoR for the Third Control Period

Based on the material before it and based on its analysis, the Authority proposes the following with respect to Fair Rate of Return for the Third Control Period:

- 7.3.1. Authority proposes to consider cost of equity as 15.16 % as recommended by the Study on Determinants of Cost of Capital of CIAL.
- 7.3.2. Authority proposes to consider cost of debt as 7.8% as submitted by CIAL and true up the same based on actuals at the time of tariff determination for the next control period.
- 7.3.3. Authority proposes to consider a notional debt equity ratio of 48%:52% as recommended by the Study on Determinants of Cost of Capital of CIAL.
- 7.3.4. Authority proposes to consider RSD as part of the notional debt to arrive at FRoR.
- 7.3.5. Authority proposes to consider the Fair Rate of Return as given in Para 7.2.9 (Table 119) for the Third Control Period based on the above-mentioned cost of debt, cost of equity and notional debt equity ratio.

8. RETURN ON LAND FOR THE THIRD CONTROL PERIOD

8.1. CIAL's submission of Return on Land for the 3rd Control Period

8.1.1. As per the tariff order for the 2nd Control Period, the Authority had decided to provide return on land based on the study that would be conducted in this regard.

8.1.2. The Authority passed an Order (Order No.42/2018-19, dated 05 March 2019) wherein the mechanism for calculation of FRoR to be provided on the cost of land was laid down. The relevant decisions taken by the Authority were as given below:

- *"The return will be given only on the cost of land used for Aeronautical activities" (Decision No.4.1.2)*
- *"In case land is purchased by the airport operating company either from private parties or from government, the compensation shall be in the form of equated annual instalments computed at actual cost of debt or SBI base rate plus 2% whichever is lower over a period of thirty years. The equated annual instalment is to be calculated as per the following formula.*

$$\text{Equated annual installment} = [\text{Cost} * \text{Rate}(1 + \text{Rate})^{30}] / [(1 + \text{Rate})^{30} - 1]$$

Where,

Cost = Actual cost of land

Rate = Actual cost of debt or SBI base rate plus 2% whichever is lower" (Decision No. 4.1.4)

8.1.3. CIAL has submitted that the cost of land has been bifurcated into Aeronautical and Non-Aeronautical based on actual usage. The Aeronautical portion of land according to CIAL was estimated to be 89.6%. Accordingly, CIAL has submitted return on land for the 3rd Control Period as given in the table below.

Table 120: Return on land calculation as submitted by CIAL for the 3rd Control Period

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Cost of Land	125.0	125.0	125.0	125.0	125.0	
Aero Ratio (%)	89.6%	89.6%	89.6%	89.6%	89.6%	
Aero Land	112.1	112.1	112.1	112.1	112.1	
Actual cost of debt (%)	7.8%	7.8%	7.8%	7.8%	7.8%	
Return on cost of land	9.8	9.8	9.8	9.8	9.8	48.8

8.2. Authority's analysis of CIAL's submission of return on land for the 3rd Control Period

8.2.1. The Authority has carefully analysed CIAL's submission regarding bifurcation of land, land cost and the rate of return.

8.2.2. In order to understand the land acquisition process and the cost of acquisition, the Authority sought clarification from CIAL in this regard and CIAL submitted thus,

"To develop an International Airport at Cochin, the Govt. of Kerala, based on the report of the then District Collector of Ernakulam Shri.V.J. Kurian IAS, approved the formation of a Special Purpose Vehicle (SPV, Kochi International Airport Society (KIAS). The Govt. of Kerala appointed Shri.V.J. Kurian IAS, as the Special Officer for the project and he was appointed as the Managing Director of KIAS. The KIAS has acted as the land requisitioning entity for airport.

Based on the request made by the KIAS, Govt. of Kerala notified the land for the construction of the Airport by issuing 4(1) notification under the LA Act.

As the Airport was being developed by a SPV other than the Govt., it was necessary that the land acquisition expenditure be borne by the SPV and not by the Govt.

The Govt. of Kerala also appointed Special Tahsildar - Land acquisition, along with staff and the expenses for the Revenue Staff thus appointed had to be borne by KIAS on a reimbursement model.

Meanwhile, the Cochin International Airport Ltd (CIAL) was formed under companies Act, with the objective of construction, operation and maintenance of the airport at Kochi.

Therefore, the entire expense of land acquisition namely the acquisition cost of the land and buildings, trees, structures, development costs, registration expenses, increased compensation cost as directed by the Courts, cost of acquisition staff and all related expenses had been borne by CIAL and this was paid as advance to KIAS, which in turn paid the amount to the Special Tahsildar – LA, (who is the Revenue Officer- Govt. of Kerala, representing the District Collector) who distributed the amount after following the due land acquisition proceedings.

Details of the advances for land acquisition as made by CIAL to KIAS and as evidenced by the Annual Accounts of CIAL is attached as annexure – 1. These were basically paid towards settlement of awards issued by Tahsildar (Copy of one award is attached). There were around 3824 such land acquisition instances were involved. In many cases, the evictees has approached various courts against the awards and additional compensation were allowed by courts, which had been remitted by CIAL directly to courts. The aggregate value of land thus acquired and paid out of CIAL funds amounts to Rs 125.02 crores until 31.03.2020.

The Govt. of Kerala vide G.O. dated 30/2000/Tran dated 23.10.2000 has approved the transfer of land from KIAS to CIAL. (enclosed). The copy of sale /transfer document no 1377/2005 dated (dated 31.3.2005) registered with the Sub-Registrar Office, Sreemoolanagaram, Ernakulam District from KIAS to CIAL is also enclosed.

The land for the airport project amounting to 478.4965 Hectares of land was transferred to the name of CIAL through sale/transfer document No. 1377 / 2005 (dated 31.3.2005) registered with the Sub-Registrar Office, Sreemoolanagaram, Ernakulam District.

Tahsildar issues the Land acquisition awards to evictees. (copy of one such award is attached). The value of such awards was settled by KIAS from the advance payments.”

- 8.2.3. The Authority asked CIAL to submit all the relevant documents in support of the land acquisition process and CIAL submitted the deed of transfer executed between the Kochi International Airport Society (KIAS) and CIAL and also the audited financial reports in support of cost of land.
- 8.2.4. The Authority has gone through deed of transfer and it was found that the extent of land transferred to CIAL as per the deed of transfer was 1183.5 acres while the land as per the MYTP submission of CIAL was 1261 acres. The Authority sought clarifications from CIAL regarding the difference of ~77 acres between the MYTP and transfer deed and CIAL clarified that the remaining land was acquired by KIAS on behalf of CIAL, but a transfer deed has not been executed in this regard.
- 8.2.5. The Authority asked CIAL to submit all the relevant documents in support of land acquisition other than the deed of transfer and CIAL has submitted the same. Based on its analysis of further clarifications and documents provided by CIAL, the Authority understood that additional land to the extent of 76.65 acres has been acquired by KIAS on behalf of Cochin International Airport.
- 8.2.6. The Authority had enquired CIAL about the difference in cost as given in the deed of transfer and as per the financial statements. CIAL has clarified that the cost as per the deed is the fair value of the extent of land transferred while the Airport Operator had also paid compensation to the landowners for all such possession like houses, buildings/shops, compound walls etc. The Airport Operator further clarified that some of the compensation were statutory in nature and the same were also included in the total cost of land. The Authority had gone through the audited financial statements of the Airport Operator and validated the cost of land based on the same.

8.2.7. The Authority asked CIAL to submit detailed map of the airport marking all the areas and current usage of these areas. The Authority had also made observations regarding land utilisation by CIAL during the site visit to the airport. Authority's analysis of classification of land is discussed below.

Table 121: Authority's analysis of classification of land

Description	Area (Acres)	Classification as per CIAL	Reclassification by the Authority
Approach road including all the land area on either side of the approach road till the ATC building	63.90	Aero	
DVOR installation and influence zone	72.26	Aero	
Golf excluding DVOR Influence area	59.66	Non-Aero	
12 MW solar farm near Cargo	51.90	Aero	
7.5MW ground mounted solar farm A (near IT carpark)	4.58	Aero	
7.5MW ground mounted solar farm B (near IT carpark)	13.00	Aero	
New solar farm opposite trade fair centre	23.00	Aero	
Solar area in the southern side and the vacant land (deducting cemetery)	10.00	Aero	
Existing cargo complex (including CPC, domestic cargo) and airlines building	9.00	Aero	
CISF and customs kennel	0.86	Aero	
IT car park	10.61	Non-Aero	
Domestic car park	7.59	Non-Aero	
BPCL aviation tank	5.57	Aero	
IOC land	1.06	Aero	Non-Aero
IOC retail outlet	1.36	Aero	Non-Aero
DVOR 11 Thattekad	5.00	Aero	
Outer marker Koovapadi	0.95	Aero	
Middle marker Kaladi	0.15	Aero	
NDB Cheranallor	0.87	Aero	
Sewage treatment plant and adjoining farming area	1.70	Aero	
ATC building	1.66	Aero	
Trade fair centre	5.50	Non-Aero	
Federal bank building	0.20	Non-Aero	
Rehabilitation land Nayathode	22.95	Aero	Non-Aero
Rehabilitation land Akaparambu	5.41	Aero	Non-Aero
Operational area within the compound wall	662.00	Aero	
110KV substation	1.58	Aero	
Canteen and prepaid restroom	2.23	Non-Aero	
CIASL area (including hanger, solar farm and incinerator)	34.14	Aero	
CHA building and yard	2.60	Aero	
Navy	6.53	Aero	
Import cargo complex (new)	4.10	Aero	Non-Aero
Air India GSE	0.36	Aero	
Duty free warehouse and yard	4.50	Non-Aero	
T1 terminal building including canopy	10.90	Aero	Common
T2 building including connecting corridor	4.66	Aero	Common
T3 building including flyover and gate house	17.09	Aero	Common
Future T3 apron expansion	33.63	Aero	Non-Aero
Internal roads	24.81	Aero	

Description	Area (Acres)	Classification as per CIAL	Reclassification by the Authority
Star Hotel	1.91	Non-Aero	
Additional area for star hotel car park	3.09	Non-Aero	
Pump house and water tank area	0.92	Aero	
Future development area (near ROB)	33.00	Non-Aero	
Airport museum	2.50	Non-Aero	
Utility substation	0.48	Aero	
Service building T3	1.80	Aero	Common
GSE building	2.77	Aero	
Diversion Canal	26.90	Aero	
TOTAL AREA	1261.24		

- 8.2.8. The Authority has observed that land to the extent of 2.5 acres has been leased out to Indian Oil Corporation for setting up a retail outlet. This parcel of land was classified by the Airport Operator as Aeronautical. The Authority proposes to reclassify this area as Non-Aeronautical.
- 8.2.9. The Authority noted that the land for New Import Cargo Complex (4.1 acres), Future T3 apron expansion (33.6 acres) and the land for CISF quarters (5.4 acres at Akaparambu) have been considered in the computation of land cost for Aeronautical purposes. However, the Authority notes that according to Clause 3.5.3 of Order No. 42/2018-19 dated 05 March 2019 regarding FRoR to be provided on cost of land, the Authority only considers capitalised assets for providing a return and on the same lines would consider only value of land put to use by the Airport operator. The remaining land would be considered as and when the land is put to use. The Authority proposes to exclude such land earmarked for future use from the computation of return on land and proposes to true up the same based on actual usage.
- 8.2.10. Land to the extent of 23 acres (at Nayathode) has been earmarked by the Airport Operator for rehabilitation activities. The Authority notes that as per Clause 3.6.1 of Order No. 42/2018-19 dated 05 March 2019 regarding FRoR to be provided on cost of land, return would be provided on land for rehabilitation and resettlement if the state government is involved in the process and that such return would only be provided on lands purchased after the issuance of the said order. Since in the case of CIAL, the land had already been purchased prior to the issue of the Order No. 42/2018-19 dated 05 March 2019 regarding FRoR to be provided on cost of land, the Authority proposes to provide no return on the land that is earmarked for rehabilitation activities.
- 8.2.11. The Authority observed that land utilised for terminal building and associated areas like canopy, connecting corridor, flyover, and gate house have been considered as Aeronautical by the Airport Operator. The Authority proposes to bifurcate such land, into Aeronautical and Non-Aeronautical, using the terminal allocation ratio.
- 8.2.12. On account of the above revisions, the Authority recomputed the return to be provided by amortising the revised cost (of land considered Aeronautical) over a period of 30 years at the cost of debt in accordance with AERA Order No. 42/2018-19 dated 05 March 2019 regarding determination of FRoR to be provided on Cost of Land incurred by various Airport Operators in India. The cost of debt of 7.8% submitted by CIAL was found to be within the limit of SBI base rate plus 2% prescribed in the order (The SBI base rate¹¹ was 7.4% as on 10 March 2021). Accordingly, the equated annual instalments were computed using the formula given below.

$$\text{Equated annual installment} = [\text{Cost} * \text{Rate}(1 + \text{Rate})^{30}] / [(1 + \text{Rate})^{30} - 1]$$

Where,

Cost = Actual cost of land used for Aeronautical purposes as considered by the Authority

¹¹ <https://sbi.co.in/web/interest-rates/interest-rates/base-rate-historical-data>

Rate = Actual cost of debt or SBI base rate plus 2% whichever is lower

8.2.13. Based on the above, the Authority proposes to provide a return on the cost of land in the Third Control Period as given in the table below.

Table 122: Return on land proposed by the Authority for the 3rd Control Period

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Land Cost	125.00	125.00	125.00	125.00	125.00	
Aero Ratio (%)	83.95%	83.95%	83.95%	83.95%	83.95%	
Aero Land	104.96	104.96	104.96	104.96	104.96	
Actual cost of debt (%)	7.80%	7.80%	7.80%	7.80%	7.80%	
Return on cost of land	9.15	9.15	9.15	9.15	9.15	45.74

8.3. Authority's Proposal regarding Return on Land for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to Return on Land for the Third Control Period:

- 8.3.1. Authority proposes to consider the total cost of land as submitted by CIAL.
- 8.3.2. Authority proposes to consider the land leased out to IOCL retail outlet as Non-Aeronautical.
- 8.3.3. Authority proposes to not provide return on the cost of land earmarked for future use, until the same is put to use.
- 8.3.4. Authority proposes to not consider the land reserved for rehabilitation in the computation of return on land.
- 8.3.5. Authority proposes to apportion the land for terminal buildings and associated areas in the terminal allocation ratio.
- 8.3.6. Authority proposes to consider the return on land for the Third Control Period as given in Para 8.2.13 (Table 122) and true up the same based on the actual year of capitalisation of assets on the land earmarked for future expansion.

9. OPERATING EXPENSES FOR THE THIRD CONTROL PERIOD

9.1. CIAL's submission of Operations and Maintenance expense for the 3rd Control Period

9.1.1. CIAL has submitted operations and maintenance expenses under three major heads viz., Employees' Cost, Operational Expenses and Admin expenses. For the purpose of estimation of these future expenses, CIAL has considered cost drivers such as passenger traffic, increase in manpower, inflation etc. The details regarding projections of individual cost heads submitted by CIAL is provided below.

Details of expenses as submitted by CIAL

Employee Expenses

9.1.2. With respect to employee expenses CIAL has submitted the following:

- Employee cost is forecasted based on the increase in salary per employee and the number of employees.
- During the Third Control Period, the employee salary is expected to grow at 7% annually, in line with the 5-year CAGR (2015-2020) of 7.4%.
- The pay revision, that is done every five years, scheduled in FY 2023 has not been considered while forecasting the employee costs for the 3rd Control Period. CIAL has requested the Authority true up the pay revision on actuals.
- The total number of employees have been assumed to remain a constant at 496.

9.1.3. CIAL has submitted the total employee expenses for the 3rd Control Period as given in the table below.

Table 123: Total employee costs for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total employee costs	88.3	94.5	101.1	108.1	115.7	507.6

Operational Expenses

9.1.4. **Repairs and Maintenance expense:** CIAL, in its MYTP for the Third Control Period, has submitted the following regarding R&M expenses:

- R&M expenses for buildings, runways, roads and culverts have been forecasted as a percentage share of gross block of these assets.
- The percentage share is determined on the basis of historical trends and technical estimates for new assets.
- For the 3rd Control Period, based on the actual expenses in FY 2020, the Airport Operator has assumed that the repairs costs for 'Buildings' would be 1.2% of gross block of buildings.
- In the case of "Runways, Roads and Culverts" and "Plant and Equipment" it is assumed to be 1.4% of gross block of these assets.

9.1.5. The total Repairs and Maintenance expense for the 3rd Control Period submitted by CIAL is given in the table below.

Table 124: Total R&M expenses for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total Repairs cost	31.4	33.8	38.4	44.3	49.8	197.7

9.1.6. **Power charges:** The power charges for the Third Control Period have been estimated by CIAL as follows:

- Power charges have been forecasted based on estimated power consumption, unit power charges and contract demand charges (of KSEB) for each year.
- During the period from April to May 2020, when the passenger traffic was almost nil, the fixed consumption was approximately 75,000 units a day. CIAL has estimated that the variable consumption is 0.079 units per pax per day.
- Based on the above and the projections of traffic, the Airport Operator has computed the total power consumption for each year.
- As per the Power Purchase Agreement with CIAL Infra, the unit rate for solar power supplied by the subsidiary is INR 6.8.
- The subsidiary is expected to meet all the power requirements of CIAL for the Third Control Period, except in FY 2026. Any such shortfall would be supplied by the Kerala State Electricity Board (KSEB) at the prevailing tariffs.
- Also, regardless of consumption, KSEB bills CIAL for 75% of the contract demand of 9000 KVA as Contract Demand Charges.

9.1.7. The effective unit rates of power supplied by CIAL Infra and KSEB and the total power charges for the Third Control Period as submitted by CIAL are as given in the table below.

Table 125: Power charges for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Power consumption	Lakh units	403	488	533	558	587	2569
Capacity of CIAL Infra	Lakh units	566	566	566	566	566	
Power supplied by KSEB	Lakh units	0	0	0	0	21	21
Effective unit rate – CIAL Infra	INR	6.8	6.8	6.8	6.8	6.8	
Effective unit rate – KSEB	INR	7.9	7.9	7.9	8.6	8.6	
Total Power charges	INR crores	31.1	36.8	39.9	42.0	44.3	194.1

9.1.8. **Water charges:** The Airport Operator has escalated the water consumption for each year of the 3rd Control Period at the same rate as that of power consumption. CIAL has assumed per unit water charges to grow 20% in FY 2023 and to remain a constant afterwards. The total water charges as forecasted by CIAL for the 3rd Control Period is given in the table below.

Table 126: Water charges for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Water consumption	Lakh Litres	2703	3270	3573	3741	3936	17222
Unit charges	INR per KL	40	48	48	48	48	
Total water charges	INR crores	1.08	1.57	1.72	1.80	1.89	8.05

9.1.9. **Fuel generator charges:** CIAL has forecasted the growth in fuel consumption at the same rate as that of power consumption. Unit fuel charges have been assumed to grow at 10% annually. Fuel generator charges for the 3rd Control Period as submitted by CIAL is given in the table below.

Table 127: Fuel generator charges for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total fuel generator charges	INR crores	0.5	0.67	0.80	0.92	1.07	3.96

9.1.10. **Utility service charges:** As per the direction of AERA in the tariff order for CIAL for the Second Control Period (Para 13.2.14, AERA order No. 07/2017-18, dated 13th July 2017), CIAL has netted off utility service charges recovered from concessionaires against the utility expenses. For the Third Control Period, the

Airport Operator has forecasted utility service charges as a % of utility expenses. CIAL's submission of utility service charges for the Third Control Period is as given in the table below.

Table 128: Utility service charges for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Utility service charges	INR crores	4.9	6.7	7.3	7.7	8.2	34.8
% of utility expenses	%	15.0%	17.2%	17.2%	17.2%	17.2%	

9.1.11. **Safety and security expenses:** The Airport Operator has forecasted safety and security expenses to reach pre-COVID levels (FY 2020 levels) by FY 2022 and then grow annually at a rate of 10% from FY 2023 to FY 2026. Total safety and security expenses as submitted by CIAL for the 3rd Control Period is given in the table below.

Table 129: Safety and security expenses for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total safety and security expenses	INR crores	8.8	9.7	10.7	11.7	12.9	53.7

9.1.12. **Vehicle running and maintenance expenses:** CIAL has estimated vehicle running and maintenance expense to reach pre-COVID levels by FY 2022 and to then grow annually at a rate of 10% during the period FY 2023-2026. The total vehicle running and maintenance expense for the 3rd Control Period as submitted by CIAL is given in the table below.

Table 130: Vehicle running and maintenance expense for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY2022	FY2023	FY2024	FY2025	FY2026	Total
Total Vehicle running and maintenance expense	INR crores	0.98	1.08	1.19	1.31	1.44	5.99

9.1.13. **Housekeeping expense:** CIAL has submitted that the housekeeping expenses would reach pre-COVID levels by FY 2022 and then grow at 10% annually for the rest of the Third Control Period. The total housekeeping expenses for the 3rd Control Period as submitted by CIAL is given in the table below.

Table 131: Housekeeping expenses for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total Housekeeping expense	INR crores	11.59	12.75	14.03	15.43	16.97	70.78

9.1.14. **Consumables expense:** During the Third Control Period, CIAL expects the consumables expense to grow annually at 6.6%, in line with the 5-year CAGR during the period 2015-2020. CIAL's submission of consumables expense for the 3rd Control Period is as given in the table below.

Table 132: Consumables expenses for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total consumables expense	INR crores	4.05	4.32	4.60	4.91	5.23	23.10

9.1.15. **CUTE operating expenses:** The Airport Operator has submitted that it has entered into contracts with SITA and Glidepath for CUTE services. The contract with SITA would expire in FY 2022, post which CIAL has assumed a 10% annual growth in the contract charges. The contract with Glidepath is valid up to FY 2026 and CIAL has considered the contractual value in its submission of expenses for the 3rd Control Period. The CUTE operating expenses for the Third Control Period as submitted by CIAL is given in the table below.

Table 133: CUTE operational expenses for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
CUTE operating expenses – SITA	INR crores	2.38	2.62	2.88	3.17	3.48	14.53
CUTE operating expense – Glidepath	INR crores	3.95	4.14	4.34	4.54	4.75	21.71
Total CUTE operational expenses	INR crores	6.33	6.76	7.22	7.71	8.23	36.24

9.1.16. **Other operational expenses:** CIAL has submitted the following with respect to Other operational expenses:

- Other operational expenses include miscellaneous and CSR expenses.
- As directed by AERA in the tariff order for CIAL for the Second Control Period (Para 13.2.15, AERA order No. 07/2017-18, dated 13 July 2017), CSR expenses have been excluded from the Aeronautical operational expenditure.
- The miscellaneous expenses during FY 2022-2026 are expected to grow at 4.1% annually based on the 5-year CAGR from FY 2015-2020.

9.1.17. CIAL's submission of Other operational expenses for the Third Control Period is given in the table below.

Table 134: Other operational expenses for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total other operational expenses	INR crores	9.80	9.41	11.26	17.44	22.18	70.09

Administrative and general expenses

9.1.18. CIAL's submission with respect to the components of administrative and general expenses are as given below:

- Repairs to office equipment: Repairs to office equipment for the 3rd Control Period is estimated based on actual R&M expense as a % of gross block of such assets during FY 2020.
- Rents: Rents during FY 2022-2026 have been estimated to grow at 8% annually.
- Rates and taxes: Rates and taxes have been kept constant during the 3rd Control Period.
- Printing and stationery: Printing and stationery expense in FY 2022 is estimated to reach its respective level in FY 2020 and to then grow annually at the rate of inflation for the rest of the Third Control Period.
- Telephone and postage: Telephone and postage expense has been projected to increase at 10.3% annually based on the 5-year CAGR from FY 2015 - 2020.
- Travelling expense: In FY 2022, travelling expense has been assumed to reduce by 25% of its level in FY 2020 due to the impact of COVID-19. Post attaining pre-COVID levels in FY 2023, travelling expenses are expected to grow annually at a rate of 10%.
- Insurance: For the Third Control Period, insurance expense has been estimated based on the forecasted gross block by using the average ratio of insurance expenses to gross block for the last three years.
- Advertisement: It is expected that the advertisement expense would reach pre-COVID levels by FY 2022 and then grow at 10% annually.
- Bank charges: Bank charges have been forecasted at the average of the last five years.

- Auditor's remuneration: It is estimated that the Auditor's remuneration would grow at a CAGR of 8% during the 3rd Control Period.
- Professional charges: Professional charges are projected to increase by 10% annually after reaching pre-COVID levels (FY 2020 levels) in FY 2022.
- Flood mitigation expenses: Flood mitigation expenses have been forecasted based on the recommendations of the KITCO study regarding the same. These are capital expenditure items for construction of bridges which have been expensed out in the P&L as per the accounting treatment.
- Provision for doubtful debts: Provision for doubtful debt has not been considered as part of Aeronautical O&M expenses.
- Bad debts written off: Forecasted to be 50% of the provision for doubtful debt.
- Foreign exchange losses: Foreign exchange losses are projected to remain constant at FY 2020 levels throughout the 3rd Control Period.
- Director sitting fees: Projected to increase by 10% annually.

9.1.19. Summary of O&M expenses as submitted by CIAL for the Third Control Period is as given in the table below.

Table 135: Total O&M expenses for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Employee costs – Total	88.3	94.5	101.1	108.1	115.7	507.6
Operational expenses – Total	105.6	116.8	129.8	147.5	164.0	663.7
Admin and general expense – Total	23.1	32.9	24.4	25.7	27.1	133.2
O&M expense – Total	217.0	244.2	255.2	281.4	306.9	1304.6

Aeronautical allocation of Operations and Maintenance expense

9.1.20. CIAL has submitted the rationale for Aeronautical allocation of various expense heads for the Third Control Period as given in the table below.

Table 136: CIAL's submission of basis of Aeronautical allocation of O&M expenses for the 3rd Control Period

Expense Item	Rationale for Aero Allocation
Employee costs	<ul style="list-style-type: none"> • Employees have been bifurcated into direct aero, direct non-aero and common based on the nature of services provided by them. • Common employees like MD's office, finance, HR etc. have been apportioned into Aero and Non-Aero in the proportion of direct aero and non-aero. • Out of 496 employees CIAL has submitted that 477 employees are providing aeronautical services based on which the aero ratio is 96.10% • Total employee costs have been apportioned into aero at 96.10%
Admin and general expense	<ul style="list-style-type: none"> • Flood mitigation expenses have been apportioned as 100% aeronautical • Remaining expenses have been apportioned in the same manner as employee cost i.e.; aero ratio of 96.10%
Utilities cost	<ul style="list-style-type: none"> • Utilities expense net recoveries from concessionaires have been considered 100% Aeronautical
Repairs and Maintenance costs	<ul style="list-style-type: none"> • Repairs and maintenance costs have been apportioned in the ratio of aero gross block to total gross block of assets
Other operational expenses	<ul style="list-style-type: none"> • Allocated in the same manner as that of employee costs

CUTE operational expenses	<ul style="list-style-type: none"> CUTE operational expenses have been considered as 100% Aeronautical in nature
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9.1.21. Based on the rationale given above, CIAL has submitted the Aeronautical allocation of various heads under operations and maintenance expense as given in the table below.

Table 137: Aeronautical allocation of O&M expenses for the 3rd Control Period as submitted by CIAL

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Payment to employees	96.1%	96.1%	96.1%	96.1%	96.1%
Operational Expenses					
Total repairs cost	87.9%	87.2%	86.8%	87.0%	84.9%
Safety and security expenses	96.1%	96.1%	96.1%	96.1%	96.1%
Utility charges (Net recoveries)	100.0%	100.0%	100.0%	100.0%	100.0%
Vehicle R&M expense	96.1%	96.1%	96.1%	96.1%	96.1%
House Keeping expenses	96.1%	96.1%	96.1%	96.1%	96.1%
Consumables	96.1%	96.1%	96.1%	96.1%	96.1%
Other operational expenses	96.1%	96.1%	96.1%	96.1%	96.1%
CUTE operational expenses	100.0%	100.0%	100.0%	100.0%	100.0%
Admin expense					
Admin expenses except flood mitigation	96.1%	96.1%	96.1%	96.1%	96.1%
Flood mitigation expenses	100.0%	100.0%	100.0%	100.0%	100.0%

9.1.22. Aeronautical O&M expenses for the 3rd Control Period as submitted by CIAL is given in the table below.

Table 138: Aeronautical O&M expenses for the 3rd Control Period as submitted by CIAL

Particulars (in INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Payment to Employees	84.9	90.8	97.2	104.0	111.2	488.0
Repairs and Maintenance	27.6	29.4	33.4	38.5	42.3	171.2
Utility costs	27.8	32.3	35.1	37.0	39.1	171.3
Safety and Security expenses	8.5	9.3	10.2	11.3	12.4	51.7
Vehicle Repairs and Maintenance	0.9	1.0	1.1	1.3	1.4	5.8
Housekeeping expenses	11.1	12.3	13.5	14.8	16.3	68.0
Consumables	3.9	4.1	4.4	4.7	5.0	22.2
Other operational expenses	7.6	7.9	8.2	8.6	8.9	41.3
CUTE operational expenses	6.3	6.8	7.2	7.7	8.2	36.2
Admin and General expense	20.3	30.1	22.4	23.8	25.1	121.7
Total O&M expenses	198.9	224.1	232.8	251.6	270.0	1177.4

9.2. Authority's analysis of CIAL's submission of Operations and Maintenance expense for the 3rd Control Period

9.2.1. The Authority has studied CIAL's submission of O&M expenses under various heads in detail and has made the following observations:

Employee Expenses

9.2.2. The Authority sought clarifications from CIAL regarding consideration of departments like Electrical Engineering and Civil engineering as Aeronautical and not as Common. CIAL responded vide their email dated 02 January 2021 ("Reply to queries 2 and gaps") that these departments are completely engaged for Aeronautical activities and that the concessionaires (Non-Aeronautical service providers) cannot avail

services from these departments. Also, the wages of the employees of CIAL Duty-Free are paid by the subsidiary (CDRSL) that manages the Duty-Free shop and these expenses do not form a part of the employee expenses of CIAL.

- 9.2.3. The Airport Operator has considered a 7% annual escalation in employee costs during the 3rd Control Period. The Authority analysed the historical trend in employee costs at Cochin Airport and has observed that the CAGR during the period FY 2015-2020 was 7.4%, while the 3-year CAGR during FY 2017-2020 was 13.9%. The 3-year CAGR is higher due to the pay revision done in FY 2019. Based on its observation of historical growth rate in employee costs, the Authority finds the growth rate used by CIAL for projection of employee expenses for the Third Control Period to be reasonable.

Table 139: Growth rate for employee expenses

Particulars	Growth rate considered by CIAL	5-year CAGR (FY 2015-2020)	3-year CAGR (FY 2017-2020)
Employee expenses	7.00%	7.42%	13.93%

- 9.2.4. The Authority has noted that CIAL has not considered the impact of pay revision (done once in five years) in its projections. The actual expenses incurred would depend on the timing of the pay revision and the increase in wages. Given the above, the Authority proposes to consider employee costs as submitted by CIAL for the 3rd Control Period and then true up the same based on actuals at the time of tariff determination for the next control period.

Operational expenses

Repairs and Maintenance Expense

- 9.2.5. The Airport Operator has forecasted R&M expenses for individual assets classes as a percentage of its respective gross block. The costs have been further adjusted for inflation to account for the replacement value. The percentage share of gross block considered as R&M expenses is 1.2% for "Buildings and civil works" and 1.4% for "Runways, roads and culverts" and "Plant and Equipment". The Authority compared the rates considered by CIAL against the average of last five years, the details of the same are given below.

Table 140: Analysis of R&M expense projections

R&M expense as % of gross block	% considered by CIAL	5-year average % (FY 2016-2020)
Buildings and civil works	1.22%	1.49%
Plant and Equipment	1.38%	1.63%
Runways, roads and culverts	1.38%	1.63%

- 9.2.6. For estimating the repair cost of new assets proposed to be capitalised in the 3rd Control Period, CIAL has considered different percentages than the ones used for existing assets. These percentages are lower compared to the percentages used for existing assets, as would be expected, since newer assets would require lesser repairs compared to existing ones.
- 9.2.7. Based on the above, the Authority finds the estimates made by the Airport Operator to be reasonable. However, the repair costs would depend on actual value and time of capitalisation of assets. Hence, the Authority proposes to consider R&M expenses as submitted by CIAL and true up the same based on actuals at the time of tariff determination for the next control period.

Power, water and fuel charges

- 9.2.8. CIAL has computed power charges based on unit power consumption and unit rates that are estimated for the 3rd Control Period. The Airport Operator has forecasted power consumption to grow in proportion to the traffic.
- 9.2.9. The per unit power charges for the solar power supplied by CIAL Infra have been kept constant at the rate of INR 6.8 per unit throughout the 3rd Control Period (based on the Power Purchase Agreement with the

subsidiary). However, the contract demand charges and unit power charges from KSEB have been escalated by 10% in both FY 2022 and FY 2024. The Authority has observed that after the revision in FY 2014 the tariffs were revised by KSEB only in FY 2020. Considering that these rates are not frequently revised by KSEB, the Authority proposes to consider an escalation of 10% on contract demand charges and unit costs of KSEB only in FY 2026.

- 9.2.10. CIAL has considered utilities costs as net of utility service charges after setting off the recoveries from the concessionaires in line with the decision taken by the Authority regarding the same in the 2nd Control Period.
- 9.2.11. As in the case of power consumption, the Airport Operator has projected water and fuel consumption to grow in proportion to the traffic. The Authority enquired about the rationale behind considering fuel consumption to grow in proportion to the traffic, to which CIAL responded vide their email dated 02 January 2021 ("Replies to queries 2 and gaps") that, "the DG sets are used as a last alternative source of power and its usage depends on the non-availability of power. Therefore, the growth rate adopted is similar to that of power consumption which appears to be the best fit."
- 9.2.12. For FY 2022, CIAL has considered utilities service charges as 15% of utilities cost, while for FY 2023-2026, it is considered as 17.2% of utilities cost (same as in FY 2020). The Authority sought clarifications from CIAL regarding lower utility service charges in FY 2022 compared to the remaining years. CIAL responded vide their email dated 02 January 2021 that some concessionaires have closed their businesses starting from FY 2021 due to losses induced by the COVID-19 crisis and hence a lower recovery is expected from concessionaires for the period until FY 2023. Further, CIAL added that the utilities charges are expected to reach pre-COVID levels by FY 2023.
- 9.2.13. CIAL has also stated that the utility service charges were projected to be 10% of utility cost in FY 2021, however, the actual charges recovered during April-September 2020 was only 7.4% of the utility cost during the same period.
- 9.2.14. The projections made by the Airport Operator regarding the consumption of power, water and fuel seem reasonable. The Authority proposes to revise the escalation of power costs of KSEB as discussed above and consider "Power, water and fuel charges" for the 3rd Control Period as given in the table below, and true up the same based on actuals at the time of tariff determination for the Fourth Control Period.

Table 141: Utility expenses as considered by the Authority for the Third Control Period

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Power, water and fuel charges	27.47	32.05	34.83	36.41	38.70	169.46

Other operational expenses

- 9.2.15. The Authority compared the growth rates used by CIAL for projecting operational expenses against the actual growth in the last 5 years. The details are given below.

Table 142: Analysis of growth of operational expenses

Expense Item	Growth rate considered by CIAL	5-year CAGR (FY 2015-2020)
Safety & Security	10.00%	24.31%
Housekeeping	10.00%	17.18%
Consumables	6.61%	6.61%
Miscellaneous	4.09%	4.09%

- 9.2.16. The Authority notes that CIAL has used 5-year CAGR for forecasting "Consumables" and "Miscellaneous" expenses. Further, the Airport Operator has used an annual growth rate of 10% in the case of "Safety and Security" and "Housekeeping" expenses despite their actual growth rate in the past being higher than 10%. Therefore, the Authority proposes to consider these expenses as submitted by CIAL for the Third Control Period and true up the same based on actuals at the time of tariff determination for the next control period.

9.2.17. Post FY 2022, the Airport Operator has considered 10% growth rate for CUTE operational expenses pertaining to SITA. CIAL in their MYTP for the Third Control Period has stated that the contract with SITA will expire in FY 2022 because of which it has assumed such a growth rate. The Authority notes that the actual escalation can only be understood after an agreement in this regard has been entered into with the concessionaire. Hence, the Authority proposes to consider the growth rate as per CIAL's submission for the 3rd Control Period and then true up the same based on actuals at the time of tariff determination for the 4th Control Period.

9.2.18. The Authority notes that CIAL has excluded CSR expenses for the 3rd Control Period, which is in line with the decision taken by the Authority in this regard in the previous tariff order.

Administrative expenses

9.2.19. The Authority observed that there is no clear trend in the overall administrative and general expenses over the last 5 years. A comparison of the average annual A&G expenses submitted by CIAL for the second and third control periods is given below.

Table 143: Comparison of average annual A&G expenses

Expense Item	Second Control Period	Third Control Period
Average Admin & General expenses (INR Cr.)	36.48	26.64

9.2.20. The Airport Operator has excluded the "Provision for doubtful debts" from Aeronautical O&M expenses in its MYTP submission. However, it was noticed that the figures of the preceding year were deducted from O&M expenses of each year instead of deducting the "Provision for doubtful debts" figure of the same year. The Authority proceeded to rectify this year.

9.2.21. The Authority noted that CIAL has forecasted various flood mitigation expenses for the 3rd Control Period. The Airport Operator was asked to submit the details of these expenses including locations in which these expenses are proposed to be incurred. The Authority observed that similar to the expenses incurred in the Second Control Period, these expenses are proposed to be undertaken outside the Airport premises. Since these measures also benefit the adjoining areas of the airport, the responsibility for the same cannot be entirely attributed to the Airport Operator, hence the Authority proposes to exclude the expenses incurred outside the area belonging to the airport from the ARR calculation.

Aeronautical allocation of Operations and Maintenance expense

9.2.22. The Authority had decided to conduct a study on efficient O&M costs for CIAL for the Second Control Period (the summary of the study is given in Annexure 2 and the study report is attached as Appendix 2 of this Consultation Paper). In addition to the examination of allocation of expenses, the study was also conducted to examine baseline operating levels and also for the benchmarking of O&M expenses incurred by the Airport Operator during the 2nd Control Period.

9.2.23. For the Third Control Period, the Authority proposes to consider the basis for allocation of expenses as proposed by the study on efficient O&M expenses for CIAL for the Second Control Period. Basis for Aeronautical allocation of O&M expenses as submitted by CIAL and as proposed by the study on efficient O&M expenses for CIAL are as given below.

Table 144: Basis for Aeronautical allocation of O&M expenses proposed by the study on efficient O&M expenses for CIAL

Item	Basis according to CIAL	Basis according to the study on efficient O&M expenses
Employee costs	Employees have been bifurcated into direct Aeronautical, direct Non-Aeronautical and common. Common employees have further been bifurcated in the proportion of direct Aeronautical and direct Non-Aeronautical employees. Total employee costs are then bifurcated into Aero and Non-Aero in the respective proportion of their numbers.	Same as according to CIAL.

Repairs cost	Repairs and maintenance expenses have been bifurcated based on the ratio approved by the Authority in the Tariff Order.	Bifurcated based on revised ratio of Aeronautical Gross Block to Total Gross Block.
Safety and security expenses	Safety and security expenses have been bifurcated in proportion of number of employees providing aeronautical and non-aeronautical services.	As the security expenses are incurred for the whole of Terminal building and the Airport, the same have been bifurcated using the terminal allocation ratio.
Utilities cost	Utilities costs have been considered as net of revenues from concessionaires and the net amount so obtained have been considered as 100% aeronautical.	Same as according to CIAL.
Vehicle running and maintenance expenses	Vehicle running and maintenance expenditure have been bifurcated in the proportion of number of employees providing aeronautical and non-aeronautical services.	Same as according to CIAL.
Housekeeping expenses	Housekeeping expenses have been bifurcated in the proportion of number of employees providing aeronautical and non-aeronautical services.	As the housekeeping expenses are incurred for the upkeep and cleanliness of the Terminal building and the areas surrounding them, the same have been bifurcated using the terminal allocation ratio.
Consumables expenses	Consumables expenses have been bifurcated in the proportion of number of employees providing aeronautical and non-aeronautical services.	As the consumables are used across the Terminal building by employees and passengers alike, consumable expenses have been bifurcated using the terminal allocation ratio.
CUTE operational expenses	CUTE operational expenses have been considered as 100% aeronautical.	Same as according to CIAL.
Other operational expenses	Other operational expenses have been segregated in the proportion of employees providing aeronautical and non-aeronautical services.	As the other operational expenses pertain to the overall Airport operations, the same have been bifurcated using the terminal allocation ratio.
Administrative and general expenses	All admin and general expenses except flood related expenses have been segregated in the proportion of employees providing aeronautical and non-aeronautical services. Flood mitigation expenses have been considered as 100% aeronautical while loss on sale of assets due to flood have been bifurcated in the ratio of aero gross block to total gross block.	Components of Admin and general expenses related to Terminal building have been segregated using the terminal allocation ratio, those related to employees have been segregated in the employee ratio and the remaining in the ratio of average aeronautical assets to total assets. The flood mitigation expenses were found to be incurred outside the airport area and have been excluded from O&M expenses.

9.2.24. The aeronautical allocation of operations and maintenance expenses as proposed by the Authority for the 3rd Control Period, based on the principles outlined in the study on efficient O&M expenses for CIAL, is as given in the table below.

Table 145: Aeronautical allocation of O&M expenses for the 3rd Control Period as proposed by the Authority

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Payment to employees	96.13%	96.13%	96.13%	96.13%	96.13%
Operational Expenses					

Total repairs cost	82.37%	81.53%	80.62%	81.73%	79.95%
Safety and security expenses	91.06%	91.06%	91.06%	91.06%	91.06%
Utility charges (Net recoveries)	100.00%	100.00%	100.00%	100.00%	100.00%
Vehicle R&M expense	96.13%	96.13%	96.13%	96.13%	96.13%
House Keeping expenses	96.13%	96.13%	96.13%	96.13%	96.13%
Consumables	96.13%	96.13%	96.13%	96.13%	96.13%
Other operational expenses	96.13%	96.13%	96.13%	96.13%	96.13%
CUTE operational expenses	100.00%	100.00%	100.00%	100.00%	100.00%
Admin expense					
Admin expenses except flood mitigation	88.55%	87.98%	87.63%	88.17%	87.42%
Flood mitigation expenses	0.00%	0.00%	0.00%	0.00%	0.00%

Working Capital Interest

- 9.2.25. CIAL has not considered "Working Capital Interest" under O&M expenses and had included it separately in the computation of ARR. The Authority has noted that CIAL has computed working capital interest based on the forecasted repayment schedule of the overdraft facility which was enhanced to INR 125 Cr. in FY 2021 in the light of low revenues due to the pandemic. The Airport Operator has considered the entire expense as Aeronautical.
- 9.2.26. The Authority has considered working capital interest under O&M expenses and proposes to allocate the same in the ratio of gross fixed assets since working capital is a general corporate requirement and this expense cannot be solely attributed to Aeronautical activities.
- 9.2.27. Based on the above, Aeronautical O&M expenses proposed by the Authority for the 3rd Control Period are as given in the table below.

Table 146: Aeronautical O&M expenses as proposed by the Authority for the 3rd Control Period

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Payment to Employees	84.86	90.80	97.15	103.95	111.23	488.00
Repairs and Maintenance	25.88	27.52	31.09	35.08	39.46	159.04
Utility costs	27.47	32.05	34.83	36.41	38.70	169.46
Safety and Security expenses	8.02	8.82	9.70	10.67	11.74	48.93
Vehicle Repairs and Maintenance	0.94	1.04	1.14	1.26	1.38	5.76
Housekeeping expenses	10.56	11.61	12.77	14.05	15.46	64.45
Consumables	3.69	3.93	4.19	4.47	4.76	21.04
Other operational expenses	7.21	7.50	7.81	8.13	8.46	39.11
CUTE operational expenses	6.33	6.76	7.22	7.71	8.23	36.24
Admin and General expense	17.66	18.83	19.84	21.46	22.45	100.24
Working Capital Interest	7.62	4.47	0.00	0.00	0.00	12.08
Total O&M expenses	200.23	213.33	225.75	243.18	261.88	1144.36

9.3. Authority's Proposal regarding Operating Expenses for the Third Control Period

Based on the materials before it and its analysis, the Authority proposes the following with respect to Operations and Maintenance expenses for the Third Control Period:

- 9.3.1. Authority proposes to consider allocation of costs as given in Para 9.2.24 (Table 145) based on the principles laid out in the study on efficient O&M expenses for CIAL, undertaken for the Second Control Period.
- 9.3.2. Authority proposes to consider an escalation of 10% in contract demand charges and unit rates of KSEB only in FY 2026 for the projection of Utilities cost.
- 9.3.3. Authority proposes to consider only the flood mitigation expenses incurred within the area belonging to the airport under Aeronautical O&M expenses.
- 9.3.4. Authority proposes to consider Working Capital Interest under O&M expenses and allocate the same in the gross fixed asset ratio.
- 9.3.5. Authority proposes to consider Aeronautical O&M expenses as given in Para 9.2.27 (Table 146) for the Third Control Period and true up the same based on actuals at the time of tariff determination for the Fourth Control Period, subject to efficiency of the actual costs incurred.

10. NON-AERONAUTICAL REVENUE FOR THE THIRD CONTROL PERIOD

10.1. CIAL's submission of Non-Aeronautical Revenue for the 3rd Control Period

10.1.1. CIAL has submitted that Non-Aeronautical Revenues for the third control have been forecasted based on contractual agreements entered with various vendors, traffic projections and inflation. CIAL has submitted NAR under the following streams:

- i. Non-Aeronautical royalties, license fees and lease rentals
- ii. Revenue from Duty-Free
- iii. Interest income
- iv. Miscellaneous income, that includes Public Admission Fees and rent etc.
- v. Other income, revenue from golf course, trade centre and other commercial activities

10.1.2. The details of the Non-Aeronautical revenue streams as submitted by CIAL for the Third Control Period are discussed below.

License fees

10.1.3. Car Park: For FY 2022-2024, license fees for car park is forecasted by linking it to passenger traffic growth rate. The license fee in FY 2025 is assumed to recover to pre-COVID levels or FY 2020 levels, post which it is assumed to grow at 10% annually.

10.1.4. Catering: CIAL has forecasted license fees for catering services for the 3rd Control Period by linking it to passenger traffic growth rate.

Table 147: License fees for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
License fee – Car Park	3.2	6.4	8.4	11.6	12.7	42.3
License fee – Catering	2.6	4.2	5.1	5.6	6.2	23.7
Total	5.8	10.6	13.5	17.2	18.9	65.9

Royalty

10.1.5. CIAL has submitted that Royalty from engineering, security and terminal handling is estimated to grow 10% annually during the 3rd Control Period.

Table 148: Royalties for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Royalty –Engineering	0.21	0.24	0.26	0.29	0.31	1.31
Royalty – Terminal handling and valet services	0.12	0.14	0.15	0.17	0.18	0.76
Royalty – Security	1.23	1.35	1.49	1.64	1.80	7.52
Total	1.57	1.73	1.90	2.09	2.30	9.59

Other license fees

10.1.6. CIAL has submitted that revenue received from licensees for the categories F&B, Retail, GH agency space, Hoarding, Airline Space, Land space excluding BPCL Fuel Hydrant space, Baggage wrapping service, FOREX counter, Antenna Space, ATM, Duty free shops, mobile counter and others have been forecasted based on contracts that CIAL has entered into with the individual parties. According to CIAL there are three different contractual models viz., Fixed Rental, Minimum Monthly Guarantee and revenue

share that it has with these concessionaires. CIAL has submitted the forecast methodology it has adopted in these cases as detailed below:

- **Fixed Rentals – Lease rentals from BPCL** have been forecasted to increase by 12.5% per annum as per contract. CIAL has indicated that lease rental from BPCL has been considered as Aeronautical revenues as per Authority's order in this regard in the tariff order for the 2nd Control Period. As per the contract with concessionaires for petrol pump spaces, the annual escalation in lease rentals is considered to be 12.5%. CIAL has submitted that it has considered Airline space rentals as Non-Aeronautical revenues, in line with decisions taken by the Authority in the case of AAI airports, DIAL, BIAL, GHIAL and MIAL. CIAL has considered 10% annual escalation in the case of airline space rentals.
- **Minimum Monthly Guarantee – CIAL** has submitted that it has MMG contracts mainly with retail concessionaires and that it has decided to discount contractual MMG in proportion with the drop in passenger traffic (compared to FY 2020) during the Third Control Period in order to provide interim relief to the concessionaires. It has further submitted that the contractual MMG will be reinstated once the traffic reaches pre-COVID levels.
- **Revenue share - CIAL** has submitted that it has revenue sharing contracts in the case of FOREX counters and for the purpose of forecasting revenue from FOREX counters during the 3rd Control Period the Airport Operator has pegged revenue to passenger traffic growth rates.

10.1.7. CIAL has submitted that the rentals from subsidiaries have been deducted from the total lease rentals for the purpose of calculation of other license fees. This, according to CIAL, is done because the equity investments in subsidiaries is not considered for FRoR computation.

Table 149: Other license fees for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
F&B	14.5	26.9	34.2	38.6	42.3	156.5
Retail shops	11.9	20.5	25.5	28.4	31.3	117.5
GH Agency Space	11.4	12.8	13.9	12.8	13.8	64.7
Hoarding/board	11.2	19.2	21.8	24.0	26.4	102.6
Airline space	8.7	9.8	10.7	11.8	13.0	54.0
Land space excluding BPCL fuel hydrant space	2.8	3.1	3.4	3.8	4.1	17.1
Baggage wrapping space	5.3	5.9	6.5	7.1	7.8	32.6
Forex Counter	4.1	7.3	10.1	11.1	11.7	44.4
Forex counter – SBT and federal bank	2.0	3.3	4.0	4.4	4.9	18.6
Antenna space	2.3	2.5	2.7	3.0	3.3	13.9
ATM	1.6	1.8	1.9	2.1	2.4	9.8
Duty free shops – rentals	0.9	0.9	1.0	1.1	1.2	5.1
Mobile counters	0.6	1.1	1.6	1.8	2.0	7.1
Miscellaneous	1.9	2.4	2.6	2.8	3.1	12.8
Total	79.3	117.3	140.0	152.9	167.3	656.8

Duty-free revenues

10.1.8. CIAL has assumed an 8% drop in per pax sales in FY 2022 compared to that in FY 2020. CIAL has assumed that the per pax sales would reach FY 2020 levels in FY 2023 and then it would grow at 3.1% based on the 5-year CAGR of per pax sales during FY 2015-2020.

10.1.9. CIAL has entered into a revenue sharing agreement with its subsidiary CDRSL for a period of 5 years starting from 2016. As per the agreement CIAL could claim a share of revenue generated by CDRSL. For

the 2nd Control Period the revenue share was 45%, while for the 3rd Control Period CIAL has considered a 30% revenue share.

Table 150: Duty-free revenues for the 3rd Control Period as submitted by CIAL

Particulars	UoM	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Per pax duty free sales	INR	473.85	515.06	531.14	547.73	564.83	2632.62
International passengers	Millions	2.08	3.55	4.72	5.09	5.49	20.93
Duty free sales	INR crores	98.39	182.78	250.60	279.04	309.99	1120.81
Add: Ad revenues	INR crores	1.47	1.47	1.47	1.47	1.47	7.37
Less: Discounts	INR crores	9.68	17.99	24.67	27.46	30.51	110.31
Net Duty free revenues	INR crores	90.18	166.26	227.41	253.05	280.96	1017.86
Revenue share	%	30%	30%	30%	30%	30%	
Duty free revenues to CIAL	INR crores	27.06	49.88	68.22	75.91	84.29	305.36

Interest income

- 10.1.10. CIAL has submitted that interest income for the 3rd Control Period is forecasted on the basis of estimated cash balance and interest rate. As per CIAL's submission, cash balance forecasted to be maintained during the 3rd Control Period is INR 20 crores and the interest rate considered is 5%.

Table 151: Interest income for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Interest income	0.99	0.88	0.88	5.90	20.63	29.27

Other income

- 10.1.11. CIAL has categorised rent and services from other activities, public admission fees and miscellaneous income under the head "Other income".
- 10.1.12. CIAL has submitted that rent and services from other activities and public admission fees have been forecasted to grow at the same rate as projected traffic during the 3rd Control Period. Miscellaneous income has been forecasted to reach pre-COVID levels by FY 2022, after which it is assumed to grow annually at the rate of inflation.

Table 152: Other income during the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Income from rent and services from other activities	0.45	0.74	0.89	0.98	1.08	4.13
Public admission fees	0.66	1.09	1.32	1.45	1.60	6.13
Miscellaneous income	5.19	5.31	5.44	5.56	5.69	27.20
Total	6.30	7.15	7.64	7.99	8.37	37.45

Revenue from golf-course, trade-fair centre and commercial complex

- 10.1.13. CIAL has made the following submissions regarding estimation of Income from golf-course, trade-fair centre and commercial complex for the 3rd Control Period:
- 10.1.13.1. Income from golf-course has been considered a constant throughout the 3rd Control Period as this revenue is mainly in the form of pre-paid membership fees. Income from golf-course is assumed to be same as that in FY 2021.
- 10.1.13.2. Income from trade-fair centre during FY 2022 revenue is estimated to drop by 50% of FY 2020 levels due to the impact of COVID-19 and it is assumed to reach FY 2020 level by FY 2023. During the period FY 2024-2026, an annual growth rate of 10% is assumed.

10.1.13.3. Revenue from commercial complex is envisaged to be realised from FY 2023 post completion of construction works.

Table 153: Income from golf-course, trade-fair centre& commercial complex for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Income from golf course and facilities	3.09	3.09	3.09	3.09	3.09	15.46
Income from trade fair centre	1.66	3.32	3.65	4.02	4.42	17.06
Income from commercial complex	0.00	1.20	2.51	3.95	5.54	13.20
Total	4.75	7.61	9.25	11.06	13.05	45.73

Summary of Non-Aeronautical revenues as submitted by CIAL for the 3rd Control Period

10.1.14. CIAL's submission of Non-Aeronautical revenues for the 3rd Control Period is summarised and given in the table below.

Table 154: Non-Aeronautical revenues for the 3rd Control Period as submitted by CIAL

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Non-Aero Royalties, license fees and lease rentals	86.6	129.7	155.4	172.1	188.5	732.3
Duty free revenues	27.1	49.9	68.2	75.9	84.3	305.4
Interest Income	1.0	0.9	0.9	5.9	20.6	29.3
Other Income	6.3	7.1	7.6	8.0	8.4	37.5
Income from golf-course and facilities, trade fair centre and commercial complex	4.8	7.6	9.3	11.1	13.0	45.7
Total	125.7	195.2	241.4	273.0	314.8	1150.1

10.2. Authority's analysis of CIAL's submission of Non-Aeronautical Revenues for the 3rd Control Period

License Fees

10.2.1. The Authority noted that CIAL has used COVID reduction factors during FY 2022-24 (50%, 40% and 35% respectively) for forecasting license fees for car park. The Authority note that since the car park license fee is forecasted by linking it to passenger growth, no further COVID reduction factor is required. The Authority has recomputed license fees for the 3rd Control Period by linking it to the growth in passenger traffic.

10.2.2. CIAL has forecasted license fee for catering services using the passenger traffic growth rates. The Authority recomputed this license fee for the 3rd Control Period considering the revised traffic estimates.

Royalty – Engineering, Terminal Handling & Valet, and Security

10.2.3. The Authority noted that CIAL has considered an annual growth rate of 10% for the estimation of royalty revenues from Engineering, Terminal Handling & Valet services, and Security. The Authority sought clarification from CIAL with regards to the nature of transactions and the parties involved. CIAL responded that it collects 15% from airlines that avail engineering and security services from third parties. CIAL also collects royalty from airlines that provide valet services and city side facilitation to preferred passengers.

10.2.4. According to CIAL, revenues in the form of royalties have been declining due to increased self-reliance of airlines for engineering and security services. As per actuals during the period FY 2015-2020 and FY 2017-2020, the CAGR of total royalties received from airlines were -22.5% and -39.8% respectively. However, CIAL has considered 10% growth rate for projection during the Third Control Period. The Authority notes that the Airport operator has considered a higher growth rate for the 3rd Control Period despite decline in actual revenues in the last control period. Hence, the Authority proposes to consider

royalties from engineering, terminal handling and security as submitted by CIAL and true up the same based on actuals during tariff determination for the 4th Control Period.

Other royalties and license fees

10.2.5. The Authority noted that CIAL has considered rentals received from Ground Handling agencies as Non-Aeronautical revenues in the 3rd Control Period. The Authority proposes to consider all rentals received from Ground Handling agencies as Aeronautical revenues.

10.2.6. For the Third Control Period, the Authority proposes to forecast license fees following the same approach used by CIAL after considering the impact of revised traffic figures. The details regarding forecast basis are provided below:

- Food and Beverages – These contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. For the period until when the pax traffic is forecasted to reach pre-COVID levels i.e. FY 2020 levels, MMG is calculated by projecting corresponding figures of FY 2020 using the passenger traffic growth rate. After pax traffic attains pre-COVID levels, MMG follows contractual escalation.
- Retail – These contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. For the period until when the pax traffic is forecasted to reach pre-COVID levels i.e. FY 2020 levels, MMG is calculated by projecting the of figures of FY 2020 using passenger traffic growth rate. After pax traffic attains pre-COVID levels, MMG follows contractual escalation.
- Hoarding/Board - These contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. For the period until when the pax traffic is forecasted to reach pre-COVID levels i.e. FY 2020 levels, MMG is calculated by linking corresponding of figures of FY 2020 to traffic growth rate. After pax traffic attains pre-COVID levels, MMG follows contractual escalation.
- GH Agency Space – The Authority proposes to consider revenues from GH Agency Space as Aeronautical Revenues.
- Airline Space Rentals –The Authority proposes to consider all rentals collected from Airlines as Aeronautical revenues.
- Land Space excluding BPCL Fuel Hydrant – In the true up of the Second Control Period, the Authority had noted that these spaces include those that are rented out to GH Agencies and other Aeronautical service providers. Hence, the revenues were bifurcated into Aeronautical and Non-Aeronautical streams and are considered accordingly. Rentals been projected based on the existing contracts. The details of reclassification are provided in the table below.

Table 155: Details of land space rentals reclassified by the Authority

Details of land space allotted	Classification as per Authority
Airside space allotted to Indigo in the Airside, East end	Aeronautical
Equipment charging area at Northern side of T3 pier	Aeronautical
Equipment parking area in the eastern side of T3 pier	Aeronautical
Equipment parking space allotted to Celebi in front of Bay #15	Aeronautical
Equipment parking space allotted to Celebi in the eastern side	Aeronautical
Land Lease allotted to BPCL for setting up Fuel Hydrant	Aeronautical
Land Lease allotted to BPCL in T3 pier area	Aeronautical
Land Lease allotted to IOCL for setting up of Auto LPG Dispenser	Non-Aeronautical
Land Lease Deed - Indian Coast Guard	Aeronautical
Land space allotted to BPCL for Retail Petroleum Outlet	Non-Aeronautical
Space allotted to Idea for laying optical fibre through CIA	Non-Aeronautical
Space allotted to Indian Navy for laying optical fibre thro	Aeronautical
Space allotted to Reliance Jio along the VIP road for laying	Non-Aeronautical
Space allotted to Reliance Jio for laying optical fibre thro	Non-Aeronautical

- Baggage Wrapping Space - Baggage wrapping space contracts follow fixed rental model with annual escalation rates. The Authority proposes to consider these revenue as per CIAL's submission of the same.
- Forex Counters – These contracts follow a revenue share model. For the period until when the pax traffic is forecasted to reach pre-COVID levels i.e. FY 2020 levels, revenue is calculated by projecting the corresponding figures of FY 2020 using passenger traffic growth rate. After pax traffic attains pre-COVID levels, revenue share follows contractual escalation.
- Antenna Space - Antenna Space contracts follow fixed rental model with annual escalation rates. The Authority proposes to consider these revenue as per CIAL's submission of the same.
- ATM Space – ATM Space contracts follow fixed rental model with annual escalation rates. The Authority proposes to consider these revenue as per CIAL's submission of the same.
- Duty Free Shop Rentals - Duty Free Shop contracts follow fixed rental model with annual escalation rates. The Authority proposes to consider these revenue as per CIAL's submission of the same.
- Mobile Counters – These contracts follow a Minimum Monthly Guarantee Model with annual escalation rates. For the period until when the pax traffic is forecasted to reach pre-COVID levels i.e. FY 2020 levels, MMG is calculated by linking corresponding figures of FY 2020 to traffic growth rate. After pax traffic attains pre-COVID levels, MMG follows contractual escalation.

10.2.7. The Authority proposes to consider other royalties, license fees and rentals as per the basis given above for the 3rd Control Period and then true up the same based on actuals at the time of tariff determination for the 4th Control Period.

Duty-Free Revenues

10.2.8. CIAL has assumed that the per pax sales would decrease by 8% in FY 2022 (base FY 2020) and then reach pre-COVID level by FY 2023. However, based on its analysis of actual revenues during the initial six months of FY 2021, the Authority estimates that the per pax sales would reach pre-COVID levels by FY 2022. For the period FY 2023 – 2026, the Authority has considered a growth rate of 3.1% (CAGR of per pax sales during FY 2015-2020).

10.2.9. CIAL has considered a 30% revenue share from CDRSL for the 3rd Control Period. The Authority notes that based on the decision taken regarding duty-free revenue in the 2nd Control Period Tariff Order, the entire profit of CDRSL should go to the CIAL (100% holding company of CDRSL). However, since forecasting profit of the subsidiary is difficult at this stage, the Authority proposes to consider a 30% revenue share during FY 2022 and FY 2023, owing to decline in international traffic due to COVID-19 pandemic. Further, the Authority proposes to consider 45% revenue share during the period FY 2024-2026 and true up the same based on actual revenues and profits.

Interest Income

10.2.10. The Airport Operator has considered an interest rate of 5% for the calculation of interest income for the 3rd Control Period. The Authority has looked at the prevailing interest rates of major scheduled banks for term deposits and finds CIAL's assumption of 5% to be reasonable. Accordingly, the Authority proposes to consider interest rate for the Third Control Period as submitted by CIAL. Based on the revisions in the other building blocks, the Authority has recomputed the interest income and proposed to true up the same based on actuals at the time of determination of tariff for the next control period. The prevailing interest rates of select major banks examined by the Authority are given below.

Table 156: Prevailing interest rates of select major banks

Bank	Interest rates on Fixed Deposits
State Bank of India	4.40-4.90%
HDFC Bank	4.40-4.90%
Federal Bank	4.00-5.10%
ICICI	4.40-4.90%
Axis Bank	4.40-5.20%

Note: Rates for tenure in the range of 6-18 months have been considered. The rates as per the official websites of the banks as on 07/05/2021

Other Income

10.2.11. Other income comprises of income from rent and services, miscellaneous income and public admission fees. These revenue streams are forecasted as per the basis given below:

- Income from rent and services from other activities – Income from rent and services from other activities for a year is forecasted by linking pax traffic growth to revenue in the preceding year.
- Miscellaneous income – The items included in the calculation of miscellaneous income is observed to have no link to passenger growth. Hence, the miscellaneous income has been forecasted to grow at the revised rate of inflation.
- Public Admission fees – Public admission fees for a year is forecasted by linking pax traffic growth to revenue.

Income from Golf Course, Trade Fair Centre and Commercial Complex

10.2.12. Income from Golf Course, Trade Fair Centre and Commercial Complex are forecasted as given below:

- Income from Golf Course – The Authority noted that CIAL has assumed income from golf-course to remain constant during the 3rd Control Period. The Authority sought clarification from CIAL regarding the reason for assumption of nil growth in membership revenues, to which CIAL responded vide their email dated 02 January 2021 (“Reply to queries 2 and gaps”), that issuance of new memberships is closed at the facility and hence the revenue would remain constant. The Authority thus proposes to consider income from golf course facility as submitted by CIAL.
- Income from Trade Fair Centre – According to CIAL, the facility has been taken over by the District Administration and converted as COVID treatment centre. The Airport operator has submitted that there’s an ambiguity with regards to the time period by which the facility would be returned for commercial purposes. Hence, CIAL has forecasted that the income from the trade fair centre would reach FY 2020 levels or pre-COVID levels by FY 2023, after which CIAL has assumed an annual growth rate of 10%. The Authority noted that the 3-year CAGR during the period FY 2017-2020 was 8.3% and the 5-year CAGR during the period FY 2015-2020 was 10.5%. The growth rate assumed by CIAL is in line with the historical growth rates as per actuals. Hence, the Authority proposes to consider income from trade fair centre as submitted by CIAL and true up the same based on actuals at the time of tariff determination for the next control period.
- Income from commercial complex – The commercial complex is expected to commence operations from FY 2023, and the revenue is estimated on the basis of rentals per sqm and an annual escalation of 5%. CIAL has submitted the area that are planned to be leased out after completion of work of the facility. The Authority notes that the lease rentals from the commercial complex can only be approximated at a high level at this point, while the actuals might witness drastic changes once the facility becomes operational. Hence, the Authority proposes to consider lease rentals from commercial complex as submitted by CIAL and true up the same based on actuals at the time of tariff determination for the 4th Control Period.

10.2.13. The Authority has noted that CIAL Infrastructures Limited, the subsidiary that owns and manages the solar power plant assets at the airport, is a profitable entity. The subsidiary has not declared any dividends

to CIAL during the period from FY 2017 to FY 2020 and has reinvested the profits in the growth of the business. Therefore, the Authority has not considered any notional income from the subsidiary for the Third Control Period at this stage. However, the same would be reviewed in detail at the time of true up of the Third Control Period and accordingly suitable income from the subsidiary will be considered as revenue to CIAL for the purpose of tariff determination.

10.2.14. Based on the above, the Non-Aeronautical revenues considered by the Authority for the Third Control Period are as given in the table below:

Table 157: Non-Aeronautical Revenues for the 3rd Control Period as proposed by the Authority

Particulars (in INR crores)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Non-Aero Royalties, license fees and lease rentals	76.28	113.54	135.45	146.20	160.26	631.73
Duty free revenues	33.18	51.42	105.51	117.41	130.36	437.88
Interest Income	1.64	0.88	0.88	0.88	6.59	10.85
Other Income	6.40	7.21	7.79	8.23	8.71	38.35
Income from Golf-course and facilities, Trade fair centre and commercial complex	4.75	7.61	9.25	11.06	13.05	45.73
Total	122.24	180.66	258.89	283.78	318.96	1164.53

10.3. Authority's Proposal regarding Non-Aeronautical Revenues for the Third Control Period

Based on the materials before it and its analysis, the Authority proposes the following with respect to Non-Aeronautical revenues for the Third Control Period:

- 10.3.1. Authority proposes to consider lease rentals received from Ground Handling Agencies as Aeronautical Revenues.
- 10.3.2. Authority proposes to consider Airline space rentals as Aeronautical revenue.
- 10.3.3. Authority proposes to consider the land space rentals from agencies providing Aeronautical services as Aeronautical revenue.
- 10.3.4. Authority proposes to consider the entire profit generated by CDRSL as Non-Aeronautical revenue.
- 10.3.5. Authority proposes to consider Non-Aeronautical Revenues as detailed in Para 10.2.14 (Table 157) above for determination of tariff for the Third Control Period.
- 10.3.6. Authority proposes to true up Non-Aeronautical revenues of the Third Control Period based on actuals, at the time of determination of tariff for the next control period.

11. TAXATION FOR THE THIRD CONTROL PERIOD

11.1. CIAL's submission of Taxation for the 3rd Control Period

11.1.1. CIAL has submitted that it has calculated Aeronautical taxes for the 3rd Control Period based on the Authority's direction to Hyderabad Airport in this regard (Order No. 34/2019-20 dated 27th March 2020). CIAL has bifurcated total taxes (at actuals) into Aeronautical and Non-Aeronautical in the same proportion as that of Aeronautical and Non-Aeronautical PBT.

11.1.2. The detailed computation of Aeronautical taxes for the 3rd Control Period as per CIAL's submission is given in the table below.

Table 158: Aeronautical taxes for the 3rd Control Period as submitted by CIAL

Particulars (INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Aeronautical Tax						
Aeronautical Revenues	376.6	788.8	971.8	1096.3	1235.9	4559.3
30% Non-Aero Revenues	37.7	58.6	72.4	81.9	94.4	345.0
Aeronautical OPEX	198.9	224.1	232.8	251.6	270.0	1177.4
Aeronautical Depreciation	147.5	161.5	186.0	196.5	188.4	879.8
Interest	64.1	74.5	77.9	70.1	57.5	344.1
PBT	93.9	387.3	547.5	659.9	814.5	2503.0
Tax Rate applicable (%)	25.0%	25.0%	25.0%	25.0%	25.0%	
Aeronautical Tax	23.6	97.5	137.8	166.1	205.0	630.0
Non-Aeronautical Tax						
70% of Non-Aero Revenues	88.0	136.6	169.0	191.1	220.4	805.1
Non-Aeronautical OPEX	18.1	20.1	22.4	29.7	36.8	127.2
Non-Aeronautical Depreciation	13.3	15.2	16.7	14.8	17.1	77.1
Interest	11.8	13.5	13.8	12.0	11.2	62.4
PBT	44.7	87.9	116.1	134.6	155.2	538.4
Tax rate applicable (%)	25.0%	25.0%	25.0%	25.0%	25.0%	
Non-Aeronautical Tax	11.3	22.1	29.2	33.9	39.1	135.5
Aeronautical Tax %	68.0%	82.0%	83.0%	83.0%	84.0%	
Tax as per P&L	34.9	119.6	167.0	199.9	244.0	765.5
Aeronautical Tax for ARR	23.6	97.5	137.8	166.1	205.0	630.0

11.2. Authority's analysis of CIAL's submission of Aeronautical Taxation for the 3rd Control Period

11.2.1. The Authority has studied CIAL's submission of aeronautical taxation for the 3rd Control Period and has noted that CIAL has considered 30% Non-Aeronautical revenues in the estimation of Aeronautical PBT, which was then used in the computation of Aeronautical taxes.

11.2.2. The fact that a part of Non-Aeronautical revenues is used for cross-subsidisation as per the hybrid till mechanism doesn't change the nature of such revenues to Aeronautical. Cross subsidisation as per Hybrid-Till mechanism is done in order to reduce tariff pressure on passengers and to incentivise the Airport Operator to make effective investments in Non-Aeronautical revenue generating sources.

11.2.3. The consideration of 30% Non-Aeronautical revenues for computation of Aeronautical tax will increase tax reimbursement beyond the requirement pertaining to aeronautical services leading to an artificial tax benefit. The same could lead to the effective cross subsidy benefit being passed on to the airport user being less than 30% to the extent of the artificial tax benefit the airport operator receives in the event of considering 30% Non-Aeronautical revenues as part of revenue from Aeronautical services.

11.2.4. Therefore, the Authority is of the view that:

- 30% Non-Aeronautical revenues should not be treated as a subsidy for the airport operator as the airport operator has already earned it from Non-Aeronautical services and is meant as a cross subsidy to the airport user.
- The consideration of 30% Non-Aeronautical revenues as part of revenues from Aeronautical services would result in undeserved enrichment to the airport operator effectively reducing the cross-subsidy benefit to the airport user from the present 30% Non-Aeronautical income.
- Further, this issue has been decided by AERA in Chapter 8 of DIAL Tariff Order No. 57/2020-21 dated 30 December 2020 for the Third Control Period.

11.2.5. The Authority thus proposes to consider only Aeronautical revenues and expenses in the calculation of Aeronautical PBT.

11.2.6. The Authority has recomputed the taxes based on changes proposed in the other building blocks and based on the proposal as discussed above. The Aeronautical taxes for the 3rd Control Period as proposed by the Authority is given in the table below:

Table 159: Aeronautical Tax proposed by the Authority for the Third Control Period

Particulars (INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Aeronautical Tax						
Aeronautical Revenues	363.72	576.33	723.34	832.26	957.28	3452.92
30% Non-Aero Revenues	-	-	-	-	-	-
Aeronautical OPEX	200.23	213.33	225.75	243.18	261.88	1144.36
Aeronautical Depreciation	125.71	136.10	152.48	159.57	167.10	740.95
Interest	54.53	67.76	76.13	72.95	63.18	334.54
PBT	(16.75)	159.13	268.99	356.56	465.13	1233.06
Tax Rate applicable (%)	25.17%	25.17%	25.17%	25.17%	25.17%	
Aeronautical Tax	0.00	40.05	67.70	89.75	117.07	314.58
Non-Aeronautical Tax						
Non-Aero Revenues	122.24	180.66	258.89	283.78	318.96	1164.53
Non-Aeronautical OPEX	26.03	35.70	26.90	32.41	39.38	160.42
Non-Aeronautical Depreciation	19.31	20.34	20.47	21.40	17.52	99.04
Interest	11.67	15.35	18.30	16.31	15.84	77.47
PBT	65.23	109.27	193.22	213.66	246.22	827.60
Tax rate applicable (%)	25.17%	25.17%	25.17%	25.17%	25.17%	
Non-Aeronautical Tax	16.42	27.50	48.63	53.78	61.97	208.31
Aeronautical Tax %	0.00%	59.29%	58.20%	62.53%	65.39%	
Total Tax Projected	12.20	67.55	116.33	143.51	179.03	518.63
Aeronautical Tax for ARR	0.00	40.05	67.70	89.74	117.06	314.55

11.3. Authority's Proposal regarding Taxation for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to Taxation for the Third Control Period:

- 11.3.1. Authority proposes to not consider 30% Non-Aeronautical revenues as part of the Aeronautical revenue base for Aeronautical tax determination as detailed in Para 11.2.4.
- 11.3.2. Authority proposes to consider Aeronautical taxes as detailed in Para 11.2.6 (Table 159) above for the Third Control Period and true up the same on actuals at the time of tariff determination for the Fourth Control Period.

12. INFLATION FOR THE THIRD CONTROL PERIOD

12.1. CIAL's submission regarding Inflation for the Third Control Period

12.1.1. The rate of inflation considered by CIAL is the WPI Inflation as per RBI's Survey of Professional Forecasters on Macroeconomic Indicators dated 9 October 2020. WPI Inflation rates for the 3rd Control Period as submitted by CIAL is given below.

Table 160: CIAL's submission of Inflation for the 3rd Control Period

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
WPI Inflation	2.3%	2.3%	2.3%	2.3%	2.3%

12.2. Authority's analysis of CIAL's submission of Inflation for the Third Control Period

12.2.1. The Authority has analysed the submission made by CIAL regarding inflation for the Third Control Period.

12.2.2. The Authority has noted that CIAL has considered mean WPI from the RBI survey conducted in October 2020 as inflation for the Third Control Period. The Authority proposes to consider the recent inflation forecast by RBI in its 68th round of survey of professional forecasters on macroeconomic indicators, so as to account for the recent macroeconomic developments.

12.2.3. Based on the above, the Authority proposes to consider inflation of 3.5%, i.e., the mean WPI inflation for FY 2022.

Table 161: Inflation considered by the Authority for the Third Control Period

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
WPI Inflation	3.50%	3.50%	3.50%	3.50%	3.50%

12.3. Authority's Proposal regarding Inflation for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to Inflation for the Third Control Period:

12.3.1. Authority proposes to consider the WPI inflation of 3.5% based on the RBI survey of professional forecasters on macroeconomic indicators – 68th round, for the Third Control Period.

13. QUALITY OF SERVICE FOR THE THIRD CONTROL PERIOD

13.1. CIAL's submission regarding Quality of Service for the Third Control Period

13.1.1. CIAL has not made any submissions related to Quality of Service as part of its MYTP submission made in October 2020.

13.2. Authority's Analysis of Quality of Service for the Third Control Period

13.2.1. The Authority notes that:

- As per section 13(1) (a)(ii) of the AERA Act, 2008, the Authority shall determine the tariff for aeronautical services taking into consideration - *"the service provided, its quality and other relevant factors."*
- As per section 13 (1) (d) of the AERA Act, 2008, the Authority shall *"monitor the set performance standards relating to quality, continuity and reliability of service as may be specified by the Central Government or any authority authorized by it in this behalf,"*

13.2.2. In the tariff order for CIAL for the Second Control Period, the Authority had noted that it will review the Quality of Service parameters based on the ASQ ratings obtained by CIAL.

13.2.3. The Airport Operator was asked to submit the ASQ ratings obtained during the Second Control Period. The Airport Operator has shared the details regarding the same vide their email dated 17 May 2021 ("ASQ Ratings and Service Quality | CIAL"). The Authority has noted that the ASQ ratings awarded by ACI to CIAL during FY 2017-2020 is in the range of 4.55 - 4.96. The Airport Operator has also clarified that no ASQ survey was conducted in FY 2021 due to the pandemic.

13.2.4. Further, the Airport Operator has stated that CIAL was ranked the third Best Airport by Size in the category of 5 to 15 million passengers by ACI in FY 2017 and was the winner of Ministry of Civil Aviation's Swachhatha Awards 2019 in the category of private airports.

13.2.5. Hence, the Authority does not propose any adjustment towards tariff determination for the Third Control Period on account of quality of service maintained by CIAL.

13.3. Authority's Proposal regarding Quality of Service for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to Quality of Service for the Third Control Period:

13.3.1. Authority proposes to not consider any adjustment towards tariff determination for the Third Control Period on account of quality of service.

14. AGGREGATE REVENUE REQUIREMENT FOR THE THIRD CONTROL PERIOD

14.1. CIAL's submission regarding ARR for the Third Control Period

14.1.1. CIAL has arrived at the Aggregate Revenue Requirement for the Third Control Period based on the submissions made regarding the building blocks discussed in the previous sections. The ARR as submitted by CIAL is given in the table below.

Table 162: CIAL's submission of ARR for the Third Control Period

Particulars (INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Average RAB	1688.2	1840.1	2098.2	2270.3	2257.3	
FRoR	12.5%	12.5%	12.5%	12.5%	12.5%	
Return on RAB	211.4	230.4	262.7	284.3	282.6	1271.4
Return on Land	9.8	9.8	9.8	9.8	9.8	48.8
Depreciation	147.5	161.5	186.0	196.5	188.4	879.8
O&M Expenses	198.9	224.1	232.8	251.6	270.0	1177.4
Tax	23.6	97.5	137.8	166.1	205.0	630.0
Working Capital Interest	9.4	5.5	0.0	0.0	0.0	14.9
Less: 30% of NAR	37.7	58.6	72.4	81.9	94.4	345.0
True up of Second Control Period	602.2					602.2
Aggregate Revenue Requirement (including true up)	1165.0	670.2	756.7	826.4	861.3	4279.6
Yield per passenger (INR)	859.7	879.5	899.7	920.4	941.6	
Aero Revenues	466.5	788.8	971.8	1096.3	1235.9	4559.3
Over-recovery / (Shortfall)	-698.4	118.6	215.1	269.9	374.6	
PV of over-recovery / (shortfall)	-698.4	105.4	169.9	189.5	233.7	0.0
Sum of PV of over-recovery / (shortfall)	0.0					

14.2. Authority's analysis of CIAL's submission of ARR for the Third Control Period

14.2.1. Based on the submissions made by CIAL and the Authority's analysis of the same, the ARR for the Third Control Period as recomputed by the Authority is given in the table below.

Table 163: ARR for the Third Control Period considered by the Authority

Particulars (INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Average RAB (refer table 113) (A)	1675.09	1812.26	1920.12	2032.26	2105.82	
FRoR (refer table 119) (B)	11.63%	11.63%	11.63%	11.63%	11.63%	
Return on RAB (C= A * B)	194.77	210.72	223.26	236.30	244.85	1109.88
Return on Land (refer table 122) (D)	9.15	9.15	9.15	9.15	9.15	45.74
Depreciation (refer table 112) (E)	125.71	136.10	152.48	159.57	167.10	740.95
O&M Expenses (refer table 146) (F)	200.23	213.33	225.75	243.18	261.88	1144.36
Tax (refer table 159) (G)	0.00	40.05	67.70	89.74	117.06	314.55
Less: 30% of NAR (refer table 157) (H)	36.67	54.20	77.67	85.13	95.69	349.36
Revenue Requirement (I = C+D+E+F+G-H)	493.18	555.15	600.67	652.79	704.34	3006.13
Add: True up of previous control period (refer table 60) (J)	279.89					
Aggregate Revenue Requirement (including True up) (K = I + J)	773.07	555.15	600.67	652.79	704.34	3286.02
Present Value Factor (L)	1.00	0.90	0.80	0.72	0.64	
Present Value of ARR (M = K * L)	773.07	497.32	482.05	469.32	453.63	2675.39
Total Pax Traffic (Million passengers) (refer table 72) (N)						51.23
Yield per passenger (INR) (M/N)						522.22

- 14.2.2. Based on the above analysis, the Authority estimates that the Aggregate Revenue Requirement of the Airport Operator for the Third Control Period is INR 2675.39 Cr in present value terms. The Authority notes that if the existing tariffs are retained throughout the Third Control Period, the expected shortfall in recovery of ARR in the Third Control Period would be INR 956 Cr (in present value terms).
- 14.2.3. The Authority noted that CIAL has not submitted the Annual Tariff Plan for the years in the Third Control Period. The Authority also notes that it would be necessary to have the individual year-wise tariff card laying down the different Aeronautical charges and the workings for the Aeronautical Revenues, in order to have a constructive stakeholder discussion.
- 14.2.4. CIAL is directed to submit the detailed Annual Tariff proposal and tariff rate card in line with the ARR and Yield arrived at by the Authority within 7 days of issue of the Consultation Paper, which will be reviewed and issued by the Authority.

14.3. Authority's Proposal regarding ARR for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following with respect to ARR for the Third Control Period:

- 14.3.1. Authority proposes to consider the eligible ARR for the Third Control Period for CIAL as detailed in Para 14.2.1 (Table 163).

15. SUMMARY OF AUTHORITY'S PROPOSALS

The summary of the Authority's proposals with respect to tariff determination for the Third Control Period is given below:

15.1. True up of the Second Control Period

- 15.1.1. Authority proposes to consider the Passenger, ATM and Cargo traffic as detailed in Para 4.3.11 (Table 6) for true up of the Second Control Period.
- 15.1.2. Authority proposes to consider capital additions and Aeronautical allocation of assets as suggested by the study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL for the Second Control Period (the Study is attached as Appendix 1 to this Consultation Paper).
- 15.1.3. Authority proposes to consider RAB as detailed in Para 4.4.40 (Table 19) for true up of the Second Control Period.
- 15.1.4. Authority proposes to revise the useful lives of assets as per AERA Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets and recompute Depreciation considering the allocation of Gross Block as recommended by the study on allocation of assets between Aeronautical and Non-Aeronautical assets.
- 15.1.5. Authority proposes to consider Aeronautical Depreciation as detailed in Para 4.5.13 (Table 26) for true up of the Second Control Period.
- 15.1.6. Authority proposes to provide a return equivalent to cost of debt on Refundable Security Deposits and consider Cost of Equity as 14%.
- 15.1.7. Authority proposes to consider FRoR as detailed in Para 4.6.14 (Table 33) for true up of the Second Control Period.
- 15.1.8. Authority proposes to not provide any return on the cost of land in the Second Control Period.
- 15.1.9. Authority proposes to consider only the flood mitigation expenses incurred within the airport premises under Aeronautical O&M expenses.
- 15.1.10. Authority proposes to consider working capital interest under O&M expenses and allocate the same in the gross fixed asset ratio.
- 15.1.11. Authority proposes to consider O&M expenses and their allocation as suggested by the study on efficient O&M expenses for CIAL and as detailed in Para 4.8.36 (Table 44) for true up of Second Control Period.
- 15.1.12. Authority proposes to consider airline space rentals and land lease rentals from agencies related to Aeronautical services like Ground Handling as Aeronautical revenues.
- 15.1.13. Authority proposes to consider the entire profits of CDRSL and royalty paid to CIAL as Duty-Free revenues of CIAL.
- 15.1.14. Authority proposes to consider Non-Aeronautical revenue as detailed in Para 4.9.32 (Table 51) for true up of the Second Control Period.
- 15.1.15. Authority proposes to consider lease rentals from subsidiaries as Aeronautical revenues.
- 15.1.16. Authority proposes to consider Aeronautical revenue as detailed in Para 4.10.17 (Table 56) for true up of the Second Control Period.
- 15.1.17. Authority proposes to not consider 30% of Non-Aeronautical revenues as part of Aeronautical revenue base for Aeronautical tax determination as detailed in Para 4.11.5.

- 15.1.18. Authority proposes to consider Aeronautical Tax as detailed in Para 4.11.7 (Table 58) for true up of the Second Control Period.
- 15.1.19. Authority proposes to consider ARR as detailed in Para 4.12.4 (Table 60) for true up of the Second Control Period and allow the Airport Operator to recover the shortfall of INR 279.89 Crores in the Third Control Period.
- 15.1.20. Authority proposes to consider the figures for FY 2021 based on actuals in the tariff order for the Third Control Period.

15.2. Traffic for the Third Control Period

- 15.2.1. Authority proposes to consider traffic projections as given in Para 5.2.18 (Table 72) for determination of tariff for the Third Control Period.
- 15.2.2. Authority proposes to true up the traffic of the Third Control Period based on actuals, at the time of determination of tariff for the Fourth Control Period

15.3. Regulatory Asset Base and Depreciation for the Third Control Period

- 15.3.1. Authority proposes to consider capital expenditure for the Third Control Period as given in Para 6.2.73 (Table 110) and true up the same based on actuals after studying the reasonableness and reviewing the actual spend and line by line classification of capital additions into Aeronautical and Non-Aeronautical based on the broad framework provided by the study on allocation of assets between Aeronautical and Non-Aeronautical assets, undertaken for the Second Control Period (the Study is attached as Appendix 1 to this Consultation Paper).
- 15.3.2. Authority proposes to reduce 1% of the total project cost from the capital expenditure considered for true up, at the time of determination of tariff for the Fourth Control Period, in case of non-completion of projects as per proposed timelines.
- 15.3.3. Authority proposes to revise the useful lives of assets as per AERA Order No. 35/2017-18 dated 12 January 2018 regarding determination of useful lives of airport assets and consider Aeronautical Depreciation as given in Para 6.2.77 (Table 112).
- 15.3.4. Authority proposes to consider Aeronautical RAB as given in Para 6.2.78 (Table 113) for determination of tariff for the Third Control Period.
- 15.3.5. Authority proposes to true up RAB and Depreciation based on actuals at the time of tariff determination for the Fourth Control Period subject to reasonable justifications for any escalations in cost beyond efficient costs considered by AERA.

15.4. Fair Rate of Return for the Third Control Period

- 15.4.1. Authority proposes to consider cost of equity as 15.16 % for CIAL as recommended by the Study on Determinants of Cost of Capital of CIAL.
- 15.4.2. Authority proposes to consider cost of debt as 7.8% as submitted by CIAL and true up the same based on actuals at the time of tariff determination for the next control period.
- 15.4.3. Authority proposes to consider a notional debt equity ratio of 48%:52% as recommended by the Study on Determinants of Cost of Capital of CIAL.
- 15.4.4. Authority proposes to consider RSD as part of the notional debt to arrive at FRoR.
- 15.4.5. Authority proposes to consider the Fair Rate of Return as given in Para 7.2.9 (Table 119) for the Third Control Period based on the above-mentioned cost of debt, cost of equity and notional debt equity ratio.

15.5. Return on Land for the Third Control Period

- 15.5.1. Authority proposes to consider the total cost of land as submitted by CIAL.
- 15.5.2. Authority proposes to consider the land leased out to IOCL retail outlet as Non-Aeronautical.
- 15.5.3. Authority proposes to not provide return on the cost of land earmarked for future use, until the same is put to use.
- 15.5.4. Authority proposes to not consider the land reserved for rehabilitation in the computation of return on land.
- 15.5.5. Authority proposes to apportion the land for terminal buildings and associated areas in the terminal allocation ratio.
- 15.5.6. Authority proposes to consider the return on land for the Third Control Period as given in Para 8.2.13 (Table 122) and true up the same based on the actual year of capitalisation of assets on the land earmarked for future expansion.

15.6. Operating Expenses for the Third Control Period

- 15.6.1. Authority proposes to consider allocation of costs as given in Para 9.2.24 (Table 145) based on the principles laid out in the study on efficient O&M expenses for CIAL, undertaken for the Second Control Period.
- 15.6.2. Authority proposes to consider an escalation of 10% in contract demand charges and unit rates of KSEB only in FY 2026 for the projection of Utilities cost.
- 15.6.3. Authority proposes to consider only the flood mitigation expenses incurred within the area belonging to the airport under Aeronautical O&M expenses.
- 15.6.4. Authority proposes to consider working capital interest under O&M expenses and allocate the same in the gross fixed asset ratio.
- 15.6.5. Authority proposes to consider aeronautical O&M expenses as given in Para 9.2.27 (Table 146) for the Third Control Period and true up the same based on actuals at the time of tariff determination for the Fourth Control Period, subject to efficiency of the actual costs incurred.

15.7. Non-Aeronautical Revenue for the Third Control Period

- 15.7.1. Authority proposes to consider lease rentals received from Ground Handling Agencies as Aeronautical Revenues.
- 15.7.2. Authority proposes to consider Airline space rentals as Aeronautical revenue.
- 15.7.3. Authority proposes to consider the land space rentals from agencies providing Aeronautical services as Aeronautical revenue.
- 15.7.4. Authority proposes to consider the entire profit generated by CDRSL as Non-Aeronautical revenue.
- 15.7.5. Authority proposes to consider Non-Aeronautical Revenues as detailed in Para 10.2.14 (Table 157) for determination of tariff for the Third Control Period.
- 15.7.6. Authority proposes to true up Non-Aeronautical revenues of the Third Control Period based on actuals, at the time of determination of tariff for the next control period.

15.8. Taxation for the Third Control Period

- 15.8.1. Authority proposes to not consider 30% Non-Aeronautical revenues as part of the Aeronautical revenue base for Aeronautical tax determination as detailed in Para 11.2.4.
- 15.8.2. Authority proposes to consider Aeronautical Taxes as detailed in Para 11.2.6 (Table 159) for the Third Control Period and true up the same on actuals at the time of tariff determination for the Fourth Control Period.

15.9. Inflation for the Third Control Period

- 15.9.1. Authority proposes to consider the WPI inflation of 3.5% based on the RBI survey of professional forecasters on macroeconomic indicators – 68th round, for the Third Control Period.

15.10. Quality of Service for the Third Control Period

- 15.10.1. Authority proposes to not consider any adjustment towards tariff determination for the Third Control Period on account of quality of service.

15.11. Aggregate Revenue Requirement for the Third Control Period

- 15.11.1. Authority proposes to consider the eligible ARR for the Third Control Period for CIAL as detailed in Para 14.2.1 (Table 163).

16. STAKEHOLDER CONSULTATION TIMELINES

- 16.1.1. In accordance with the provisions of Section 13 (4) of the AERA Act 2008, the proposals contained in this Consultation Paper (as summarised in Section 15) read with the Authority's analysis, is hereby put forth for Stakeholders' Consultation. To assist the stakeholders in making their submissions in a meaningful and constructive manner, necessary documents are enclosed.
- 16.1.2. For removal of doubts, it is clarified that the contents of this Consultation Paper may not be construed as any Order or Direction by the Authority. The Authority shall pass an Order, in this matter, only after considering the submissions of the stakeholders in response hereto and by making such decisions fully documented and explained in the tariff order in terms of the provisions of the Act.
- 16.1.3. The Authority welcomes written evidence-based feedback, comments and suggestions from stakeholders on the proposals made in this Consultation Paper, preferably in electronic form, latest by 14th July 2021.

Secretary,

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(Chairperson)

17. LIST OF ANNEXURES

17.1. Annexure 1 – Summary of Study on Allocation of Assets between Aeronautical and Non-Aeronautical Assets

17.1.1. Background

RAB is one of the fundamental elements in the process of tariff determination. The return to be provided on the RAB forms a considerable portion of the Aggregate Revenue Requirement (ARR) for an Airport Operator. Airports require capital intensive investments. To safeguard the interests of the airport users, it must be ensured that the capital additions are efficient, their needs justified, and the return is provided solely on the assets related to the core operations (i.e., aeronautical services/ activities) of the airport. Any consideration of assets, which are not directly related to the provision of aeronautical services, may have a significant impact on the ARR and would result in increased charges for the users. Given this, the allocation of assets into aeronautical and non-aeronautical components becomes an important part of the tariff determination process.

RAB evolves on a continuous basis, primarily due to the addition of capital assets required to meet the growing demand/ ensure optimum level of service, replacement of obsolete assets at end of life, sales or transfers of assets to other entities in some cases, and assets' depreciation. The allocation of an asset towards RAB depends upon the type of asset (building & civil works, plant & machinery, equipment, etc.), the usage (provision of various services – aeronautical, non-aeronautical, common) of the asset, ownership (airport operator, concessionaire or subsidiary), and useful life of the asset. Based on these factors, the rationale for allocation of each asset into the appropriate category needs to be determined diligently.

The Authority had commissioned a study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL for the Second Control Period.

17.1.2. Segregation of Assets

The study has been undertaken to allocate the total assets of the airport into the following:

- **Aeronautical Assets:** All assets that are exclusively used for the provision of aeronautical services/ activities have been classified as 'Aeronautical Assets'. Such assets would include runway(s), taxiways, drainage and culverts, aprons, etc.
- **Non-Aeronautical Assets:** All assets that are exclusively used for the provision of non-aeronautical services / activities have been classified as 'Non-Aeronautical Assets'. Such assets would include golf course development, commercial projects, etc.
- **Common Assets:** All assets that cannot be directly allocated to either Aeronautical Assets or Non-Aeronautical Assets have been classified as 'Common Assets'. Such assets, as the name suggests, get utilised for both aeronautical and non-aeronautical activities. They would include terminal building, select terminal equipment, etc.

17.1.3. Summary of Reclassifications

Terminal buildings and related works:

- **Details of asset:** Civil, mechanical, plumbing and electrical works of new international terminal T3 building and modifications to the old terminals.
- **Allocation proposed by CIAL:** Common, however, some of the assets in this category were considered Aeronautical
- **Issue:** The allocation of new terminal building, modification of the existing terminals and other related civil, engineering, consultancy, electrical, plumbing and mechanical works is based on the

terminal area usage ratio (between the area towards aeronautical and non-aeronautical activities). However, some line items in this segment were found to be classified as Aeronautical by the Airport Operator. Accordingly, such items have been reclassified as Common.

- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces the RAB to the extent of **INR 0.41 Cr.**

IT Assets – Hardware and Software:

- **Details of Asset:** End User Devices, Printers, Copiers, LAN, Software Licenses etc.
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** End user devices such as laptops and software like ERP licenses, operating systems, DTP etc., and their supporting hardware are to be classified based on the nature of activity performed by the department where the asset is deployed. Due to unavailability of further usage related information of some of these assets, such items have been reclassified as Common. Wherever it was identified that such items are being utilised for purely aeronautical purposes, those assets have been classified accordingly.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces RAB to the extent of **INR 0.11 Cr.**

Common Terminal Assets:

- **Details of Asset:** Consumer electronics, other devices, furniture and fixtures in the terminal buildings
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Certain assets like Televisions, Fans, Ovens, Dining Tables etc, which are generally used for common purposes, their location and exact usage could not be determined from the available information, have been reclassified as Common. Wherever it was clear that such items are being utilised for purely aeronautical or non-aeronautical purposes, the assets have been classified accordingly.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces RAB to the extent of **INR 0.39 Cr.**

Assets for Commercial Activities:

- **Details of Asset:** Assets at Commercial Areas like Food Court, or Retail Spaces
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** It was observed that there are certain assets including furniture and appliances that are either used by the Commercial Department or at areas like Food Court and other retail spaces which were classified as either Aeronautical or Common. Such assets have been reclassified as Non-Aeronautical.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from Aeronautical or Common to Non-Aeronautical reduces RAB to the extent of **INR 2.81 Cr.**

Assets at MD's Office and Other Administrative Offices:

- **Details of Asset:** Assets including interior works, furniture and other devices at MD's Office and other administrative offices
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** Certain assets in the MD's office were found to be classified as Aeronautical. CIAL had bifurcated the operational expenses related to the MD's office into Aeronautical and Non-Aeronautical since the office is responsible for all activities at the airport. Hence the assets at this office must also be considered as Common. Such assets were bifurcated in the Employee Ratio (Aeronautical to Non-Aeronautical).
- **Allocation proposed by the Authority:** Common (Employee)
- **Impact:** Reclassifying these asserts from Aeronautical to Common reduces RAB to the extent of **INR 0.09 Cr.**

Duty-Free and Golf Course Assets:

- **Details of Asset:** Assets of Duty-Free, Duty-Free Warehouse and Golf Course
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Some assets procured for the Duty Free, the Duty-Free Warehouse and the Golf Course & Country Club were incorrectly classified as either Aeronautical or Common. Such line items have been identified and reclassified as Non-Aeronautical since Duty Free and Golf Course are Non-Aeronautical ventures.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from either Aeronautical or Common to Non-Aeronautical reduces RAB to the extent of **INR 1.37 Cr.**

Passenger Handling and Flight Information Systems:

- **Details of Asset:** Equipment and software for passenger handling
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Certain Flight Information Systems, Q Managers, and Immigration Counters were classified as Common. However, this is believed to be a mistake as these are related to passenger handling and must therefore be considered Aeronautical. Hence these assets have been reclassified as Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Reclassifying these assets from Common to Aeronautical increases the RAB to the extent of **INR 0.59 Cr.**

Airport Security:

- **Details of Asset:** Assets for CISF
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** It was observed that certain assets procured for CISF and for airport security related activities were classified as Common. Since airport security is an Aeronautical matter, these assets must be treated similarly and hence, have been reclassified to Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical

- **Impact:** Reclassifying these assets from Common to Aeronautical increases RAB to the extent of **INR 0.13 Cr.**

Butterfly Canteen:

- **Details of Asset:** Assets at the Butterfly Canteen in front of T3
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** The Butterfly canteen outside the Terminal 3 building is a commercial space, hence the assets related to the same must be treated as Non-Aeronautical. Some of these assets were classified by CIAL as Aeronautical and some others were considered Common. The classification for such assets has been revised to Non-Aeronautical.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from either Aeronautical or Common to Non-Aeronautical reduces the RAB to the extent of **INR 5.1 Cr.**

Vehicles:

- **Details of Asset:** Vehicles
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** CIAL has considered all vehicles as Aeronautical. The classification of these assets should be dependent upon the specific usage. However, in the absence of the details regarding the exact usage (for aeronautical or general purposes) of some of these assets, they have been reclassified as Common and bifurcated in the employee ratio.
- **Allocation proposed by the Authority:** Common (Employee)
- **Impact:** Reclassifying these assets from either Aeronautical to Non-Aeronautical reduces the RAB to the extent of **INR 0.05 Cr.**

Asset allocation assessment and reclassification for forecasted additions (FY 21):

- **Details of Asset:** Assets forecasted to be capitalised in FY 2021
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** Certain assets, including UV-C systems and IT Assets, that are projected to be capitalised in FY 2021, have been re-allocated based on the same principles specified above and the analysis of the information available
- **Allocation proposed by the Authority:** Common / Non-aeronautical
- **Impact:** Reclassifying these assets reduces the RAB to the extent of **INR 0.72 Cr**

17.1.4. Impact of revised terminal allocation ratio

The Aeronautical and Non-Aeronautical additions consider a certain percentage of Common Assets, which is a function of terminal area ratio (ratio of terminal area allocated for the provision of aeronautical and non-aeronautical activities).

The Airport Operator had proposed 6.28% and 9.00% of terminal area for the provision of Non-Aeronautical services/ activities in International and Domestic terminals respectively, which is 7.19% of total terminal area. However, based on the assessment of actual area allocated towards the Non-Aeronautical activities, it is found that with the reclassification of areas, especially the ones which are recognised as 'Common' by AERA and were considered as Aeronautical by the Airport Operator, the actual area allocation percentage has changed.

Accordingly, the actual allocation of area (in %) towards Non-Aeronautical activities, viz. 8.47% and 9.88% for the International and Domestic terminals respectively, has been proposed by the study for the purposes of the tariff determination for the Second Control Period.

This changes the percentage of area allocated for Non-Aeronautical activities to 8.94% from 7.19% for the entire terminal area.

For the Second Control Period, the impact of revision in terminal allocation ratio for Common assets results in a reduction of INR 15.9 Cr. in the Aeronautical additions.

17.1.5. Summary of adjustments to RAB

The following table summarises the total proposed adjustments for the aeronautical additions submitted by the Airport Operator.

Table 164: Proposed Adjustments to Aeronautical Asset Base Additions in 2nd Control Period

Fixed Asset Adjustment	INR Cr.
Aeronautical Additions in 2nd Control Period as per CIAL (Excluding FA)	1,847.1
Adjustments to RAB	
Exclusion of Assets Capitalised in 2016	(3.17)
	1,843.9
Airport Security	0.13
Assets for Commercial Activities	(2.81)
Butterfly canteen	(5.10)
Common Assets at MD's Office	(0.09)
Common Terminal Assets	(0.39)
Duty Free & Golf Course	(1.37)
IT Assets	(0.11)
Passenger Handling	0.59
Terminal Building Works	(0.41)
Vehicles	(0.05)
Reallocation of Forecasted Assets in 2021	(0.72)
Total adjustments to RAB (for the 2nd Control Period) <i>(on the basis of asset reclassification and exclusion of some expenses from RAB, without considering the impact of revised terminal ratio)</i>	(13.47)
Impact on capital additions in 2 nd Control Period due to revised terminal allocation	(15.9)
Revised additions to Aeronautical Gross Block in 2nd Control Period	1,817.7

As can be seen from the table above, the total reduction in Aeronautical capital additions during the Second Control Period is **INR 29.4 Cr** as per the study commissioned by the Authority.

17.2. Annexure 2 – Summary of Study on Efficient Operations and Maintenance Expenses for CIAL

17.2.1. Background

Establishing efficient Operation and Maintenance expenses and their reasonableness is pivotal to the effective execution of tariff determination for aeronautical services. Across airports in India, the O&M expenditure has consistently been increasing, driven by investments in expanding, modernising and improving operational efficiency of the airports.

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

The Authority had commissioned a study to determine efficient Operations and Maintenance expenses of CIAL for the Second Control Period.

17.2.2. Allocation of O&M expenses

The principle for segregation of costs followed by the study is as follows:

- **Aeronautical:** The expenses which are incurred for operation and maintenance of Aeronautical assets have been categorised as Aeronautical expenses.
- **Non-Aeronautical:** Expenses which are incurred for operation and maintenance of Non-Aeronautical assets have been categorised as Non-Aeronautical expenses.
- **Common:** Expenses primarily incurred for provision of Aeronautical services but are also used for provision of Non-Aeronautical services and expenses which are used for general corporate purposes including legal, administration and management affairs. Common expenses have been further apportioned into Aeronautical and Non-Aeronautical using an appropriate ratio.

17.2.3. Reallocation of Common expenses

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

Safety & Security Expenses:

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

Housekeeping Expenses:

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio

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

Consumables:

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio
- **Issue** - The consumables are used across the terminal building and airport and allocating it on basis of employee expenses means they primarily pertains only to the office expenses. However, these consumables are used across the terminal building by the passengers as well. Therefore, it will not be appropriate to allocate the same on the basis of employee ratio.
- Allocation proposed by the Authority - Weighted average terminal allocation ratio
- **Impact** – Reallocation of these expenses reduces the Aeronautical portion of consumables by INR 0.77 crore for the 2nd Control Period.

Other Operational Expenses:

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

Administrative & General Expenses (except Flood Mitigation expenses):

- Allocation proposed by CIAL – Aeronautical/Common
- Basis of Allocation proposed by CIAL – Employee Ratio
- **Issue** – The administrative & general expenses suggests part of the expenses such as rent, rates & taxes, insurance costs, bank charges etc. pertain to the airport premises; some of these expenses such as consultancy fees, travelling & conveyance, communication expenses etc. relates to employees; and remaining part of these expenses pertaining to advertisements, general charges etc. relates to the airport terminal building, therefore, it will not be appropriate to allocate the entire administrative & general expenses in the proportion of the employee ratio. Further, corrections have been made in the numbers of Provision for Doubtful Debts/Advances (this line item is excluded from Aeronautical expenses, however, the numbers excluded by the Airport Operator were for a different year), while computing the Aeronautical component of Administrative & General expenses in any given year.
- Allocation proposed by the Authority - The components of the administrative & general expenses related to the terminal building is proposed to be allocated using the terminal allocation ratio; components related to employee is proposed to be allocated in the employee ratio and the remaining

components are proposed to be allocated in the ratio of average Aeronautical assets to the total assets.

- **Impact** – Reallocation of these expenses reduces the Aeronautical portion of Administrative & General expenses by INR 7.77 crore (The total difference is INR 31.31 crore which when subtracted by INR 23.54 crore of flood mitigation expenses outside airport is INR 7.77 crore) for the 2nd Control Period.
- The flood mitigation expenses, which were found to be carried out outside the Airport premises have been excluded.

17.2.4. Efficient O&M expenses

Based on the above adjustments, the study has proposed the revised efficient Operations and Maintenance expenses for the Second Control Period as follows:

Table 165: O&M expenses proposed by the Authority in the true up of 2nd Control Period

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

17.3. Annexure 3 – Summary of Study on Determinants of Cost of Capital of CIAL

17.3.1. Background

Traditionally, airports have been managed by governments the world-over with private participation limited to fuel farms, cargo handling, etc. However, more recently, with demanding passengers (looking for better quality infrastructure with contemporary amenities), private participation has become imperative. It has been observed from experience in other sectors (e.g., ports, roads, etc.) that this mode of operation maximizes efficiency. Also, the government gains monetarily by selling its stake. A variety of uncertain factors, such as accurate demand estimation, regulatory environment, macro-economic environment, etc., play a major role in determining the economic viability of running an airport. Hence, private players demand some level of guaranteed returns on the equity they invest.

Determination of Cost of Equity and Gearing is pivotal in the tariff determination process as the Fair Rate of Return should account for the reasonable return expectation of all investors in the project.

The Authority had commissioned an independent study for determining the cost of equity for CIAL for the Third Control Period.

17.3.2. Scope

The study proposes to build on the previous experiences of AERA to determine an appropriate CAPM rate for the Cost of Equity (CoE) for Cochin International Airport Ltd. (CIAL) for the third control period (FY2021-22 to FY2025-26). The scope of work involves:

- a) Study of relevant environment, trends in airport capitalization
- b) Study airport-specific determinants of Cost of Capital with specific focus on the Cost of Equity
- c) Recommendations on Cost of Equity
- d) Follow-on activities

17.3.3. Comparable Airports

The study has assessed the proximity of CIAL with 12 airports in four regions deemed relevant to the study viz. Europe, South East Africa, South East Asia and Australia based on the following parameters:

- Revenue till structure:
 1. Single Till or where information is not available
 2. Dual Till
 3. Hybrid Till
- Ownership structure:
 1. if 100% Government Owned/Funded
 2. if Government / private owned/funded, not being Public Private Partnership
 3. if Public Private Partnership Funded
- Operations Scale (OpS): For each comparable airport, the study computed the ratios of passenger, cargo, and aircraft movement of these airports to that of CIAL in each of the years from FY 2015 to FY 2017. An equal weighted sum for these airports is computed using average of the ratios under each category (passenger, cargo and air traffic).

The proximity score of CIAL with the selected comparable airports is given in the table below.

Table 166: Proximity scores of CIAL with comparable airports

Airport	Revenue Till	Ownership Structure	Operations	Proximity Scores
Cochin	0.00	0.00	0.00	0.00
Auckland	1.00	1.00	-4.20	4.4327
Dublin	2.00	2.00	-5.11	5.8415
Johannesburg	2.00	1.00	-6.51	6.8793
Gatwick	2.00	1.00	-7.95	8.2589
Melbourne	1.00	1.00	-8.69	8.8047
Sydney	1.00	1.00	-13.37	13.4477
Amsterdam	1.00	1.00	-34.60	34.6272
Heathrow	2.00	1.00	-35.42	35.4896
Changi	0.00	2.00	-35.64	35.6955
MAHB	2.00	1.00	-36.13	36.2019
AoT	1.00	1.00	-42.95	42.9706
Incheon	2.00	2.00	-44.06	44.1513

17.3.4. Determination of Cost of Equity

The study has relied on the Capital Asset Pricing Model (CAPM), which is a theoretical model based on assumptions that do not necessarily hold in the real world, however, its simplicity and intuitive appeal have made it the on-going favourite model for determining cost of equity in any market-based economy. The three components to estimate the CoE are the risk-free rate (Rf), equity beta and the equity risk premium (ERP). Rf and ERP are mostly macro-economic in nature and thus one can rely on time-series data to estimate these variables. The steps followed by the study are as follows:

1. Un-lever the betas of listed Comparable Airports
2. Estimate Asset Betas for CIAL with Proximity Distance Scores as inputs
3. Re-lever Asset Betas to get Equity Betas for CIAL with Target Gearing Ratios as inputs
4. Obtain the CoE using Equity Risk Premium or ERP and Risk-Free Rate as inputs
5. Illustrate the computation of the FRoR

Step 1: Un-levering the Betas of the Listed firms in the Comparable Airports' Set

The study considered the comparable set that consists of 6 airports – viz. Auckland, Airports of Thailand (AoT), Dublin, Gatwick, Malaysia Airports Holdings Berhad (MAHB) and Sydney. For AoT, MAHB and Sydney, which are listed airports, equity betas were computed based on market data. For the other three airports (Auckland, Dublin, and Gatwick), the study has relied on the estimates of asset beta provided by the relevant regulatory authorities. The asset betas for the comparable airports are given below.

Table 167: Asset betas of comparable airports

Airport	Asset Beta	Asset beta based on
Sydney	0.4000	Market price data
MAHB	0.7693	Market price data
AoT	0.8582	Market price data
Auckland	0.6000	Regulatory authority's estimate
Dublin	0.5500	Regulatory authority's estimate
Gatwick	0.5600	Regulatory authority's estimate

Step 2: Estimation of Asset Betas for CIAL

The study first computed the asset betas for CIAL using two different techniques, viz. equally weighted and proximity score weighted. The proximity score weighted (PSW) beta better represents the true asset beta as compared to the equally weighted counterpart as they account for the similarity between the Indian airport and the airport in the comparable set. The proximity score weighted beta for CIAL was determined to be **0.572651**.

Step 3: Re-levering Asset Betas of CIAL

The study re-levered the asset betas to estimate the equity betas for CIAL by assuming a target gearing ratio. The study examined the Indian infrastructure space and found that infrastructure firms employ, on average, a market debt to (debt + equity) ratio of 47.86%. The estimate is reasonably close to the 48% gearing ratio used on average by international airports compared in the study. Accordingly, the study has recommended that the average gearing ratio (D/D+E) of 48% can be used to a proxy for the gearing ratio of CIAL to estimate their Cost of Equity and Fair Rate of Return.

Using the target gearing ratio of 48%, the study re-levered the proximity score weighted (PSW) asset betas and arrived at the optimal equity beta for CIAL as **0.9427**.

Step 4: Cost of Equity (CoE)

Using the equity betas, the study computed the CoE using the CAPM. The variable used for the same are given below.

Table 168: Variables to compute Cost of Equity

Variable	Source	Value
Asset Beta (Proximity score weighted)	Analysis of the study	0.572651
Gearing Ratio (Debt/Debt+Equity)	Benchmarking conducted by the study	48%
Equity Beta	As computed by the study	0.9427
Risk-free rate	10-year GoI bonds, 18-year daily average	7.56%
Equity Risk Premium	Simple average of estimates from four studies	8.06%

The cost of equity for CIAL as recommended by the study based on the above analysis is **15.16%**.

Step 5: Computation of Fair Rate of Return (FRoR)

Based on the above, the study has illustrated the computation of FRoR by using an illustrative cost of debt of 10.05%. However, this is purely for illustrative purposes and is not a recommendation of the study.

17.3.5. Recommendations of the study

- Target Gearing Ratio: **48%**
- Cost of Equity: **15.16%**

17.4. Annexure 4 – Benchmarking with Similar Airports in India for Assessment of Suitable Terminal Allocation Ratio

Context:

Kerala is the first state in India to have four international airports. Around 6% of the population (which is more than 15% of the entire workforce) of the state works abroad providing both skilled and unskilled labour, largely in Gulf countries. Close to 90% of this non-resident Keralite population is accounted for by Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE¹². The needs of this working-class population to visit their homes and families results in a strong demand for international air-travel to the state especially from the regions mentioned above. Emigration is strongest from the districts of Malappuram, Thrissur, Thiruvananthapuram, Kozhikode, Palakkad and Ernakulam.

At Cochin airport, a significant part of air traffic is driven by the strong state domiciled Non-Resident Indian (NRI) community residing in the Middle East and attractiveness of the state as an international and domestic tourist destination. It is also the closest airport for the large population of NRIs hailing from the districts of Thrissur, Palakkad and Ernakulam.

As observed over the last decade, the contribution of international passenger traffic in the total traffic has been significant, ranging between 50-60% till FY18. For the last couple of years, this percentage has been around ~48%. Middle east/ gulf countries accounted for most of the international passenger traffic at Cochin Airport. It can also be established based on the total international air traffic movements (ATMs) at Cochin Airport, of which about 70%¹³ of the ATMs are to gulf countries.

Benchmarking Analysis:

17.4.1. In the context of Indian aviation market, the airports considered for benchmarking purposes include the following:

- Airports with similar passenger profile (passengers travelling to UAE/ gulf countries for jobs or visiting friends/ families);
- Airports having significantly high proportion of international traffic in total passenger traffic;
- Airports with comparable range of total traffic (8-12 MPPA);

17.4.2. The following table illustrates the list of airports considered for benchmarking.

Table 169: Details of airports considered for benchmarking

S.N.	Airport	State/ UT	Total Pax Traffic* (in Mn)	Remarks
1.	Trivandrum	Kerala	4.43	<ul style="list-style-type: none"> • Strong passenger base to gulf countries (about 70% of total international ATMs are to gulf countries)/ similar traffic profile of passengers – airport in the same state, catering to common hinterland • High proportion of international passengers in the total traffic (around 57%)
2.	Calicut	Kerala	3.36	<ul style="list-style-type: none"> • Strong passenger base to gulf countries (almost all international ATMs are to gulf countries)/ similar traffic profile of passengers – airport in the same state, catering to common hinterland • High proportion of international passengers in the total traffic (around 82%)
3.	Kannur	Kerala	0.22	<ul style="list-style-type: none"> • Strong passenger base to gulf countries (almost all international ATMs are to gulf

¹² Kannan, K.P., Hari, K.S. Revisiting Kerala's Gulf Connection: Half a Century of Emigration, Remittances and Their Macroeconomic Impact, 1972–2020. Ind. J. Labour Econ. (2020). <https://doi.org/10.1007/s41027-020-00280-z>

¹³ This is approximated based on the assessment of latest flight schedule (Indian and international carriers) available on the website of DGCA. Similarly, the percentage is computed for other airports covered in this section.

				countries)/ similar traffic profile of passengers – airport in the same state, catering to common hinterland
4.	Mangalore	Karnataka	2.24	<ul style="list-style-type: none"> High proportion of international passengers in the total traffic (around 40%)
5.	Hyderabad	Telangana	21.40	<ul style="list-style-type: none"> Strong passenger base to gulf countries (almost all international ATMs are to gulf countries)/ similar traffic profile of passengers – catering to overlapping hinterland of Kerala
6.	Lucknow	Uttar Pradesh	5.53	<ul style="list-style-type: none"> Strong passenger base to gulf countries (above 70% of total international ATMs are to gulf countries)/ comparable traffic profile of passengers
7.	Trichy	Tamil Nadu	1.59	<ul style="list-style-type: none"> Strong passenger base to gulf countries (around 84% of total international ATMs are to gulf countries)/ comparable traffic profile of passengers
8.	Ahmedabad	Gujarat	11.17	<ul style="list-style-type: none"> High proportion of international passengers (around 79%)
9.	Pune	Maharashtra	9.07	<ul style="list-style-type: none"> Total passenger traffic in comparable range with the traffic at Cochin airport

* The details provided in this table correspond to the financial year 2019.

17.4.3. The following table provides the details of terminal area allocated/ approved by AERA for the provision of Non-Aeronautical activities:

Table 170: Allocation of area for Non-Aeronautical activities among various airports in India

S.N.	Airport	Area towards Non-Aeronautical activities (% of total terminal area)	International Pax Traffic (% of total pax traffic)
1.	Trivandrum	10.00%	~57%
2.	Calicut	7.70%	~82%
3.	Kannur	5.00%	~40%
4.	Mangalore	9.00%	~32%
5.	Hyderabad	15.40%	~19%
6.	Lucknow	7.50%	~15%
7.	Trichy	9.89%	~79%
8.	Ahmedabad	7.50%	~19%
9.	Pune	8.63%	~3%

17.4.4. It may be noted that only 5% of the terminal area is allocated for the Non-Aeronautical activities for Kannur Airport. As per the tariff order for the Kannur Airport for the First Control Period dated 09 Nov 2018, it is observed that the Authority had tentatively accepted the allocation of assets into Aeronautical and Non-Aeronautical in the ratio of 95:5 in the absence of sufficient information and proposed to true up based on a detailed study. Hence, Kannur Airport has not been considered further for the benchmarking analysis.

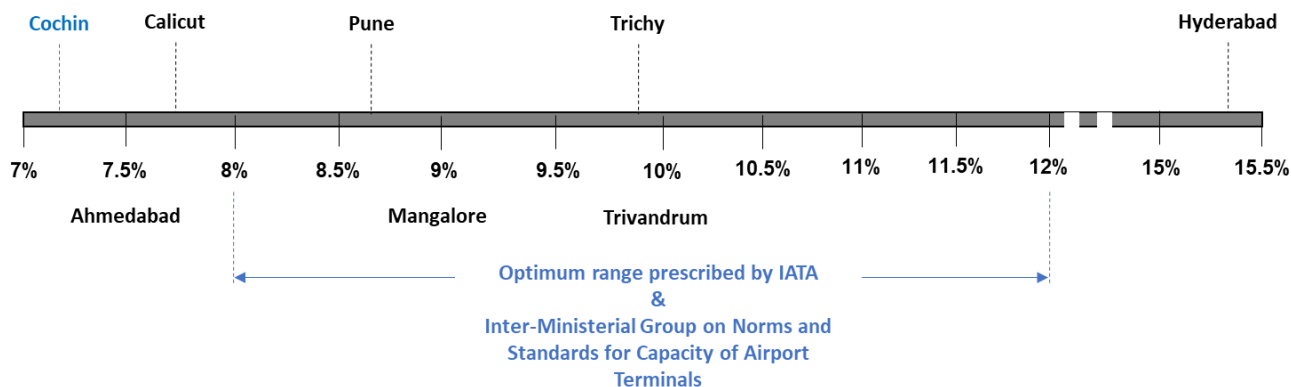
17.4.5. The allocation ratios proposed by the CIAL are as follows:

Table 171: Terminal allocation ratio proposed by CIAL

Old Terminal (Domestic)	9.00%
New Terminal (International)	6.28%
Total	7.19%

17.4.6. Based on the above data, the relative allocation (%) of area towards Non-Aeronautical Activities is presented below:

Figure 6: Comparison of terminal allocation ratios across select airports



17.4.7. It may be noted from the above that when benchmarked with the comparable airports (based on passenger profile, similar traffic range, etc.), Cochin Airport has been found to have proposed the least percentage allocation (average) of area for the Non-Aeronautical activities. While the allocation percentage of area for Non-Aero for Domestic Terminal (Old) appears to be in the range, the allocation for the International terminal (New) is lower, to the tune of ~6.3%. Cochin airport has close of 50% of the passenger traffic contributed by international passengers, which signals a strong potential for the Non-Aeronautical revenue at the airport. Therefore, on a benchmarking basis, the proposed allocation appears to be on the lower side.

17.4.8. Further, the report of the Inter-Ministerial Group on Norms and Standards for Capacity of Airport Terminals states that Commercial or Retail area will normally require 8-12 % of the overall area at Indian Airports and should be planned and provided accordingly. In bigger airports, i.e., with passenger traffic exceeding 10 million, commercial area could be up to 20% of the overall area.

17.4.9. Global agencies such as IATA have also prescribed an optimum range of area allocation towards Non-Aeronautical activities to be 8-12% of the total terminal area for any airport.

17.4.10. In view of the above, it is proposed that the Airport Operator is required to enhance the percentage of its international terminal area allocated towards the provision of the Non-Aeronautical services. In order to arrive at the suitable allocation percentage, following quantitative analysis has been undertaken.

Quantitative analysis

17.4.11. For the purpose of benchmarking Non-Aeronautical area within the terminal building, average of Non-Aeronautical area ratios within the terminal buildings of airports that are comparable with CIAL were computed. The weights used for the purpose of calculation were the proximity score of respective airports, which were calculated based on different parameters. The detailed methodology adopted for the computation of proximity scores and non-aeronautical terminal ratio based on it are as discussed below

Methodology:

17.4.12. Selection of parameters and assignment of scores: The different parameters selected (with equal weights), and the scores assigned to them are:

- Operational Proximity: This parameter is composed of three components viz-a-viz; Ratio of international pax % (international pax % of an airport/international pax % of CIAL), Ratio of total pax (Total pax at an Airport/Total pax at CIAL) and Ratio of % of ATMs to middle east (% of ATMs to middle east in an Airport/% of ATMs to middle east in CIAL), where the percentage is calculated with total international ATMs as the base. This parameter is intended to measure the operational characteristics/proximity of airports selected for benchmarking with CIAL.

- The pax numbers considered for calculation are the average of actual numbers¹⁴ during FY 2017-FY 2019 for individual airports. The ATMs to middle east have been approximated based on DGCA's international schedule for the period 27th October 2019 to 28th March 2020.
- All the three ratios mentioned above have been calculated for an individual airport and subsequently, average has been taken. The most proximate airport would obtain a score of 2. The average of the three ratios calculated for different airports are as given in the table below

Table 172: Operational proximity of comparable airports

Airport	Ratio of % of international pax (A)	Ratio of total pax (B)	Ratio of % of ATMs to middle east (c)	Average (average of A, B and C)
Trivandrum	2.21	0.87	1.90	1.66
Calicut	3.18	0.62	2.76	2.19
Mangalore	1.37	0.43	2.76	1.52
Hyderabad	0.78	3.73	1.98	2.16
Lucknow	0.60	0.97	2.31	1.29
Trichy	3.28	0.30	0.08	1.22
Ahmedabad	0.80	1.89	2.10	1.60
Pune	0.13	1.64	2.76	1.51
CIAL	2.00	2.00	2.00	2.00

- b. Ownership structure: The airports have been classified as Public and PPP/ private based on its ownership and operational model during FY 2019. The scores used for ownership structure are as given below.

Table 173: Ownership structure proximity criteria

Ownership / management structure	Score
Public	1
PPP/Private	2

The airports under consideration for benchmarking obtain the following scores as per this classification

Table 174: Ownership structure (basis status as in FY 19¹⁵) proximity scores

Airport	Ownership/ Management structure	Score
Trivandrum	Public	1
Calicut	Public	1
Mangalore	Public	1
Hyderabad	PPP/Private	2
Lucknow	Public	1
Trichy	Public	1
Ahmedabad	Public	1
Pune	Public	1
CIAL	PPP/Private	2

- c. Location of the airport: The airports have classified into the ones that are in Kerala and the ones located outside Kerala. This parameter provided an approximation to the similarity of passenger profile in each region. The scores assigned to the parameter for different inputs are as given below.

¹⁴ AAI Traffic News

¹⁵ Though Ahmedabad, Lucknow and Mangalore have recently been privatised, it would not be fair to treat them as PPP/Private since significant developments are yet to be happen. Therefore, their status as in FY 2019 has been considered for this exercise.

Table 175: Location proximity criteria

State	Score
Other states	1
Kerala	2

Accordingly, the scores for airports considered for benchmarking are as follows:

Table 176: Location proximity scores

Airport	State	Score
Trivandrum	Kerala	2
Calicut	Kerala	2
Mangalore	Karnataka	1
Hyderabad	Telangana	1
Lucknow	Uttar Pradesh	1
Trichy	Tamil Nadu	1
Ahmedabad	Gujarat	1
Pune	Maharashtra	1
CIAL	Kerala	2

Calculation of proximity score

- For an individual airport, the difference between the score obtained by CIAL and that airport for a parameter is calculated.
- The relevance or proximity score for an airport is then calculated as below

$$\text{Relevance/ Proximity score of an airport} = \sqrt{X_i^2 + Y_i^2 + Z_i^2}$$

where,

X_i = Difference of score obtained by the airport i and CIAL in the parameter operational proximity

Y_i = Difference of score obtained by CIAL and the airport i in the parameter ownership/management structure

Z_i = Difference of score obtained by CIAL and the airport i in the parameter location (state)

Table 177: Relevance/ proximity scores for various airports

Airport	Operational Proximity (X_i)	Ownership/management structure (Y_i)	State (Z_i)	Relevance/ Proximity score
Trivandrum	(0.34)	1	0	1.06
Calicut	0.19	1	0	1.02
Mangalore	(0.48)	1	1	1.49
Hyderabad	0.16	0	1	1.01
Lucknow	(0.71)	1	1	1.58
Trichy	(0.78)	1	1	1.61
Ahmedabad	(0.40)	1	1	1.47
Pune	(0.49)	1	1	1.50

Calculation of weighted average terminal allocation

The allocation of total terminal area (international and domestic combined) in the case of comparable airports have been used for calculation of average allocation area for Non-Aeronautical activities. The weighted and simple average of area allocated to Non-Aeronautical activities for the comparable airports are given in the table below. Inverse of proximity scores given in the table above are considered as weights for calculation of weighted average terminal allocation.

Table 178: Weights for various airports

S. No. (i)	Name of the Airport	Weights (inverse of relevance/ proximity score) (W_i)	Area allocated for non-aeronautical activities (% total terminal area) (A_i)
$i = 1$	Trivandrum	0.947	10.00%
$i=2$	Calicut	0.983	7.70%
$i=3$	Mangalore	0.699	9.00%
$i=4$	Hyderabad	0.987	15.40%
$i=5$	Lucknow	0.633	7.50%
$i=6$	Trichy	0.620	9.89%
$i=7$	Ahmedabad	0.680	7.50%
$i=8$	Pune	0.668	8.63%
	Weighted average $= \frac{\sum_{i=1}^8 W_i \times A_i}{\sum_{i=1}^8 W_i}$	9.70%	

Therefore, as per the benchmarking study, based on proximity scoring technique, it is found that the Airport Operator should allocate at least ~9.50-10.00% of its total area for the Non-Aeronautical activities.

17.4.13. **Conclusion:** The benchmarking study (proximity analysis) suggests an allocation of at least 9.50-10.00% of terminal area towards the provision of Non-Aeronautical services/ activities, whereas, the IATA and IMG norms recommend the allocation to be between 8-12%. Therefore, based on the benchmarking analysis, the Airport Operator is recommended to allocate more area for Non-Aeronautical activities in future.

***STUDY
ON
ALLOCATION OF ASSETS BETWEEN
AERONAUTICAL AND NON-
AERONAUTICAL ASSETS***

for

***COCHIN INTERNATIONAL AIRPORT LIMITED (CIAL)
(Second Control Period: 2017-2021)***

April 2021

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Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

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1. OBJECTIVE OF THIS STUDY

CIAL was the first airport in India to be built under Public Private Partnership (PPP), with equity participation from the Government of Kerala, financial institutions, and more than 16,000 individual investors who are mostly non-resident Keralites (NRKs). CIAL as it exists today, was an alternative to the then civil enclave in the Naval Airport at Cochin. CIAL was incorporated on 30th March 1994 as a public limited company, with an authorized share capital of INR 90 crores. The construction work commenced in August 1994. The airport was inaugurated by the President of India on 25th May 1999 with Air India operating the first flight to the gulf.

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

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

RAB is one of the fundamental elements in the process of tariff determination. The return to be provided on the RAB forms a considerable portion of the Aggregate Revenue Requirement (ARR) for an airport operator. Airports require capital intensive investments. To encourage the participation of the private sector in airport development/ operations, investors must be fairly compensated for the huge capital outlays involved. At the same time, to safeguard the interests of the airport users, it must be ensured that the capital additions are efficient, their needs justified, and the return is provided solely on the assets related to the core operations (i.e., aeronautical services/ activities) of the airport. Any consideration of assets, which are not directly related to the provision of aeronautical services, may have a significant impact on the ARR and would result in increased charges for the users. Given this, the allocation of assets into aeronautical and non-aeronautical components becomes an important part of the tariff determination process.

RAB evolves on a continuous basis, primarily due to the addition of capital assets required to meet the growing demand/ ensure optimum level of service, replacement of obsolete assets at end of life, sales or transfers of assets to other entities in some cases, and assets' depreciation. The allocation of an asset towards RAB depends upon the type of asset (building & civil works, plant & machinery, equipment, etc.), the usage (provision of various services – aeronautical, non-aeronautical, common) of the asset, ownership (airport operator, concessionaire or subsidiary), and useful life of the asset. Based on these factors, the rationale for allocation of each asset into the appropriate category needs to be determined diligently.

To this end, AERA has decided to conduct a study on asset allocation/ segregation between aeronautical and non-aeronautical assets for true-up of the second control period. Since audited financial statements were available from FY17 to FY20 for the 2nd control period, the analysis of the bifurcation of assets is performed till FY20 based on the FAR and for FY21, based on the projections submitted by the CIAL.

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

- i. AERA Act, 2008 with its amendment in 2019
- ii. Airports Economic Regulatory Authority of India (Terms and Conditions for Determination of Tariff for Airport Operators) Guidelines, 2011 dated 28 February 2011
- iii. AERA Order No. 14 / 2016-2017 dated 23 January 2017 [In the matter of aligning certain aspects of AERA's Regulatory Approach (Adoption of Regulatory Till) with the provisions of the National Civil Aviation Policy – 2016 (NCAP – 2016) approved by the Government of India
- iv. AERA Order No. 07 / 2017-2018 dated 13 July 2017 [In the matter of Determination of tariffs for Aeronautical Services in respect of Cochin International Airport, Cochin, for the Second Control Period (01.04.2016 to 31.03.2021)]

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- v. Previous Tariff Orders for other airports
- vi. Audited fixed asset register of CIAL from FY17 to FY20
- vii. Audited Annual Reports, clarifications, certificates (from financial auditors and technical consultants) and other details received from CIAL

2. TERMS OF REFERENCE AND OUR WORK PERFORMED

2.1. Terms of Reference

2.1.1. AERA has outlined the scope of work for the study on allocation of assets in clause 3.1 (v) of Schedule 1 of its RFP No. 01 / 2020-2021 for engagement of consultants to assist AERA in determination of tariffs for aeronautical services at CIAL, which states, "3.1 (v) – Asset/OPEX segregation between Aero and Non Aero."

2.2. Work Performed

2.2.1. The methodology of this study is based on the approach adopted by AERA for allocation of assets between aeronautical and non-aeronautical for DIAL vide Tariff Order no. 57 / 2020-2021 dated 30 December 2020, while being cognizant of the differences due to the fact that, unlike other private airports, CIAL is not governed by any Operation, Management and Development Agreement (OMDA), State Support Agreement (SSA) or Concession Agreement and references to treatment of assets in previous tariff orders.

2.2.2. Key steps followed for the study include:

- Review of AERA Order no. 07 / 2017-18 for CIAL and previous AERA Orders and Consultation Papers for other select airports to identify precedents and the stance taken by the Authority in the matter of allocation of assets.
- Review of MYTP of CIAL for the third control period and supporting documents (including Fixed Asset Register, Financial Model, Capex Forecasts, KITCO study on terminal area allocation, Auditor's certificate etc.) to check for consistency with the treatment in second control period.
- Review of asset-wise segregation done by CIAL into Aeronautical, Non-Aeronautical and Common assets as per the description in the Fixed Asset Register. Discussions were carried out with the management for clarifications and to collect additional information wherever necessary.
- Review of Fixed Asset Register against the financial statements of CIAL.
- Formulation of general principles for asset allocation to ensure consistent treatment.
- Asset-wise analysis based on the general principles and reclassification of assets wherever required.
- Analysis of terminal area allocation.
- Revision of Aeronautical Gross Block from FY 2017 to FY 2021.

3. EXECUTIVE SUMMARY

3.1. Segregation of assets

3.1.1. RAB is one of the fundamental elements in the process of tariff determination. The return to be provided on the RAB forms a considerable portion of the Aggregate Revenue Requirement (ARR) for an airport operator. To safeguard the interests of the airport users, it must be ensured that the return is provided solely on the assets related to the core operations (i.e., aeronautical services/ activities) of the airport. Given this, the allocation of assets into aeronautical and non-aeronautical components becomes an important part of the tariff determination process.

3.1.2. This study has been undertaken to allocate the total assets of the airport into the following:

- **Aeronautical Assets:** All assets that are exclusively used for the provision of aeronautical services/ activities have been classified as 'Aeronautical Assets'. Such assets would include runway(s), taxiways, drainage and culverts, aprons, etc.
- **Non-Aeronautical Assets:** All assets that are exclusively used for the provision of non-aeronautical services / activities have been classified as 'Non-Aeronautical Assets'. Such assets would include golf course development, commercial projects, etc.
- **Common Assets:** All assets that cannot be directly allocated to either Aeronautical Assets or Non-Aeronautical Assets have been classified as 'Common Assets'. Such assets, as the name suggests, get utilized for both aeronautical and non-aeronautical activities. They would include terminal building, select terminal equipment, etc.

3.1.3. As part of this study, various asset categories have been reviewed and a basis has been developed for the classification of assets into aeronautical and non-aeronautical activities, as detailed out in Section 5 of this report.

3.2. Gross block additions based on revised asset allocation

3.2.1. As per the CIAL's submission, the total Aeronautical Addition for the second control period (FY17-FY21) is INR 1847 Cr.

3.2.2. It was observed that few assets worth INR 3.17 Cr that were capitalised in FY 2016 were wrongly considered as Aeronautical Additions in FY 2017 by the airport operator. These items have been excluded from the calculations.

3.2.3. Based on the revision of asset allocation methodology adopted for assets of CIAL, a revision in the aeronautical gross block has been proposed. Summary of the reclassification of assets with its impact on the aeronautical gross block has been presented in the table below

Table 1: Types of reclassification and their impact

S.N.	Reclassification	Impact on aeronautical assets (Increase/ Decrease)	Impact on aero gross block (INR Cr.)
1.	Aeronautical to Common (including Terminal Ratio and Employee)	Decrease	(1.68)
2.	Aeronautical to Non-Aeronautical	Decrease	(2.42)
3.	Common to Non-Aeronautical	Decrease	(6.98)
4.	Common to Aeronautical	Increase	0.73
5.	Common to Common (Employee)	Increase	0.01
	Total		(10.3)

3.2.4. For the second control period, the impact of revision in terminal allocation ratio for Common assets results in a reduction of INR 15.9 Cr. in the Aeronautical additions. Hence, post reclassification of assets and other adjustments made (such as due to change in terminal allocation ratio which is applied on common

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assets), the revised Aeronautical additions to the Gross Block are INR 1817.7 Cr (92.6%) and revised Non-Aeronautical additions are INR 145.9 Cr (7.4%).

3.2.5. The above reclassification of assets is applied across other preceding years of the 2nd control period. The corresponding year-wise revision in the asset allocation ratio of the Gross Block from FY17 to FY21 has been summarized in the table below:

Table 2: Details of Gross Block additions

Particulars	FY 17	FY 18	FY 19	FY 20	FY 21	Total
CIAL's Submission						
Aeronautical Gross Additions (INR Cr.)	1110.03	157.8	276.8	65.3	237.2	1847.1
Non-Aeronautical Gross Additions (INR Cr.)	60.97	27.6	17.9	2.2	7.8	116.4
Total Gross Additions (INR Cr)	1171.0	185.4	294.7	67.6	245.0	1963.6
Revised as per the study						
Revised Aeronautical Gross Additions (INR Cr)	1094.2	150.2	272.9	64.1	236.3	1817.7
Revised Non-Aeronautical Gross Additions (INR Cr)	76.8	35.2	21.8	3.5	8.7	145.9
Revised Total Gross Additions (INR Cr)	1171.0	185.4	294.7	67.6	245.0	1963.6

3.2.6. Based on the above and the value of opening Aeronautical Gross Block of INR 548.7 Cr and Total Gross Block of INR 794.8 Cr (as on 31 March 2016), the following table summarizes the asset allocation ratio of the Gross Block:

Table 3: Details of Gross Block

Particulars	FY 17	FY 18	FY 19	FY 20	FY 21
CIAL Submission					
Aeronautical Gross Block (INR Cr.)	1658.5	1810.9	2052.8	2117.3	2354.5
Non-Aeronautical Gross Block (INR Cr.)	304.6	331.8	348.1	350.2	358.1
Total Gross Block (INR Cr.)	1963.1	2142.6	2400.9	2467.5	2712.6
Non-Aeronautical Ratio as per CIAL	15.5%	15.5%	14.5%	14.2%	13.2%
Revised as per the study					
Revised Aeronautical Gross Block (INR Cr.)	1641.0	1785.8	2023.9	2087.1	2323.4
Revised Non-Aeronautical Gross Block (INR Cr.)	322.1	356.8	377.0	380.4	389.2
Revised Total Gross Block (INR Cr.)	1963.1	2142.6	2400.9	2467.5	2712.6
Revised Non-Aeronautical Ratio	16.4%	16.7%	15.7%	15.4%	14.3%
Impact on Non-Aero Ratio (increase)	0.9%	1.2%	1.2%	1.2%	1.1%

Note: The Total Gross Block numbers are as per the financial audited statements. The Non-Aeronautical Gross Block numbers have been computed as Total Gross Block numbers – (opening Aeronautical Gross Block + aeronautical additions – aeronautical retirements) in any given year.

3.3. Summary of reclassifications

3.3.1. Terminal buildings and related works:

- **Details of asset:** Civil, mechanical, plumbing and electrical works of new international terminal T3 building and modifications to the old terminals.
- **Allocation proposed by CIAL:** Common, however, some of the assets in this category were considered Aeronautical
- **Issue:** The allocation of new terminal building, modification of the existing terminals and other related civil, engineering, consultancy, electrical, plumbing and mechanical works is based on the terminal area usage ratio (between the area towards aeronautical and non-aeronautical activities). However, some line items in this segment were found to be classified as Aeronautical by the airport operator. Accordingly, such items have been reclassified as Common.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces the RAB to the extent of **INR 0.41 Cr.**
- **Reference:** Section 6.2.1

3.3.2. IT Assets – Hardware and Software:

- **Details of Asset:** End User Devices, Printers, Copiers, LAN, Software Licenses etc.
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** End user devices such as laptops and software like ERP licenses, operating systems, DTP etc., and their supporting hardware are to be classified based on the nature of activity performed by the department where the asset is deployed. Due to unavailability of further usage related information of some of these assets, such items have been reclassified as Common. Wherever it was identified that such items are being utilised for purely aeronautical purposes, those assets have been classified accordingly.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces RAB to the extent of **INR 0.11 Cr.**
- **Reference:** Section 6.2.5

3.3.3. Common Terminal Assets:

- **Details of Asset:** Consumer electronics, other devices, furniture and fixtures in the terminal buildings
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Certain assets like Televisions, Fans, Ovens, Dining Tables etc, which are generally used for common purposes, their location and exact usage could not be determined from the available information, have been reclassified as Common. Wherever it was clear that such items are being utilised for purely aeronautical or non-aeronautical purposes, the assets have been classified accordingly.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces RAB to the extent of **INR 0.39 Cr.**
- **Reference:** Section 6.2.6

3.3.4. Assets for Commercial Activities:

- **Details of Asset:** Assets at Commercial Areas like Food Court, or Retail Spaces
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** It was observed that there are certain assets including furniture and appliances that are either used by the Commercial Department or at areas like Food Court and other retail spaces which were classified as either Aeronautical or Common. Such assets have been reclassified as Non-Aeronautical.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from Aeronautical or Common to Non-Aeronautical reduces RAB to the extent of **INR 2.81 Cr.**
- **Reference:** Section 6.2.7

3.3.5. Assets at MD's Office and Other Administrative Offices:

- **Details of Asset:** Assets including interior works, furniture and other devices at MD's Office and other administrative offices
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** Certain assets in the MD's office were found to be classified as Aeronautical. CIAL had bifurcated the operational expenses related to the MD's office into Aeronautical and Non-Aeronautical since the office is responsible for all activities at the airport. Hence the assets at this office must also be considered as Common. Such assets were bifurcated in the Employee Ratio (Aeronautical to Non-Aeronautical).
- **Allocation proposed by the Authority:** Common (Employee)
- **Impact:** Reclassifying these asserts from Aeronautical to Common reduces RAB to the extent of **INR 0.09 Cr.**
- **Reference:** Section 6.2.8

3.3.6. Duty-Free and Golf Course Assets:

- **Details of Asset:** Assets of Duty-Free, Duty-Free Warehouse and Golf Course
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Some assets procured for the Duty Free, the Duty-Free Warehouse and the Golf Course & Country Club were incorrectly classified as either Aeronautical or Common. Such line items have been identified and reclassified as Non-Aeronautical since Duty Free and Golf Course are Non-Aeronautical ventures.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from either Aeronautical or Common to Non-Aeronautical reduces RAB to the extent of **INR 1.37 Cr.**
- **Reference:** Section 6.2.9

3.3.7. Passenger Handling and Flight Information Systems:

- **Details of Asset:** Equipment and software for passenger handling
- **Allocation proposed by CIAL:** Aeronautical / Common

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- **Issue:** Certain Flight Information Systems, Q Managers, and Immigration Counters were classified as Common. However, this is believed to be a mistake as these are related to passenger handling and must therefore be considered Aeronautical. Hence these assets have been reclassified as Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Reclassifying these assets from Common to Aeronautical increases the RAB to the extent of **INR 0.59 Cr.**
- **Reference:** Section 6.2.10

3.3.8. Airport Security:

- **Details of Asset:** Assets for CISF
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** It was observed that certain assets procured for CISF and for airport security related activities were classified as Common. Since airport security is an Aeronautical matter, these assets must be treated similarly and hence, have been reclassified to Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Reclassifying these assets from Common to Aeronautical increases RAB to the extent of **INR 0.13 Cr.**
- **Reference:** Section 6.2.11

3.3.9. Butterfly Canteen:

- **Details of Asset:** Assets at the Butterfly Canteen in front of T3
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** The Butterfly canteen outside the Terminal 3 building is a commercial space, hence the assets related to the same must be treated as Non-Aeronautical. Some of these assets were classified by CIAL as Aeronautical and some others were considered Common. The classification for such assets has been revised to Non-Aeronautical.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from either Aeronautical or Common to Non-Aeronautical reduces the RAB to the extent of **INR 5.1 Cr.**
- **Reference:** Section 6.2.13

3.3.10. Vehicles:

- **Details of Asset:** Vehicles
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** CIAL has considered all vehicles as Aeronautical. The classification of these assets should be dependent upon the specific usage. However, in the absence of the details regarding the exact usage (for aeronautical or general purposes) of some of these assets, they have been reclassified as Common and bifurcated in the employee ratio.
- **Allocation proposed by the Authority:** Common (Employee)
- **Impact:** Reclassifying these assets from either Aeronautical to Non-Aeronautical reduces the RAB to the extent of **INR 0.05 Cr.**

- **Reference:** Section 6.2.14

3.3.11. Asset allocation assessment and reclassification for forecasted additions (FY 21):

- **Details of Asset:** Assets forecasted to be capitalised in FY 2021
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** Certain assets, including UV-C systems and IT Assets, that are projected to be capitalised in FY 2021, have been re-allocated based on the same principles specified above and the analysis of the information available
- **Allocation proposed by the Authority:** Common / Non-aeronautical
- **Impact:** Reclassifying these assets reduces the RAB to the extent of **INR 0.72 Cr.**
- **Reference:** Section 6.3

3.4. Impact of revised terminal allocation ratio

- 3.4.1. The Aeronautical and Non-Aeronautical additions consider a certain percentage of Common Assets, which is a function of terminal area ratio (ratio of terminal area allocated for the provision of aeronautical and non-aeronautical activities). The additions towards Common Assets (based on this study) are worth INR 907.4 Cr (which doesn't include internal roads and Car Park), which have been allocated to Aeronautical and Non-Aeronautical additions based on the terminal ratio of 7.19% (Non-Aeronautical areas as a percentage of total terminal area) by the airport operator.
- 3.4.2. The airport operator had proposed 6.28% and 9.00% of terminal area for the provision of Non-Aeronautical services/ activities in International and Domestic terminals respectively, which is 7.19% of total terminal area. However, based on the assessment of actual area allocated towards the Non-Aeronautical activities, it is found that with the reclassification of areas, especially the ones which are recognized as 'Common' by AERA and were considered as Aeronautical by the airport operator, the actual area allocation percentage has changed.
- 3.4.3. Accordingly, the actual allocation of area (in %) towards Non-Aeronautical activities, viz. 8.47% and 9.88% for the International and Domestic terminals respectively, has been proposed by this study for the purposes of the tariff determination for the second control period.
- 3.4.4. This changes the percentage of area allocated for Non-Aeronautical activities to 8.94% from 7.19% for the entire terminal area.
- 3.4.5. For the second control period, the impact of revision in terminal allocation ratio for Common assets results in a reduction of INR 15.9 Cr. in the Aeronautical additions.

3.5. Summary

- 3.5.1. The following table summarizes the total proposed adjustments for the aeronautical additions submitted by the airport operator.

Table 4: Proposed Adjustments to Aeronautical Asset Base Additions in 2nd CP

Fixed Asset Adjustment	Reference to Section in Report	INR Cr.
Aeronautical Additions in 2nd CP as per CIAL (Excluding FA)		1,847.1
Adjustments to RAB		
Exclusion of Assets Capitalised in 2016		(3.17)
		1,843.9
Airport Security	6.2.11	0.13

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Assets for Commercial Activities	6.2.7	(2.81)
Butterfly canteen	6.2.13	(5.10)
Common Assets at MD's Office	6.2.8	(0.09)
Common Terminal Assets	6.2.6	(0.39)
Duty Free & Golf Course	6.2.9	(1.37)
IT Assets	6.2.5	(0.11)
Passenger Handling	6.2.10	0.59
Terminal Building Works	6.2.1	(0.41)
Vehicles	6.2.14	(0.05)
Reallocation of Forecasted Assets in 2021	6.3	(0.72)
Total adjustments to RAB (for the 2nd CP) <i>(on the basis of asset reclassification and exclusion of some expenses from RAB, without considering the impact of revised terminal ratio)</i>		(13.47)
Impact on capital additions in 2 nd CP due to revised terminal allocation		(15.9)
Revised additions to Aeronautical Gross Block in 2nd CP		1,817.7

4. PHYSICAL VERIFICATION OF ASSETS

4.1. Existence of assets in the Gross Block

4.1.1. The study has relied on the audited financial statements of CIAL to establish the existence of assets in the Gross Block as on 31 March 2020.

4.1.2. The Fixed Asset Register submitted by CIAL was reconciled against the financial statements and the outcome is provided in the table below.

Table 5: Reconciliation of Fixed Asset Register Against Financial Statements

FY	2017	2018	2019	2020
Book Value as on 31 March (INR Cr.) (Excluding Capital Work in Progress)	1620.20	1687.42	1855.35	1797.53

4.2. Projects commissioned in the second control period

4.2.1. While item-wise assessment was made, but it has not been possible to verify the project-wise expenses incurred, as such data and mapping (items to project) are not available to the required level with the airport operator. In this regard, the airport operator provided a CA certificate to validate the expenses of the completed projects; the same has been used to verify the submissions in the MYTP.

4.2.2. The certificate so obtained from the airport operator in this regard has been provided in the Exhibit 3 of this study.

5. ASSET ALLOCATION METHODOLOGY FOR CIAL FOR 2ND CONTROL PERIOD

5.1. Segregation of assets

5.1.1. This study intends to allocate the total assets of the airport into the following:

- **Aeronautical Assets:** All assets that are exclusively used for the provision of aeronautical services/ activities have been classified as 'Aeronautical Assets'. Such assets would include runway(s), taxiways, drainage and culverts, aprons, etc.
- **Non-Aeronautical Assets:** All assets that are exclusively used for the provision of non-aeronautical services / activities have been classified as 'Non-Aeronautical Assets'. Such assets would include golf course development, commercial projects, etc.
- **Common Assets:** All assets that cannot be directly allocated to either Aeronautical Assets or Non-Aeronautical Assets have been classified as 'Common Assets'. Such assets, as the name suggests, get utilized for both aeronautical and non-aeronautical activities. They would include terminal building, select terminal equipment, etc.

5.2. Principle for segregation of assets

5.2.1. As part of this study, various asset categories have been reviewed and a basis has been developed for the classification of assets into aeronautical and non-aeronautical.

5.2.2. Assets which are directly used for rendering of services identified as Aeronautical under the AERA Act of 2008 are classified as Aeronautical Assets. As per the Act, such services include:

- navigation, surveillance and supportive communication thereto for air traffic management,
- the landing, housing or parking of an aircraft or any other ground facility offered in connection with aircraft operations at an airport,
- ground safety services at an airport,
- ground handling services relating to aircraft, passengers and cargo at an airport,
- the cargo facility at an airport,
- supplying fuel to the aircraft at an airport,
- services for a stakeholder at an airport, for which the charges, in the opinion of the Central Government for the reasons to be recorded in writing, may be determined by the Authority

5.2.3. Accordingly, the assets responsible for/ used exclusively for the provision of such services have been classified as Aeronautical for the purposes of this study. Additionally, the decisions of AERA on allocation of certain assets in the previous control periods have also been taken into consideration for this exercise.

5.2.4. Non-Aeronautical: Assets which are solely used for the provision of services other than aeronautical services are classified as Non-aeronautical.

5.2.5. Common: If any asset is not exclusively used for the provision of either Aeronautical service or Non-Aeronautical service, it has been classified as 'Common'.

5.2.6. Aeronautical assets (e.g., aerobridges, among others) are directly added to RAB and assets identified to be non-aeronautical (e.g., commercial complex) are simply excluded from it. The assets that have been classified as Common Assets need to be further bifurcated into aeronautical and non-aeronautical based on a suitable ratio. This ratio needs to be determined such that it is fair with respect to the actual utilisation

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of the asset and encourages the airport operator to optimally utilize its resources for realizing the potential of non-aeronautical revenues at its airport, hence benefitting the user through cross-subsidisation.

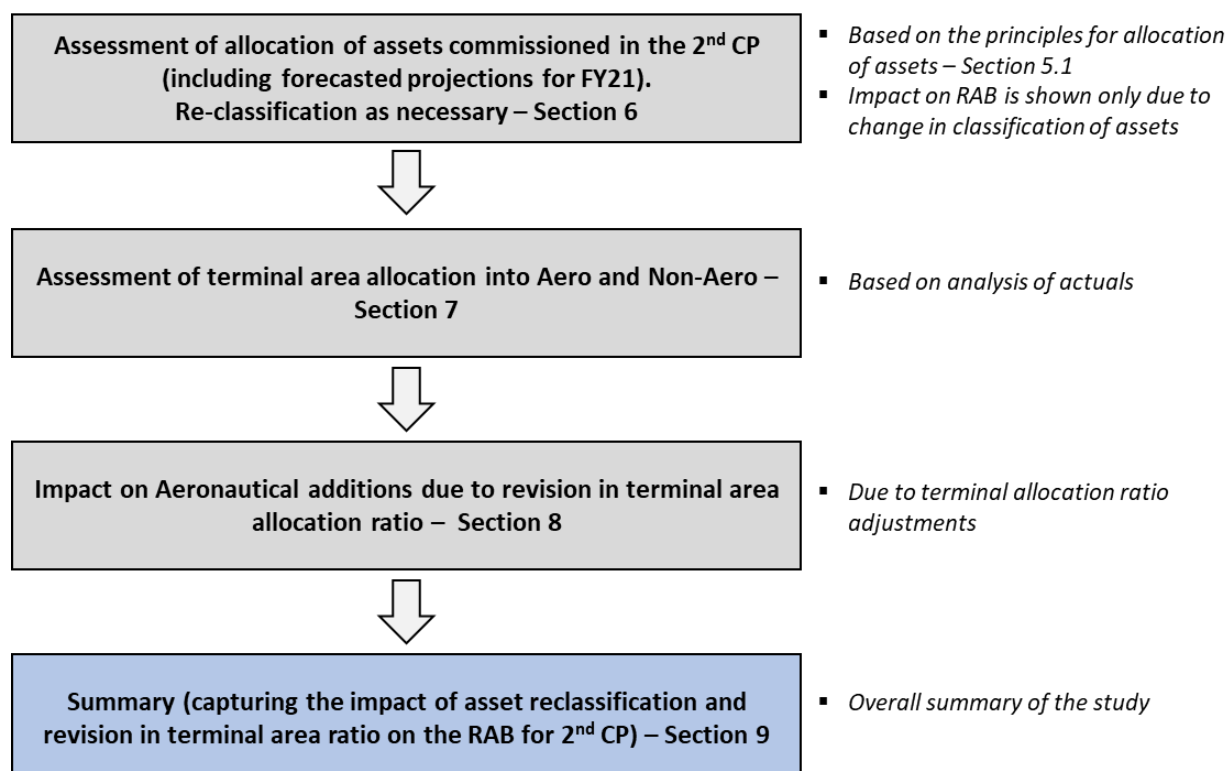
Table 6: General Principles for Asset Classification

Asset Category	Asset Sub-Category / Description	Asset Classification
Runways, Roads and Culverts	Construction, Resurfacing, Re-carpeting and Widening of Internal Roads and Flyovers	Aeronautical
	Construction and strengthening of Runways, Taxiways, Parking Bays and Aprons	
	Lighting, Civil and Electrical Works on the Airside	
Cargo	Assets Related to Bonded Cargo Activities within the Airport Operational Area	Aeronautical
Ground Handling	Assets related to ground handling	Aeronautical
Airport Security	Assets Related to CISF	Aeronautical
	Baggage X-Ray Machines	
	Boundary Walls	
	Perimeter Intruder Detection Systems	
	CCTV and Surveillance Systems	
	Metal Detectors and Bomb Detection & Disposal Systems	
Air Crash Safety Measures	ACFTs	Aeronautical
	Fire Stations and related assets	
Aircraft Handling	Aerobridges and VDGS	Aeronautical
	Ground Power Units and Pre-Conditioned Air Units	
Passenger Handling	Flight Information Systems and Public Audio Systems	Aeronautical
	Baggage Handling Systems	
	Smart Lane Systems, Digi-Yatra Systems and Q-Managers	
	CUPPS, BRS, CUSS etc.	
ATC Tower	Assets related to ATC tower and AAI	Aeronautical
Flood Control Measures	Bridges and Culverts within the Airport Area	Aeronautical
	Widening of Storm Water Drains and Diversion Canals in the Airport Operational Area	
Substation	110 KV Substation for the Airport	Aeronautical
Waste Management	Sewage Treatment Plant and Incinerators	Aeronautical
Terminal Buildings/ Equipment	Civil, Mechanical, Plumbing and Electrical works for Terminal Buildings	Common (Terminal Ratio)
	Furnitures and devices at Common Areas at the terminal	
	Escalators, Elevators and Travellators	
	IT Assets at the terminal	
	HVAC, Water Coolers, UV-C Systems, Split ACs etc.	
Administrative Offices	Assets and works related to MD's Office and other administrative offices	Common (Employee)
Vehicles*	Vehicles other than the ones deployed exclusively at Airside or for Aeronautical activities	Common (Employee)
Car Parking	Car Parking related assets	Non-Aeronautical
Duty Free	Assets related to Duty Free and Duty-Free Warehouse	Non-Aeronautical
Golf Course	Assets related to CIAL Golf Course and Country Club	Non-Aeronautical
Commercial	Assets related to Commercial activities such as food courts, canteens, etc.	Non-Aeronautical

* the ambulances and vehicles for CISF have been retained as Aeronautical

5.3. Methodology used for segregation of assets

- 5.3.1. Verification of Assets: Assessment of the assets commissioned by the airport operator during the second control period based on the information/ reports provided by the airport operator including audited reports, Fixed Asset Register (FAR), AUCC Approvals, DPRs etc., the observations made during the site-visit and discussions held with the airport operator for clarifications.
- 5.3.2. The study has relied on the CA certificate submitted by the airport operator, audited financial statements of CIAL from FY 2017 to FY 2020 and the information available in the Fixed Asset Register to verify the capital expenditure incurred during the second control period and to understand the nature of the assets. We have not audited the capital expenditure, or any other underlying data submitted by CIAL and relied on the CA's certificate for the same.
- 5.3.3. Asset Classification: Mapping of assets to their respective asset category is based on the classification followed by the airport operator (as per the audited statements), information provided by the airport operator regarding the location and usage of the assets, the allocation considered by the Authority in the previous Tariff Order for CIAL and the treatment of similar assets followed by the Authority in the case of other airports. The classification of assets has been reviewed based on the description of the assets given in the Fixed Asset Register subject to a materiality level of INR 10 lakhs. Accordingly, the examination covered the classification of items adding up to ~99% of the value of additions to Gross Block in the second control period (FY17-20). All the assets that are proposed to be commissioned by CIAL in FY 2021 have been reviewed covering 100% of value of the proposed additions to Gross Block.
- 5.3.4. Basis for segregation of common assets: Finalisation of ratios for segregation of common assets into aeronautical and non-aeronautical is based on evaluation of the terminal area usage as per original master plan, KITCO study report (technical study reports provided by the airport operator), airport site visit, among others.
- 5.3.5. Revision of RAB: Re-computation of RAB for each financial year based on outcomes of the above.
- 5.3.6. The methodology so followed has been illustrated below:



6. ASSESSMENT OF ACTUAL CAPITAL ADDITIONS DURING THE 2ND CONTROL PERIOD

Based on CIAL's projections, the Authority had approved, capital additions worth INR 2539.34 Cr in the Tariff Order for the second control period. Of which, assets amounting to INR 2092.59 Cr were considered as aeronautical additions.

6.1. Opening RAB

6.1.1. For the time of Tariff Determination for the second control period, the Authority had approved the opening RAB (FY17) of INR 272.5 Cr (land is not included in RAB) based on its analysis of the submissions made by CIAL. For true-up CIAL has considered the opening RAB as approved by the authority in the previous Tariff Order. The allocation considered by the Authority for computing the opening RAB is as follows:

Table 7: Allocation of assets in opening RAB of 2nd CP approved by the Authority

Particulars	Aeronautical allocation
Buildings and Civil works	71%
Runway, Roads and Culverts	100%
Plant and Equipment, Office Equipment, Computers and Accessories, Furniture and Fixtures, Vehicles and Intangibles Assets	90%

6.1.2. Based on allocation principles highlighted in the previous section and asset by asset analysis of the capital additions in the second control period, the adjustments to RAB have been made. The same has been undertaken as two components - one for the period FY 2017 to FY 2020 and the other for FY 2021 (forecasted assets). The details including issue, likely impact on RAB for the items observed to require reclassification are provided below:

6.2. Asset allocation assessment and reclassification for assets commissioned from FY17 to FY20

6.2.1. Terminal buildings and related works:

- **Details of asset:** Civil, mechanical, plumbing and electrical works of new international terminal T3 building and modifications to the old terminals.
- **Allocation proposed by CIAL:** Common, however, some of the assets in this category were considered Aeronautical
- **Issue:** The allocation of new terminal building, modification of the existing terminals and other related civil, engineering, consultancy, electrical, plumbing and mechanical works is based on the terminal area usage ratio (between the area towards aeronautical and non-aeronautical activities). However, some line items in this segment were found to be classified as Aeronautical by the airport operator. Accordingly, such items have been reclassified as Common.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces the RAB to the extent of INR 0.41 Cr.

Table 8: Re-allocated Terminal Building and Related Works

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	Flooring Work	1200002251	2.78	100%	2.78	92.81%	2.58	0.20

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2	Electrical-Road-Naka, Domestic, golf, SS	1400000445	0.76	100%	0.76	92.81%	0.71	0.05
3	Flooring Works	1200002101	0.33	100%	0.33	92.81%	0.30	0.02
4	Roofing Works	1200002102	0.24	100%	0.24	92.81%	0.22	0.02
5	Finishing Works	1200002103	0.09	100%	0.09	92.81%	0.09	0.01
6	SITC of Emergency Exit Signages at T3	1500002090	0.03	100%	0.03	92.81%	0.03	0.00
7	Constructi an Exten in Terminal building 4 Lifts	1200002350	0.41	100%	0.41	92.81%	0.38	0.03
8	Cables& Wirings	1500001930	0.00	100%	0.00	92.81%	0.00	0.00
9	Signages for T1 addl	1500002380	0.04	100%	0.04	92.81%	0.04	0.00
10	SITC of Emergency evacuation Signages for Terminal	1500002390	0.02	100%	0.02	92.81%	0.02	0.00
11	insulating mats for electrical room	1500002400	0.02	100%	0.02	92.81%	0.02	0.00
12	Additional Signages in T1	1500002410	0.18	100%	0.18	92.81%	0.17	0.01
13	Signages in T1	1500002480	0.01	100%	0.01	92.81%	0.01	0.00
14	Holding Tank, Pump House, Plumbing worrks in T3	1840000040	0.51	100%	0.51	92.81%	0.47	0.04
	Total		5.44		5.44		5.03	0.41

Note: Differences are due to rounding off the capex numbers

6.2.2. Apron works and Runway Re-carpeting:

- **Details of asset:** Apron works for Terminal 3 commissioned in 2017
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** Construction work for parking bays and runway are carried out on airside. The information regarding the change in Pavement Classification Number as a result of the re-carpeting provided by the Operator indicates that there has been a significant increase in the PCN value. Hence, this expenditure can be considered as a capital expenditure and the nature of these assets is Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Nil.

6.2.3. Flood Control Measures:

- **Details of asset:** Construction of bridges, deepening and widening of diversion canals and storm water drains etc.
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** During the site visit it was observed that the flood mitigation measures are to primarily cater the operational area of the airport. These measures are necessary for continuing operations during the periods of heavy rains. However, it was also noticed that some of these measures were carried out beyond the operational area of the airport, i.e., outside the airport premises/ on public land. Therefore, the costs for flood mitigation measures have been bifurcated into projects inside and outside the airport area, and only the work performed inside the airport boundary has been considered Aeronautical. For the assets commissioned in the 2nd CP, all the assets have been undertaken within the airport premises.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Nil.

6.2.4. Transfer of PSF Assets:

- **Details of asset:** Passenger Service Fee (Security Component) assets transferred to the books of CIAL in FY 2018 (net of depreciation, i.e., book value).
- **Allocation proposed by CIAL:** Aeronautical

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- **Issue:** The assets under this category were procured for Airport Security and related activities, hence these assets should be classified as aeronautical. All the items under this classification as per the Fixed Asset Register provided by the airport operator have been treated as Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Nil.

6.2.5. IT Assets – Hardware and Software:

- **Details of Asset:** End User Devices, Printers, Copiers, LAN, Software Licenses etc.
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** End user devices such as laptops and software like ERP licenses, operating systems, DTP etc., and their supporting hardware are to be classified based on the nature of activity performed by the department where the asset is deployed. Due to unavailability of further usage related information of some of these assets, such items have been reclassified as Common. Wherever it was identified that such items are being utilised for purely aeronautical purposes, those assets have been classified accordingly.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces RAB to the extent of **INR 0.11 Cr.**

Table 9: Re-allocated IT Assets - Hardware and Software

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	Server	1700001930	0.00	100%	0.00	92.81%	0.00	0.00
2	Personal Computer	1700002140	0.00	100%	0.00	92.81%	0.00	0.00
3	GST Patch for SAP(GST implementation)	4050000410	0.31	100%	0.31	92.81%	0.29	0.02
4	SAP ERP Licence	4050000360	0.28	100%	0.28	92.81%	0.26	0.02
5	DSITC of iOS native Mobile App	4050000530	0.24	100%	0.24	92.81%	0.22	0.02
6	VMWARE Software	4050000470	0.06	100%	0.06	92.81%	0.05	0.00
7	Database Objects for GST	4050000370	0.03	100%	0.03	92.81%	0.03	0.00
8	SITC of AutoCadV2018 (PO4520011296)	4050000420	0.03	100%	0.03	92.81%	0.02	0.00
9	Operating System Windows (4 Nos)	4050000340	0.02	100%	0.02	92.81%	0.02	0.00
10	Operating System Windows 2 NOS (PO#5520000030)	4050000490	0.01	100%	0.01	92.81%	0.01	0.00
11	Operating System Linux 2 NOS (PO#5520000030)	4050000480	0.01	100%	0.01	92.81%	0.01	0.00
12	Operating System Windows (40 Nos)	4050000330	0.01	100%	0.01	92.81%	0.01	0.00
13	FAX-HP Deskjet 4675	4020000760	0.00	100%	0.00	92.81%	0.00	0.00
14	Microsoft Visio Standard 2016	4050000380	0.00	100%	0.00	92.81%	0.00	0.00
15	Label Printer Casio KL820	4020000820	0.00	100%	0.00	92.81%	0.00	0.00
16	Computers-8nos	1640001020	0.06	100%	0.06	92.81%	0.06	0.00
17	Microsoft SQL license	1700002750	0.12	100%	0.12	92.81%	0.11	0.01
18	Personal Computer-4NOS	4000000650	0.02	100%	0.02	92.81%	0.02	0.00
19	HP EliteOne 800 G4 AiO Computer	4000000660	0.01	100%	0.01	92.81%	0.01	0.00
20	1 no of All-in-One Ink Tank Printer	4020000870	0.00	100%	0.00	92.81%	0.00	0.00
21	All in one Printer	4020000880	0.02	100%	0.02	92.81%	0.02	0.00
22	Photocopier Thoshiba Electrical Dept	4020000890	0.00	100%	0.00	92.81%	0.00	0.00
23	EPSON L3150 printer PO#4 510001597	4020000900	0.00	100%	0.00	92.81%	0.00	0.00
24	Printer 6 NOS (PO:4510001659)	4020000920	0.01	100%	0.01	92.81%	0.01	0.00
25	Scanner	4030000050	0.00	100%	0.00	92.81%	0.00	0.00

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26	External Hard Disk 1TB SSD Sandisk	4040001210	0.00	100%	0.00	92.81%	0.00	0.00
27	MS Office 2019 Standard & Pro plus	4050000580	0.20	100%	0.20	92.81%	0.18	0.01
28	Modification in SAP	4050000590	0.10	100%	0.10	92.81%	0.09	0.01
	Total		1.54		1.54		1.43	0.11

Note: Differences are due to rounding off the capex numbers

6.2.6. Common Terminal Assets:

- **Details of Asset:** Consumer electronics, other devices, furniture and fixtures in the terminal buildings
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Certain assets like Televisions, Fans, Ovens, Dining Tables etc, which are generally used for common purposes, their location and exact usage could not be determined from the available information, have been reclassified as Common. Wherever it was clear that such items are being utilised for purely aeronautical or non-aeronautical purposes, the assets have been classified accordingly.
- **Allocation proposed by the Authority:** Common
- **Impact:** Reclassifying these assets from Aeronautical to Common reduces RAB to the extent of **INR 0.39 Cr.**

Table 10: Re-allocated Common Terminal Assets

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	Design & SITC of UPS Systems	1660000420	1.82	100%	1.82	92.81%	1.69	0.13
2	30KVA UPS	1660000392	0.54	100%	0.54	92.81%	0.50	0.04
3	60KVA UPS	1660000390	0.41	100%	0.41	92.81%	0.38	0.03
4	Transformers and Connectors	1500001981	0.25	100%	0.25	92.81%	0.23	0.02
5	Vintex-CO2 Fire Extinguisher - 4.5 Kg-525Nos	1880000050	0.20	100%	0.20	92.81%	0.18	0.01
6	SITC of VRF A/c for the 3rd and 4th floors of cent	1530001090	0.14	100%	0.14	92.81%	0.13	0.01
7	Vintex-Stand for Fire extinguisher-100Nos	1880000060	0.07	100%	0.07	92.81%	0.06	0.01
8	5 Nos. 9Ltr portable water mist and CAF fire ext	1880000130	0.07	100%	0.07	92.81%	0.06	0.00
9	Portable low pressure CAF extinguisher 5 NOS	1880000110	0.06	100%	0.06	92.81%	0.06	0.00
10	Vintex-Water type extinguisher-9 Ltr-300Nos	1880000030	0.06	100%	0.06	92.81%	0.06	0.00
11	Industrial Dish Washing Machine for Canteen	1700002300	0.06	100%	0.06	92.81%	0.06	0.00
12	SITC of Fire Detection and Alarm system for	1620000480	0.06	100%	0.06	92.81%	0.05	0.00
13	Split AC -1.5TR 14 NOS	1530000990	0.05	100%	0.05	92.81%	0.05	0.00
14	Vaccum Cleaners (6 Nos)	1860000040	0.03	100%	0.03	92.81%	0.03	0.00
15	Sub Asset IDC 60KVA UPS	1660000393	0.03	100%	0.03	92.81%	0.03	0.00
16	Vintex-Wall Cabinet for extinguishers-50Nos	1880000070	0.03	100%	0.03	92.81%	0.03	0.00
17	Split AC -1.5TR 9 NOS	1530001010	0.03	100%	0.03	92.81%	0.02	0.00
18	Dining chair 114 Nos	5000005260	0.03	100%	0.03	92.81%	0.02	0.00
19	S/s Dining Table 19 Nos	5010002130	0.03	100%	0.03	92.81%	0.02	0.00
20	Vintex-DCP fire extinguisher - 4 Kg (100 nos)	1880000100	0.02	100%	0.02	92.81%	0.02	0.00
21	2TR free standing split AC	1530000960	0.02	100%	0.02	92.81%	0.02	0.00
22	Vintex-DCP fire extinguisher-9 Kg-60Nos	1880000040	0.02	100%	0.02	92.81%	0.02	0.00
23	Mobile charger unit	1520001320	0.01	100%	0.01	92.81%	0.01	0.00
24	5KVA UPS	1660000391	0.01	100%	0.01	92.81%	0.01	0.00
25	4.5TR verticool AC	1530000980	0.01	100%	0.01	92.81%	0.01	0.00

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26	COMPUTER CHAIR (33 Nos)	5000005300	0.01	100%	0.01	92.81%	0.01	0.00
27	Water cooler 20Ltr - single tap	1650000510	0.01	100%	0.01	92.81%	0.01	0.00
28	Picket Fence in Creche	1220000180	0.01	100%	0.01	92.81%	0.01	0.00
29	OFFICE TABLE (29 Nos)	5010002170	0.01	100%	0.01	92.81%	0.01	0.00
30	2NOS Supply -Split AC -1.5TR for creche	1530001030	0.01	100%	0.01	92.81%	0.01	0.00
31	Air circulator - 600mm: 6 nos	1510000190	0.01	100%	0.01	92.81%	0.01	0.00
32	REFRIGERATOR LG GCD432HLAMPZ	1520001290	0.01	100%	0.01	92.81%	0.01	0.00
33	BLUE STAR MAKE 500 ltr Cooler	1520001280	0.00	100%	0.00	92.81%	0.00	0.00
34	EXECUTIVE TABLE FOR AC/DC	5010002200	0.00	100%	0.00	92.81%	0.00	0.00
35	Spare compressed air cylinder- CAF	1880000111	0.00	100%	0.00	92.81%	0.00	0.00
36	VISITORS CHAIR ARMED-BOSQ	5000005270	0.00	100%	0.00	92.81%	0.00	0.00
37	water purifiere Eureka Fobes - Aquafllo(5 Nos)	1650000620	0.00	100%	0.00	92.81%	0.00	0.00
38	Steel Table for CISF	5010002160	0.00	100%	0.00	92.81%	0.00	0.00
39	18W surface mounted LED light fitting	1580000080	0.00	100%	0.00	92.81%	0.00	0.00
40	usha make 20L water cooler	1650000580	0.00	100%	0.00	92.81%	0.00	0.00
41	Washing Machine for T3	3030002810	0.00	100%	0.00	92.81%	0.00	0.00
42	OFFICE TABLE (4 Nos)	5010002140	0.00	100%	0.00	92.81%	0.00	0.00
43	LEDTV 32"	1580000150	0.00	100%	0.00	92.81%	0.00	0.00
44	Refrigerator (creche)	1670000090	0.00	100%	0.00	92.81%	0.00	0.00
45	HIGH BACK EXECUTIVE CHAIR-CASO-Featherli 1 Nos	5000005310	0.00	100%	0.00	92.81%	0.00	0.00
46	COMPUTER TABLE (7 Nos)	5010002180	0.00	100%	0.00	92.81%	0.00	0.00
47	HIGH BACK EXECUTIVE CHAIR-AC/DC	5000005320	0.00	100%	0.00	92.81%	0.00	0.00
48	water purifiere Eureka Fobes - Aquafllo	1650000590	0.00	100%	0.00	92.81%	0.00	0.00
49	Water Purifier,Aqua flow type	1650000610	0.00	100%	0.00	92.81%	0.00	0.00
50	Ups 600VA	1660000400	0.00	100%	0.00	92.81%	0.00	0.00
51	COMPUTER TABLE(4 Nos)	5010002150	0.00	100%	0.00	92.81%	0.00	0.00
52	UPS for Computers (3 nos)	1660000410	0.00	100%	0.00	92.81%	0.00	0.00
53	Microwave oven	1520001220	0.00	100%	0.00	92.81%	0.00	0.00
54	Oven (Creche)	1520001200	0.00	100%	0.00	92.81%	0.00	0.00
55	2 nos exhaust fans for creche	1510000250	0.00	100%	0.00	92.81%	0.00	0.00
56	Induction cooker (creche)	1520001210	0.00	100%	0.00	92.81%	0.00	0.00
57	Bay Coordinate Boards	1500001900	0.00	100%	0.00	92.81%	0.00	0.00
58	Air circulator - 600mm (24")	1500002030	0.00	100%	0.00	92.81%	0.00	0.00
59	ABB Hybrid 145KV PASS switch gear	1500002460	1.35	100%	1.35	92.81%	1.25	0.10
60	Supply of 15 Nos. hand dryers for T1 &T3	1520001390	0.01	100%	0.01	92.81%	0.01	0.00
61	SITC of 2 nos 1.5 T split A/Cs at CIAL	1530001230	0.01	100%	0.01	92.81%	0.01	0.00
62	Television	1590000030	0.00	100%	0.00	92.81%	0.00	0.00
63	Split AC-CPC	1640001030	0.05	100%	0.05	92.81%	0.04	0.00
64	S of water cooler 125Ltr.-NC 5 nos	1650000660	0.02	100%	0.02	92.81%	0.02	0.00
65	SITC of UPS Systems	1660000490	0.07	100%	0.07	92.81%	0.07	0.01
66	SITC of 20 KVA UPS System	1660000500	0.05	100%	0.05	92.81%	0.05	0.00
67	10 Nos. Hand dryers for T3	1700002610	0.00	100%	0.00	92.81%	0.00	0.00
68	2 automatic sliding door for T	1770000830	0.36	100%	0.36	92.81%	0.34	0.03
69	Fire extinguishers	1880000140	0.18	100%	0.18	92.81%	0.17	0.01
70	4 Chairs for AOCC room	5000006000	0.00	100%	0.00	92.81%	0.00	0.00
71	Chairs for various depatrments	5000006020	0.00	100%	0.00	92.81%	0.00	0.00
72	Chairs for various depatrments	5000006040	0.00	100%	0.00	92.81%	0.00	0.00
73	Chairs for MDS meeting room	5000006050	0.01	100%	0.01	92.81%	0.01	0.00
74	Chairs for IT dept and Police Aid Post	5000006060	0.00	100%	0.00	92.81%	0.00	0.00
75	Dining chairs for Immigration	5000006070	0.00	100%	0.00	92.81%	0.00	0.00
76	Chairs Executive-Customs Cargo	5000006090	0.00	100%	0.00	92.81%	0.00	0.00
77	CHAIRs	5000006110	0.01	100%	0.01	92.81%	0.01	0.00
78	CHAIRs	5000006120	0.00	100%	0.00	92.81%	0.00	0.00
79	CHAIRs	5000006130	0.01	100%	0.01	92.81%	0.01	0.00
80	CHAIRs	5000006140	0.01	100%	0.01	92.81%	0.01	0.00
81	CHAIRs	5000006150	0.00	100%	0.00	92.81%	0.00	0.00
82	CHAIRs	5000006160	0.00	100%	0.00	92.81%	0.00	0.00
83	CHAIRs	5000006170	0.00	100%	0.00	92.81%	0.00	0.00
84	Chairs for SOCC and MI room	5000006200	0.00	100%	0.00	92.81%	0.00	0.00
85	Spider Tool	5000006280	0.00	100%	0.00	92.81%	0.00	0.00

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86	CHAIRs & Tables for APHO	5000006300	0.00	100%	0.00	92.81%	0.00	0.00
	Total		6.24		6.24		5.85	0.39

Note: Differences are due to rounding off the capex numbers

6.2.7. Assets for Commercial Activities:

- **Details of Asset:** Assets at Commercial Areas like Food Court, or Retail Spaces
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** It was observed that there are certain assets including furniture and appliances that are either used by the Commercial Department or at areas like Food Court and other retail spaces were classified as either Aeronautical or Common. Such assets have been reclassified as Non-Aeronautical.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from Aeronautical or Common to Non-Aeronautical reduces RAB to the extent of **INR 2.81 Cr.**

Table 11: Re-allocated Assets Related to Commercial Activities

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	T3 Food Court Interior Works	1200002110	1.47	92.81%	1.37	0.00%	0.00	1.37
2	SITC of LED lights 2.7 MWp-solar carport	1580000160	0.29	100%	0.29	0.00%	0.00	0.29
3	T1: Table & Chairs for the Food court	5070004350	0.23	92.81%	0.22	0.00%	0.00	0.22
4	open cell ceiling for Trade Fair and exhibition Ce	1200002280	0.23	100%	0.23	0.00%	0.00	0.23
5	Food Court Furniture: One Side Fixed Seating 28NOS	5070003440	0.05	92.81%	0.04	0.00%	0.00	0.04
6	T1: Furniture for KFC	5070004340	0.05	92.81%	0.04	0.00%	0.00	0.04
7	Supply of 6 KVA UPS IN Trade Fair Centre, CIAL	1660000450	0.02	100%	0.02	0.00%	0.00	0.02
8	T1: Food court table top	5010002470	0.02	92.81%	0.02	0.00%	0.00	0.02
9	T1: light fittings for KFC	1580000215	0.02	92.81%	0.02	0.00%	0.00	0.02
10	Food Court Furniture: Booth Seating 1- Dim: 1200*52	5070003470	0.02	92.81%	0.02	0.00%	0.00	0.02
11	Food Court Furniture: Chair- 2synthetic(26Nos)	5070003480	0.01	92.81%	0.01	0.00%	0.00	0.01
12	Food Court Furniture: Table 2- Dim: 1200x750x750(10)	5070003460	0.01	92.81%	0.01	0.00%	0.00	0.01
13	SITC of illuminated signboard at solar carport	1500002100	0.01	92.81%	0.01	0.00%	0.00	0.01
14	5 nos Chairs for prepaid taxi Counter	5000005470	0.00	92.81%	0.00	0.00%	0.00	0.00
15	Dressing Table for Trade Fair centre	5070002760	0.00	92.81%	0.00	0.00%	0.00	0.00
16	WIP IT West Block Vishal 2nd floor Guest rooms & H	1200000720	0.00	100%	0.00	0.00%	0.00	0.00
17	Interior Works in Guest Rooms of IT central block	1200001240	0.00	100%	0.00	0.00%	0.00	0.00
18	Interlocking Paver Tiles in CIAL Academy Premises	1400000410	0.48	100%	0.48	0.00%	0.00	0.48
19	9 NOS Supply - Split AC - 1.5TR for guest room	1530001020	0.03	100%	0.03	0.00%	0.00	0.03
20	Air Conditioner for Guest house at TVM	1530000900	0.00	100%	0.00	0.00%	0.00	0.00
21	phone handset & connection for Guest Room	1750000400	0.00	100%	0.00	0.00%	0.00	0.00
22	2TR free standing split type A/C units at CIALS	1530001260	0.02	100%	0.02	0.00%	0.00	0.02
23	Furniture for Civil department at CIAL Academy	5070004820	0.00	100%	0.00	0.00%	0.00	0.00
	Total		2.95		2.81		0.0	2.81

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

Note: Differences are due to rounding off the capex numbers

6.2.8. Assets at MD's Office and Other Administrative Offices:

- **Details of Asset:** Assets including interior works, furniture and other devices at MD's Office and other administrative offices
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** Certain assets in the MD's office were found to be classified as Aeronautical. CIAL had bifurcated the operational expenses related to the MD's office into Aeronautical and Non-Aeronautical since the office is responsible for all activities at the airport. Hence the assets at this office must also be considered as Common. Such assets were bifurcated in the Employee Ratio (Aeronautical to Non-Aeronautical).
- **Allocation proposed by the Authority:** Common (Employee)
- **Impact:** Reclassifying these asserts from Aeronautical to Common reduces RAB to the extent of **INR 0.09 Cr.**

Table 12: Re-allocated Assets at MD's Office and Other Administrative Offices

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	LCD Projector	3000000070	0.08	100.00%	0.08	95.60%	0.08	0.00
2	T3 Biometric Attendance Monitoring System	1700001160	0.08	100.00%	0.08	95.60%	0.08	0.00
3	SITC of projector at main conference hall and for	3000000050	0.07	100.00%	0.07	95.60%	0.07	0.00
4	Sound system for conference room	1700001490	0.04	100.00%	0.04	95.60%	0.04	0.00
5	Banquet Chairs 150 NOS (Main Conference Hall)	5000004960	0.03	92.81%	0.02	95.60%	0.03	0.00
6	Electrification of Head Office	1500002040	0.03	100.00%	0.03	95.60%	0.02	0.00
7	55" display panels for the main conferenc (3 Nos)	1580000090	0.02	100.00%	0.02	95.60%	0.02	0.00
8	Mobile phone for ED	1750000700	0.02	100.00%	0.02	95.60%	0.02	0.00
9	Photocopier:M315N SHARP MFD for MDs office	3010000150	0.02	100.00%	0.02	95.60%	0.02	0.00
10	PHOTOCOPIER-RICOH MP 2011SP (HR dept)	3010000100	0.02	92.81%	0.01	95.60%	0.02	0.00
11	Mobile phone for MDO	1750000650	0.01	100.00%	0.01	95.60%	0.01	0.00
12	TQW 201 office chair (32 Nos)	5000005000	0.01	92.81%	0.01	95.60%	0.01	0.00
13	Armed chair-MD's office 4 Nos	5000005670	0.01	92.81%	0.01	95.60%	0.01	0.00
14	Apple MacBook Air Laptops (Abdul Zalam)	4010000600	0.01	92.81%	0.01	95.60%	0.01	0.00
15	Apple MacBook Air Laptops (Satheesh Pai)	4010000610	0.01	92.81%	0.01	95.60%	0.01	0.00
16	Apple Laptop for DGM Santhosh S	4010000560	0.01	92.81%	0.01	95.60%	0.01	0.00
17	Apple Laptop for DGM Jessy paul	4010000570	0.01	92.81%	0.01	95.60%	0.01	0.00
18	Apple Laptop for DGM Rajendran	4010000580	0.01	92.81%	0.01	95.60%	0.01	0.00
19	Apple Laptop for DGM Jacob t Abraham	4010000590	0.01	92.81%	0.01	95.60%	0.01	0.00
20	SITC of 1 no 4.5 T verticool A/Cs for MDs cabin	1530001080	0.01	100.00%	0.01	95.60%	0.01	0.00
21	I Phone for MD	1750000590	0.01	100.00%	0.01	95.60%	0.01	0.00
22	Samsung Galaxy Note 8	1750000600	0.01	100.00%	0.01	95.60%	0.01	0.00
23	Furniture for MD's office and PRO	5070004310	0.01	92.81%	0.01	95.60%	0.01	0.00
24	20 HIGH BACK CHAIR For T3 Conference room	5000005360	0.01	92.81%	0.01	95.60%	0.01	0.00
25	I Phone 7	1750000360	0.01	100.00%	0.01	95.60%	0.01	0.00
26	10 Nos Highback Chair MDs office	5000005390	0.01	92.81%	0.01	95.60%	0.01	0.00
27	20 Nos SIP Mobile Phones	1750000660	0.01	100.00%	0.01	95.60%	0.01	0.00
28	Mobile C XT1755	1750000420	0.01	100.00%	0.01	95.60%	0.01	0.00
29	Photocopier:AR 6020 N SHARP MFD for Finance Dep	3010000140	0.00	100.00%	0.00	95.60%	0.00	0.00

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

30	Photocopier:AR 6020 N SHARP MFD for Commercial Dep	3010000120	0.00	100.00%	0.00	95.60%	0.00	0.00
31	Photocopier:AR 6020 N SHARP MFD for Security Dep	3010000130	0.00	100.00%	0.00	95.60%	0.00	0.00
32	GODREJ VISITORS CHAIR PCH 7003: Elect dept (6)	5000004490	0.00	92.81%	0.00	95.60%	0.00	0.00
33	Samsung Galaxy Tab S2 for CFO	1750000270	0.00	100.00%	0.00	95.60%	0.00	0.00
34	TQW 301 office chair (14 Nos)	5000004970	0.00	92.81%	0.00	95.60%	0.00	0.00
35	6 NosVisitors chair-Featherlite MD office	5000005380	0.00	92.81%	0.00	95.60%	0.00	0.00
36	Conference Table@ T3	5070004080	0.00	92.81%	0.00	95.60%	0.00	0.00
37	Mobile Moto E4 XT1760	1750000410	0.00	100.00%	0.00	95.60%	0.00	0.00
38	T1:Office table	5070004480	0.00	92.81%	0.00	95.60%	0.00	0.00
39	GODREJ EX CHAIR PCH 7001: Electrical dept (2)	5000004480	0.00	92.81%	0.00	95.60%	0.00	0.00
40	Conference Table for HR Meeting Room	5070004070	0.00	92.81%	0.00	95.60%	0.00	0.00
41	Sub Asset IDC T3 Biometric Attendance Monitoring	1700001161	0.00	100.00%	0.00	95.60%	0.00	0.00
42	TQW 101 OFFICE CHAIR (6Nos0	5000004990	0.00	92.81%	0.00	95.60%	0.00	0.00
43	HIGH BACK EXECUTIVE CHAIR for HR Meeting Room 8NOS	5000005330	0.00	92.81%	0.00	95.60%	0.00	0.00
44	2 NOS GODREJ SLIMLINE ALMIRAH (Md's office)	5060002020	0.00	92.81%	0.00	95.60%	0.00	0.00
45	Apple-tablet-IPAD WIFI 32GB GOLD	1750000390	0.00	100.00%	0.00	95.60%	0.00	0.00
46	Chairs for ED's Room at T3 (6 Nos)	5000004940	0.00	92.81%	0.00	95.60%	0.00	0.00
47	Samsung Galaxy Mobile A5 6 model handset	1750000570	0.00	100.00%	0.00	95.60%	0.00	0.00
48	PAPER SHREDDER-Paper Monster Operations dept	3030002440	0.00	100.00%	0.00	95.60%	0.00	0.00
49	GODREJ LEOMA CHAIR WITH HEADREST for ED(Engg).	5000005480	0.00	92.81%	0.00	95.60%	0.00	0.00
50	Executive Chair for DGM Civil GODREJ LEOMA CHAIR	5000005510	0.00	92.81%	0.00	95.60%	0.00	0.00
51	GODREJ LEOMA CHAIR WITH HEADREST Satheesh Pai	5000005540	0.00	92.81%	0.00	95.60%	0.00	0.00
52	GODREJ LEOMA CHAIR WITH HEADREST forDGM(Ele).)	5000005490	0.00	92.81%	0.00	95.60%	0.00	0.00
53	Hi Back chair AGM (IT) BOSQ 1 Nos	5000005440	0.00	92.81%	0.00	95.60%	0.00	0.00
54	PAPER SHREDDER-For Head office	3030002880	0.00	100.00%	0.00	95.60%	0.00	0.00
55	Chairs for ED's Room at T3 (2 Nos)	5000004930	0.00	92.81%	0.00	95.60%	0.00	0.00
56	Mobile Phone Nokia 3310 3 Nos	1750000670	0.00	100.00%	0.00	95.60%	0.00	0.00
57	HIGH BACK EXECUTIVE CHAIR- Featherlite: Finance	5000004420	0.00	92.81%	0.00	95.60%	0.00	0.00
58	HIGH BACK EXECUTIVE CHAIR- Featherlite: Finance	5000004430	0.00	92.81%	0.00	95.60%	0.00	0.00
59	HIGH BACK EXECUTIVE CHAIR- Featherlite	5000004440	0.00	92.81%	0.00	95.60%	0.00	0.00
60	HIGH BACK EXECUTIVE CHAIR- Featherlite	5000004450	0.00	92.81%	0.00	95.60%	0.00	0.00
61	TQW 301 office chair (3Nos)	5000004980	0.00	92.81%	0.00	95.60%	0.00	0.00
62	EXECUTIVE CHAIR-Featherlite for MD's off	5000005500	0.00	92.81%	0.00	95.60%	0.00	0.00
63	EXECUTIVE CHAIR-Featherlite for MD's off	5000005590	0.00	92.81%	0.00	95.60%	0.00	0.00
64	EXECUTIVE CHAIR-Featherlite for MD's off	5000005680	0.00	92.81%	0.00	95.60%	0.00	0.00
65	Mobile Phone	1750000310	0.00	100.00%	0.00	95.60%	0.00	0.00
66	FAX-HP Deskjet 4675 (MD's office) 4510000696	4020000620	0.00	92.81%	0.00	95.60%	0.00	0.00
67	FAX-HP Deskjet 4675 (Head office) 4510000696	4020000630	0.00	92.81%	0.00	95.60%	0.00	0.00
68	VISITORS CHAIR ARMED- Featherlite:Finance dept	5000004380	0.00	92.81%	0.00	95.60%	0.00	0.00
69	VISITORS CHAIR ARMED- Featherlite:Finance dept	5000004390	0.00	92.81%	0.00	95.60%	0.00	0.00
70	VISITORS CHAIR ARMED- Featherlite:Finance dept	5000004400	0.00	92.81%	0.00	95.60%	0.00	0.00
71	VISITORS CHAIR ARMED- Featherlite:Finance dept	5000004410	0.00	92.81%	0.00	95.60%	0.00	0.00
72	VISITORS CHAIR ARMED-Featherlite	5000004460	0.00	92.81%	0.00	95.60%	0.00	0.00
73	VISITORS CHAIR ARMED-Featherlite	5000004470	0.00	92.81%	0.00	95.60%	0.00	0.00
74	HIGH BACK EXECUTIVE CHAIR- BOSQ TQT 201 for Dy Comm	5000005620	0.00	92.81%	0.00	95.60%	0.00	0.00
75	Mobile Phone NOKIA 105 Dual (2 nos)	1750000300	0.00	100.00%	0.00	95.60%	0.00	0.00
76	Mobile Phone Samsung Metro 350	1750000340	0.00	100.00%	0.00	95.60%	0.00	0.00

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77	Mobile Phone Nokia 105 MD Driver	1750000630	0.00	100.00%	0.00	95.60%	0.00	0.00
78	Mobile Phone Samsung GT B351	1750000640	0.00	100.00%	0.00	95.60%	0.00	0.00
79	Mobile Phone	1750000320	0.00	100.00%	0.00	95.60%	0.00	0.00
80	Mobile Phone	1750000330	0.00	100.00%	0.00	95.60%	0.00	0.00
81	Interior works MD's office,meeting room&other area	1200002340	1.27	100.00%	1.27	95.60%	1.21	0.06
82	camera for MD's conference room	1520001430	0.01	100.00%	0.01	95.60%	0.01	0.00
83	AC and Fire Alarm for the CIAL Office Area Modifi	1530001220	0.01	100.00%	0.01	95.60%	0.01	0.00
84	LED fittings for MD's office and associated area	1580000260	0.01	100.00%	0.01	95.60%	0.01	0.00
85	Supply of speakers for MD's Meeting room	1700002640	0.00	100.00%	0.00	95.60%	0.00	0.00
86	Video conferencing M.D office	1700002710	0.03	100.00%	0.03	95.60%	0.03	0.00
87	Mobile Phone	1750000290	0.01	100.00%	0.01	95.60%	0.01	0.00
88	Mobile phones	1750000750	0.00	100.00%	0.00	95.60%	0.00	0.00
89	Mobile phones	1750000760	0.00	100.00%	0.00	95.60%	0.00	0.00
90	Supply of Cordless Telephone	1760000050	0.00	100.00%	0.00	95.60%	0.00	0.00
91	PHOTOCOPIER-RICOH MP 2011SP	3010000110	0.00	92.81%	0.00	95.60%	0.00	0.00
92	PAPER SHREDDER-Paper Monster L-220CC for MDO	3030002960	0.00	100.00%	0.00	95.60%	0.00	0.00
93	Lamination equipment	3030003010	0.00	100.00%	0.00	95.60%	0.00	0.00
94	Apple MacBook Air Laptop and accessories for PRO	4010000620	0.01	100.00%	0.01	95.60%	0.01	0.00
95	HP Laser Jet Pro 6970 for MDs office-(Fax)	4020000910	0.00	100.00%	0.00	95.60%	0.00	0.00
96	Heavy Duty Printer for Terminal 3 pass office	4020000930	0.01	100.00%	0.01	95.60%	0.01	0.00
97	Conference Table MDs Meeting Room	5010002530	0.01	100.00%	0.01	95.60%	0.01	0.00
98	Executive table for Civil department	5010002540	0.01	100.00%	0.01	95.60%	0.01	0.00
99	Visitors chair for MD's office	5070004720	0.00	100.00%	0.00	95.60%	0.00	0.00
	Total		1.98		1.96		1.87	0.09

Note: Differences are due to rounding off the capex numbers

6.2.9. Duty-Free and Golf Course Assets:

- **Details of Asset:** Assets of Duty-Free, Duty-Free Warehouse and Golf Course
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Some assets procured for the Duty Free, the Duty-Free Warehouse and the Golf Course & Country Club were incorrectly classified as either Aeronautical or Common. Such line items have been identified and reclassified as Non-Aeronautical since Duty Free and Golf Course are Non-Aeronautical ventures.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from either Aeronautical or Common to Non-Aeronautical reduces RAB to the extent of **INR 1.37 Cr.**

Table 13: Re-allocated Assets of Duty Free and Golf Course

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	Retail Management software for Duty free	4050000540	0.34	100.00%	0.34	0.00%	0.00	0.34
2	DFS POS Licences	4050000520	0.07	100.00%	0.07	0.00%	0.00	0.07
3	Gondolas for Duty Free	5070004560	0.07	92.81%	0.07	0.00%	0.00	0.07
4	2 Nos TORO Time Cutters for Golf	1700001530	0.07	100.00%	0.07	0.00%	0.00	0.07
5	Illumiated signage to advertise dutyfree promotion	1500002260	0.05	92.81%	0.05	0.00%	0.00	0.05
6	SITC of Hand Held Computer devices for Duty Free	4040001030	0.04	92.81%	0.04	0.00%	0.00	0.04
7	2 Nos Power pallet Truck for Duty Free Warehouse	1780000120	0.03	100.00%	0.03	0.00%	0.00	0.03
8	Weed cutter (Golf)	1700001500	0.01	100.00%	0.01	0.00%	0.00	0.01

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9	Roto Slasher for CGCC	1640000980	0.01	100.00%	0.01	0.00%	0.00	0.01
10	MS Windows Server 2016-License for Duty free	4050000430	0.00	100.00%	0.00	0.00%	0.00	0.00
11	Price Gun	3030002940	0.00	100.00%	0.00	0.00%	0.00	0.00
12	PHOTOCOPIER-Sharp- AR 6020 N Duty Free 1 NOS	4020000770	0.00	92.81%	0.00	0.00%	0.00	0.00
13	PHOTOCOPIER-Sharp- AR 6020 N Duty Free 1 NOS	4020000780	0.00	92.81%	0.00	0.00%	0.00	0.00
14	RMS:Microsoft Office Business OEM 2016(Duty free)	4050000440	0.00	100.00%	0.00	0.00%	0.00	0.00
15	submersible pump for CGC	1850000330	0.00	100.00%	0.00	0.00%	0.00	0.00
16	15 Price Gun DFS	3030002950	0.00	100.00%	0.00	0.00%	0.00	0.00
17	Furnishing Guestroom CGCC Mattress & Pillow	5070004320	0.00	92.81%	0.00	0.00%	0.00	0.00
18	COMPUTER TABLE-CDRSL 18 NOS	5010002370	0.00	92.81%	0.00	0.00%	0.00	0.00
19	Chairs for DFS staff dining room : 10 nos.(Dream C	5000005020	0.00	92.81%	0.00	0.00%	0.00	0.00
20	Golf Entry & exit Roads	1400000449	0.43	100.00%	0.43	0.00%	0.00	0.43
21	Commercial Treadmill for CGC 2NOS	1640000990	0.02	100.00%	0.02	0.00%	0.00	0.02
22	Hegde Trimmer for CGC	1640001000	0.00	100.00%	0.00	0.00%	0.00	0.00
23	Green aerator and dethatcher for CGC	1640001010	0.03	100.00%	0.03	0.00%	0.00	0.03
24	Plastic Pallets cargo-131 & DFS -50 nos	1780000130	0.02	100.00%	0.02	0.00%	0.00	0.02
25	Plastic Pallets	1780000140	0.01	100.00%	0.01	0.00%	0.00	0.01
26	submersible pump for CGC	1850000380	0.08	100.00%	0.08	0.00%	0.00	0.08
27	Banknote Processing System BPS C1 for DFS	3030002970	0.03	100.00%	0.03	0.00%	0.00	0.03
28	MS SQL Std 2016 RMS Duty Free	4050000570	0.01	100.00%	0.01	0.00%	0.00	0.01
29	Chairs for CIAL Golf Club	5000006030	0.00	100.00%	0.00	0.00%	0.00	0.00
30	Office Tables for CIAL Golf Club	5010002510	0.00	100.00%	0.00	0.00%	0.00	0.00
31	Furniture for CASO and JM-CDRSL	5070004630	0.01	100.00%	0.01	0.00%	0.00	0.01
32	FRP fishing canoe for CGC	6000000970	0.00	100.00%	0.00	0.00%	0.00	0.00
	Total		1.38		1.37		0.0	1.37

Note: Differences are due to rounding off the capex numbers

6.2.10. Passenger Handling and Flight Information Systems:

- **Details of Asset:** Equipment and software for passenger handling
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** Certain Flight Information Systems, Q Managers, and Immigration Counters were classified as Common. However, this is believed to be a mistake as these are related to passenger handling and must therefore be considered Aeronautical. Hence these assets have been reclassified as Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Reclassifying these assets from Common to Aeronautical increases the RAB to the extent of **INR 0.59 Cr.**

Table 14: Re-allocated Assets for Passenger Handling and Flight Information Systems

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	T1: DSITC OF CUPPS, CUSS &BRS	1700002460	3.82	92.81%	3.55	100.00%	3.82	-0.27
2	T1 : Flight Information Display Systems	1700002561	1.30	92.81%	1.21	100.00%	1.30	-0.09

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3	Q Managers for New International terminal	5070003280	0.11	92.81%	0.10	100.00%	0.11	-0.01
4	T1: Q Managers for T1	5030001050	0.09	92.81%	0.08	100.00%	0.09	-0.01
5	Immigration Counters	12000019820	2.87	92.81%	2.66	100.00%	2.87	-0.21
6	Counter chairs for Immigration	5000006210	0.01	92.81%	0.01	100.00%	0.01	0.00
	Total		8.20		7.61		8.20	(0.59)

Note: Differences are due to rounding off the capex numbers

6.2.11. Airport Security:

- **Details of Asset:** Assets for CISF
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** It was observed that certain assets procured for CISF and for airport security related activities were classified as Common. Since airport security is an Aeronautical matter, these assets must be treated similarly and hence, have been reclassified to Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Reclassifying these assets from Common to Aeronautical increases RAB to the extent of **INR 0.13 Cr.**

Table 15: Re-allocated Assets for Airport Security

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	T1: Re-Check Station Unit 6 nos	1930000210	1.22	92.81%	1.13	100.00%	1.22	-0.09
2	18 nos of personal computer for cist	4040001050	0.09	92.81%	0.08	100.00%	0.09	-0.01
3	50 Nos of Cubboards/Almirah for CISF	5060001810	0.05	92.81%	0.04	100.00%	0.05	0.00
4	Almirah for CISF	5060002010	0.04	92.81%	0.03	100.00%	0.04	0.00
5	T1: 50NOS Hand Held Metal Detectors	1920000050	0.03	92.81%	0.03	100.00%	0.03	0.00
6	CupBoard/Almirah for CISF (34 NOS)	5060001780	0.03	92.81%	0.03	100.00%	0.03	0.00
7	Kitchen Equipments for CISF from Hio Class Furnitu	5070004180	0.03	92.81%	0.03	100.00%	0.03	0.00
8	32NOS Almirah for CISF	5060002100	0.03	92.81%	0.03	100.00%	0.03	0.00
9	Iron Cots for CISF (50NOS)	5070004040	0.03	92.81%	0.02	100.00%	0.03	0.00
10	Iron Cots for CISF (50NOS)	5070004050	0.03	92.81%	0.02	100.00%	0.03	0.00
11	Iron Cots for CISF 50 NOS	5070003590	0.02	92.81%	0.02	100.00%	0.02	0.00
12	Iron Cots for CISF (50NOS)	5070004300	0.02	92.81%	0.02	100.00%	0.02	0.00
13	24NOS Almirah for CISF	5060002070	0.02	92.81%	0.02	100.00%	0.02	0.00
14	16NOS Almirah for CISF	5060002060	0.01	92.81%	0.01	100.00%	0.01	0.00
15	16NOS Almirah for CISF	5060002120	0.01	92.81%	0.01	100.00%	0.01	0.00
16	T:Chairs -CISF counter	5000005750	0.01	92.81%	0.01	100.00%	0.01	0.00
17	Iron Cots for CISF 25 nos	5070004090	0.01	92.81%	0.01	100.00%	0.01	0.00
18	25 Nos Iron Cots for CISF	5070004190	0.01	92.81%	0.01	100.00%	0.01	0.00
19	Almirah for CISF (8 NOS)	5060001800	0.01	92.81%	0.01	100.00%	0.01	0.00
20	8 noS Almirah for CISF	5060002090	0.01	92.81%	0.01	100.00%	0.01	0.00
21	Incumbency board for CISF	5060001990	0.01	92.81%	0.01	100.00%	0.01	0.00
22	SITC of 1 no of Desktop PC (AC CISF)	4000000640	0.01	92.81%	0.00	100.00%	0.01	0.00
23	48 NOS Almirah for CISF	5060002030	0.00	92.81%	0.00	100.00%	0.00	0.00
24	18 Nos Chair for CISF	5000005460	0.00	92.81%	0.00	100.00%	0.00	0.00
25	4 Nos of Cubboards/Almirah for CISF	5060002130	0.00	92.81%	0.00	100.00%	0.00	0.00
26	Folding Cot	5060002000	0.00	92.81%	0.00	100.00%	0.00	0.00
27	Almirah for CISF (5 NOS)	5060001790	0.00	92.81%	0.00	100.00%	0.00	0.00
28	10 Chairs for CISF-ATC office	5000005530	0.00	92.81%	0.00	100.00%	0.00	0.00
29	75 NOS Plastic chairs-Supreme Armless CISF	5000005370	0.00	92.81%	0.00	100.00%	0.00	0.00
30	Table for CISF at ATC office 5NOS	5010002290	0.00	92.81%	0.00	100.00%	0.00	0.00

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31	9 Nos Chairs CISF for New operational Gate House	5000005350	0.00	92.81%	0.00	100.00%	0.00	0.00
32	7 Chairs for CISF	5000005410	0.00	92.81%	0.00	100.00%	0.00	0.00
33	02NOS Almirah for CISF	5060002080	0.00	92.81%	0.00	100.00%	0.00	0.00
34	02NOS Almirah for CISF	5060002110	0.00	92.81%	0.00	100.00%	0.00	0.00
35	10NOS Wall Fans in Security Huts operational area	1500002240	0.00	92.81%	0.00	100.00%	0.00	0.00
36	3tables at vehicle entry pass gate CISF	5010002400	0.00	92.81%	0.00	100.00%	0.00	0.00
37	Office TABLE for CISF(3 nos)	5010002010	0.00	92.81%	0.00	100.00%	0.00	0.00
38	chairs for BCAS officer 3 NOS	5000005720	0.00	92.81%	0.00	100.00%	0.00	0.00
39	COMPUTER TABLE for CISF(3 nos)	5010002030	0.00	92.81%	0.00	100.00%	0.00	0.00
40	CISF at vehicle entry gate ATC	5010002300	0.00	92.81%	0.00	100.00%	0.00	0.00
41	OFFICE TABLE for BCAS officer	5010002390	0.00	92.81%	0.00	100.00%	0.00	0.00
42	COMPUTER TABLE for CISF(2 nos)	5010002000	0.00	92.81%	0.00	100.00%	0.00	0.00
43	Office TABLE for CISF(1 nos)	5010002020	0.00	92.81%	0.00	100.00%	0.00	0.00
44	Almirahs for CISF 50 NOS	5060002230	0.03	92.81%	0.03	100.00%	0.03	0.00
	Total		1.81		1.68		1.81	(0.13)

Note: Differences are due to rounding off the capex numbers

6.2.12. Speed boats:

- **Details of Asset:** 6-seater speed boats
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** It is understood from the airport operator that this asset is being used by the Fire Department for flood emergency situations. Based on which, the asset has been classified as Aeronautical.
- **Allocation proposed by the Authority:** Aeronautical
- **Impact:** Nil.

6.2.13. Butterfly Canteen:

- **Details of Asset:** Assets at the Butterfly Canteen in front of T3
- **Allocation proposed by CIAL:** Aeronautical / Common
- **Issue:** The Butterfly canteen outside the Terminal 3 building is a commercial space, hence the assets related to the same must be treated as Non-Aeronautical. Some of these assets were classified by CIAL as Aeronautical and some others were considered Common. The classification for such assets has been revised to Non-Aeronautical.
- **Allocation proposed by the Authority:** Non-Aeronautical
- **Impact:** Reclassifying these assets from either Aeronautical or Common to Non-Aeronautical reduces the RAB to the extent of **INR 5.1 Cr.**

Table 16: Re-allocated Assets for Butterfly Canteen

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	Butterfly canteen in front of T3	1200002070	5.13	92.81%	4.76	0.00%	0.00	4.76
2	PMC on Butterfly canteen in front of T3	1200002071	0.21	92.81%	0.20	0.00%	0.00	0.20
3	Butterfly canteen Ceiling	1200002072	0.07	92.81%	0.07	0.00%	0.00	0.07
4	ITC of exhaust fans for butterfly canteen and assets	1510000240	0.03	100%	0.03	0.00%	0.00	0.03

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5	Chairs for Butterfly Canteen : 100 nos.(Luminal BI	5000005030	0.01	92.81%	0.01	0.00%	0.00	0.01
6	Tables for Butterfly Canteen:15 nos.Zyca Table Top	5010002050	0.01	92.81%	0.01	0.00%	0.00	0.01
7	Kitchen Exhaust Fan- CFM 10350 Butterfly Canteen	1510000220	0.01	100%	0.01	0.00%	0.00	0.01
8	Kitchen Exhaust Fan- CFM 9250 Butterfly Canteen	1510000210	0.01	100%	0.01	0.00%	0.00	0.01
9	Slotted Angle racks for Butterfly Canteen	5070003290	0.01	92.81%	0.01	0.00%	0.00	0.01
10	Kitchen Exhaust Fan- CFM 2650 Butterfly Canteen	1510000230	0.00	100%	0.00	0.00%	0.00	0.00
11	Almirah for Butterfly Canteen	5060001770	0.00	92.81%	0.00	0.00%	0.00	0.00
12	Office Table for Butterfly Canteen	5010001980	0.00	92.81%	0.00	0.00%	0.00	0.00
13	Computer Table for Butterfly Canteen	5010001990	0.00	92.81%	0.00	0.00%	0.00	0.00
	Total		5.49		5.10		0.0	5.10

Note: Differences are due to rounding off the capex numbers

6.2.14. Vehicles:

- **Details of Asset:** Vehicles
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** CIAL has considered all vehicles as Aeronautical. The classification of these assets should be dependent upon the specific usage. However, in the absence of the details regarding the exact usage (for aeronautical or general purposes) of some of these assets, they have been reclassified as Common and bifurcated in the employee ratio.
- **Allocation proposed by the Authority:** Common (Employee)
- **Impact:** Reclassifying these assets from either Aeronautical to Non-Aeronautical reduces the RAB to the extent of **INR 0.05 Cr.**

Table 17: Re-allocated Vehicles

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (INR Cr.)	Allocation Ratio as per CIAL (%)	Aero Gross Addition as per CIAL (INR Cr.)	Allocation Ratio (%)	Revised Aero Gross Addition (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	Toyoto Innova Crysta	6000000800	0.00	100%	0.00	95.60%	0.00	0.00
2	Mahindra Scorpio	6000000540	0.10	100%	0.10	95.60%	0.10	0.00
3	Zallys M9 electric Tow Tractor	6010000040	0.10	100%	0.10	95.60%	0.09	0.00
4	Maruti Brezza VDI (O) White color	6000000600	0.09	100%	0.09	95.60%	0.09	0.00
5	Maruti Brezza VDI (O) White color	6000000610	0.09	100%	0.09	95.60%	0.09	0.00
6	Tow vehicle	6000000850	0.09	100%	0.09	95.60%	0.08	0.00
7	Ecosport 1.5 D Ambident Diamond White	6000000570	0.08	100%	0.08	95.60%	0.08	0.00
8	Mahindra Electric car E20 Plus P4	6000000700	0.08	100%	0.08	95.60%	0.08	0.00
9	TATA XENON CC UTILITY HV/AC ENGINE-4SPTC	6000000880	0.08	100%	0.08	95.60%	0.07	0.00
10	Tractor for Civil	6000000550	0.06	100%	0.06	95.60%	0.06	0.00
11	Maruti Gypsy ST (Euro-IV)	6000000580	0.06	100%	0.06	95.60%	0.06	0.00
12	Maruti Gypsy ST (Euro-IV)	6000000590	0.06	100%	0.06	95.60%	0.06	0.00
13	Maruti EECO Vehicle(White color)Non A/	6000000560	0.04	100%	0.04	95.60%	0.04	0.00
14	Innova Crysta 24L Z7-White Pearl Crystal	6000000930	0.27	100%	0.27	95.60%	0.26	0.01
	Total		1.21		1.21		1.16	0.05

Note: Differences are due to rounding off the capex numbers

6.2.15. Summary of Reclassifications from FY 17 to FY 20:

The summary of reclassifications made between FY 17 and FY 20 is as given in the table below:

Table 18: Summary of reclassification from FY 17 to FY 20

Reclassified Assets from FY 17 to FY 20	Reference to Section in Report	INR Cr.
Airport Security	6.2.11	0.13
Assets for Commercial Activities	6.2.7	(2.81)
Butterfly canteen	6.2.13	(5.10)
Common Assets at MD's Office	6.2.8	(0.09)
Common Terminal Assets	6.2.6	(0.39)
Duty Free & Golf Course	6.2.9	(1.37)
IT Assets	6.2.5	(0.11)
Passenger Handling	6.2.10	0.59
Terminal Building Works	6.2.1	(0.41)
Vehicles	6.2.14	(0.05)
Total adjustments to RAB (from FY 17 to FY 20) <i>(on the basis of asset reclassification, without considering the impact of revised terminal ratio)</i>		(9.61)

6.3. Asset allocation assessment and reclassification for forecasted additions (FY 21):

- **Details of Asset:** Assets forecasted to be capitalised in FY 2021
- **Allocation proposed by CIAL:** Aeronautical
- **Issue:** Certain assets, including UV-C systems and IT Assets, that are projected to be capitalised in FY 2021, have been re-allocated based on the same principles specified above and the analysis of the information available
- **Allocation proposed by the Authority:** Common / Non-aeronautical
- **Impact:** Reclassifying these assets reduces the RAB to the extent of **INR 0.72 Cr.**

Table 19: Re-allocated Assets Forecasted for FY 2021

Sl. No.	Asset	Unique Asset Number	Gross Addition as per CIAL (FY 21) (INR Cr.)	Allocation Ratio for FY 21 as per CIAL (%)	Aero Gross Addition as per CIAL (FY 21) (INR Cr.)	Allocation Ratio for FY 21 (%)	Revised Aero Gross Addition (FY 21) (INR Cr.)	Impact (INR Cr)
			A	B	C = A*B	D	E = A*D	F = C - E
1	Access control & Attendance management System	-	2.24	100.00%	2.24	96.10%	2.15	0.09
2	UV-C Systems - T1 & T3	-	2.50	100.00%	2.50	92.81%	2.32	0.18
3	Biometric Access Control System for AEP	-	0.39	100.00%	0.39	96.10%	0.37	0.02
4	CIAL quarters at Thuravumkara	-	0.31	100.00%	0.31	96.10%	0.30	0.01
5	Information Displays	-	1.00	100.00%	1.00	92.81%	0.93	0.07
6	UPS Systems	-	0.20	100.00%	0.20	96.10%	0.19	0.01

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7	Redundant cabling System	-	0.58	100.00%	0.58	92.81%	0.54	0.04
8	Local Area Networking	-	0.30	100.00%	0.30	92.81%	0.28	0.02
9	Video Conferencing systems	-	1.00	100.00%	1.00	96.10%	0.96	0.04
10	Presentation Systems	-	0.10	100.00%	0.10	0.00%	0.00	0.10
11	Commercial RO water plant	-	0.75	100.00%	0.75	92.81%	0.70	0.05
12	Additional Access platforms	-	0.70	100.00%	0.70	92.81%	0.65	0.05
13	Fire Alarm system in terminals and ancillary buildings	-	0.50	100.00%	0.50	92.81%	0.46	0.04
	Total		10.57		10.57		9.85	0.72

6.4. Total impact of asset reclassification:

6.4.1. The total impact of asset reclassification, including the assets capitalised between FY 17 to FY 20 and assets proposed to be capitalised in FY 21, on Aeronautical capital additions is INR 10.33 Cr, as given in the table below:

Impact of reclassification	Reference	INR Cr.
Reclassification of assets capitalised from FY 17 to FY 20	Section 6.2.15	9.61
Reclassification of assets proposed to be capitalised in FY 21	Section 6.3	0.72
Total Impact of reclassification		10.33

6.5. Summary

6.5.1. Accordingly, the adjustments to Aeronautical Capital Additions to those proposed by the airport operator are as follows:

Table 20: Proposed Adjustments to Aeronautical Asset Base Additions in 2nd CP

Fixed Asset Adjustment	Reference to Section in Report	INR Cr.
Aeronautical Additions in 2nd CP as per CIAL (Excluding FA)		1,847.1
Adjustments to RAB		
Exclusion of Assets Capitalised in 2016		(3.17)
		1,843.9
Airport Security	6.2.11	0.13
Assets for Commercial Activities	6.2.7	(2.81)
Butterfly canteen	6.2.13	(5.10)
Common Assets at MD's Office	6.2.8	(0.09)
Common Terminal Assets	6.2.6	(0.39)
Duty Free & Golf Course	6.2.9	(1.37)
IT Assets	6.2.5	(0.11)
Passenger Handling	6.2.10	0.59
Terminal Building Works	6.2.1	(0.41)
Vehicles	6.2.14	(0.05)
Reallocation of Forecasted Assets in 2021	6.3	(0.72)

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Total adjustments to RAB (for the 2nd CP) <i>(on the basis of asset reclassification and exclusion of some expenses from RAB, without considering the impact of revised terminal ratio)</i>		(13.47)
Revised additions to Aeronautical Gross Block in 2nd CP		1,833.60

6.5.2. The next section discusses the assessment of terminal allocation ratio (i.e., the ratio based on areas allocated for Aeronautical and Non-Aeronautical activities in the terminal). Based on which, the impact of change in terminal allocation ratio has been applied on common areas in the aeronautical gross block in the second control period.

7. ALLOCATION OF TERMINAL AREA INTO AERONAUTICAL AND NON-AERONAUTICAL

7.1. Terminal allocation submitted by CIAL

7.1.1. As per CIAL's submission, based on the technical report by KITCO, following are the areas for the Aeronautical and Non-Aeronautical spaces in respective terminals

Table 21: Terminal area allocation given by CIAL

International Passenger Terminal		
Total Terminal Area	146528	sqm
Total Non-Aero Area	9201	sqm
Total Aero Area	137328	sqm
Non-Aero % in International Passenger Terminal	6.28	%
Domestic Passenger Terminal		
Total Terminal Area	74123	sqm
Total Non-Aero Area	6671	sqm
Total Aero Area	67452	sqm
Non-Aero % in Domestic Passenger Terminal	9.00	%
Combined Passenger Terminal Area of Domestic & International		
Combined Non-Aero Area	15872	sqm
Combined Aero Area	204780	sqm
Combined Non-Aero % of Terminals in CIAL	7.19	%

7.2. Observations on CIAL's submission

7.2.1. The airport operator had provided the maps where areas pertaining to Non-Aeronautical spaces are highlighted and certificate by the technical consultant on the area utilized for Non-Aeronautical services/ activities. However, it's not possible to re-compute the areas for each of the spaces against offices/ utilities/ circulation/ retail/ etc. using the maps provided.

7.2.2. One key observation in the terminal area allocation based on the maps available was that the common area has not been allocated into Aero and Non-Aero (as against the AERA's direction – 9.2.4 of the Tariff Order for the 2nd Control Period) and has been considered as Aeronautical only. This has been observed for both the terminals.

7.2.3. Therefore, it was concluded that the actual utilization of airport terminal towards Non-Aeronautical spaces is higher than the numbers provided based on technical study report.

7.2.4. Hence, the airport operator was requested for break-up of areas and principles followed for the allocation of various areas into Aeronautical and Non-Aeronautical to assess the allocation of terminal areas towards Aero, Non-Aero and Common based on the allocation principles considered by the Authority

7.3. Authority's assessment of terminal area allocated for Aeronautical and Non-Aeronautical activities

7.3.1. General principles for reclassification

- Item-wise areas have been looked at and reclassified based on the actual usage of respective areas as per the details provided by the airport operator into Aeronautical, Non-Aeronautical and Common.
- Common areas have been allocated into two sub-categories – Common and Common (Employee). Common areas which are to be allocated in the employee ratio have been classified as Common (Employee) and the Common areas which are to be allocated in the terminal ratio have been classified as Common.

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- Subsequently, the Common areas have been allocated in the ratio of Aeronautical and Non-Aeronautical (determined based on the ratio of assets which are exclusively Aeronautical and exclusively Non-Aeronautical including the area allocated for Common-Employee).

7.3.2. Based on the above, for the Domestic Terminal, the following table details out the area proposed by CIAL and reclassification considered by the Authority into Aeronautical, Non-Aeronautical and Common areas:

Table 22: Terminal area allocation - Domestic

S.N.	Domestic Terminal Spaces	Area* (SQ. M.)	Allocation as per CIAL	Revised Allocation	% Aeronautical
I	AMENITIES	2815.75			
	Medical room -Ground floor	60.30	Aero	Aero	100%
	Facilitation counters - Ground floor	47.24	Aero	Aero	100%
	Mishandled baggage -Ground floor	40.50	Aero	Aero	100%
	Toilets and other areas -Ground floor	930.31	Aero	Aero	100%
	CIP room area - Ground floor	68.74	Aero	Aero	100%
	VIP room - Ground floor	155.72	Aero	Aero	100%
	VIP arrival lounge - Ground floor	111.16	Aero	Aero	100%
	Meditation room -First floor	13.87	Aero	Aero	100%
	Medical room - First floor	15.78	Aero	Aero	100%
	VIP Lounge - First floor	67.84	Aero	Aero	100%
	VIP room - First floor	53.70	Aero	Aero	100%
	Toilet and other areas - First floor	814.27	Aero	Aero	100%
	Smokers room and other Amenities - Second floor	436.33	Aero	Aero	100%
II	BHS	6154.88			
	Baggage Handling area - Ground floor	6154.88	Aero	Aero	100%
III	CIRCULATION	18127.64			
	Circulation Area - Ground floor	6048.47	Aero	Aero	100%
	Circulation Area - First floor	9841.22	Aero	Aero	100%
	Circulation Area - second floor	1788.51	Aero	Aero	100%
	Aero Bridges circulation First floor	449.44	Aero	Aero	100%
	Total				
IV	OFFICE	918.23			
	Terminal manager - Ground floor	95.01	Aero	Aero	100%
	BHS Office spaces -Ground floor	117.02	Aero	Aero	100%
	L2, L4 Rooms and security rooms -Ground floor	190.72	Aero	Aero	100%
	Deputy commissioner - First floor	28.30	Aero	Aero	100%
	Ground handling area - First floor	487.17	Aero	Aero	100%
	Total	918.23			
V	PROCESS	11542.43			
	Area of Departure entry check points - Ground floor	318.10	Aero	Aero	100%
	Space for farewellers - Ground floor	51.02	Aero	Common	
	Check in hall - Ground floor	1804.06	Aero	Aero	100%
	Remote gates - Ground floor	365.80	Aero	Aero	100%
	Area of baggage claim units - Ground floor	1699.05	Aero	Aero	100%
	Visitor Forecourt - Ground floor	2168.34	Aero	Common	
	Staff screening/X-rays - Ground floor	578.19	Aero	Aero	100%
	Area of the gate holds-First floor	2044.82	Aero	Aero	100%
	Area of Equipment change	28.46	Aero	Aero	100%
	Area for security screening process - First floor	1088.35	Aero	Aero	100%
	Canopy area - Ground floor	1396.25	Aero	Common	
VI	RETAIL	6671.37			
	Food and beverages (Ground floor)	438.80	Non-Aero	Non-Aero	0%
	Snack bars -ground floor	57.30	Non-Aero	Non-Aero	0%
	Retail Area - Arrival Hall	98.80	Non-Aero	Non-Aero	0%
	Prepaid taxi and counters	58.50	Non-Aero	Non-Aero	0%
	Bank and counter - Ground floor	36.39	Non-Aero	Non-Aero	0%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

S.N.	Domestic Terminal Spaces	Area* (SQ. M.)	Allocation as per CIAL	Revised Allocation	% Aeronautical
	Income tax office - Ground floor	16.15	Non-Aero	Non-Aero	0%
	Retail area (shops- Ground floor)	171.06	Non-Aero	Non-Aero	0%
	Retail area (shops) near canopy Ground floor	179.54	Non-Aero	Non-Aero	0%
	Food and beverages (First floor)	288.00	Non-Aero	Non-Aero	0%
	Retail area (shops -First floor)	1362.61	Non-Aero	Non-Aero	0%
	Food and beverages (Second floor)	1544.97	Non-Aero	Non-Aero	0%
	Airline front office spaces - Ground floor	123.35	Non-Aero	Aero	100%
	Airline back office spaces - Ground floor	970.60	Non-Aero	Aero	100%
	Airline office spaces - First floor	1081.28	Non-Aero	Aero	100%
	Guest rooms - retail area T1	244.01	Non-Aero	Non-Aero	0%
VII	SERVICES	4985.50			
	services -Ground floor	723.27	Aero	Common	
	services -First floor	809.82	Aero	Common	
	services - Second floor	2552.41	Aero	Common	
	Substation	400.00	Aero	Common	
	AC plant	500.00	Aero	Common	
VIII	COVERED AREA	4699.60			
	Canopy area City Side - Ground floor	2806.89	Aero	Common	
	Porch area City Side - Ground floor	198.74	Aero	Common	
	Covered area Air Side - Ground floor	1249.49	Aero	Aero	100%
	Remote Bay corridor Air Side - Ground floor	444.48	Aero	Aero	100%
IX	CIAL ADMIN AREA	5664.91			
	CIAL Admin Area - First Floor	3742.37	Aero	Common (Employee)	96.10%
	CIAL Admin Area - Second floor	1178.98	Aero	Common (Employee)	96.10%
	Admin Office area +12.60mvl- T1	495.71	Aero	Common (Employee)	96.10%
	Guest rooms - For Admin use	247.85	Aero	Common (Employee)	96.10%
X	Existing Aero Area	1636.23			
	Terminal Area Expansion (Behind Central Block)	286.38	Aero	Common	
	Terminal Area (Old viewers gallery)	1349.85	Aero	Non-Aero	0%
Sum (I:X)	Total area of T1	63216.54			
	Existing Aero area T2 (Ground Floor)	7759.55	Aero	Aero	100%
	Circulation Area T2 (First Floor)	1174.31	Aero	Aero	100%
	Covered area-City side Ground Floor T2	837.68	Aero	Common	
	Covered area-Air side Ground Floor T2	1134.86	Aero	Aero	100%
		10906.40			
	TOTAL TERMINAL AREA	74122.9			
	Aeronautical Area (Exclusive)	49881.2			
	Non-Aeronautical Area (Exclusive)	5846.0			
	Common (Employee)	5664.9			
	Common	12730.8			
(A)	Aeronautical Area including Common (Employee)	55325.2		90.12%	
(B)	Non-Aeronautical Area including Common (Employee)	6066.9		9.88%	
(C)	Aeronautical Area including Common, Common (Employee)	66797.9		90.12%	

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

S.N.	Domestic Terminal Spaces	Area* (SQ. M.)	Allocation as per CIAL	Revised Allocation	% Aeronautical
(D)	Non-Aeronautical Area including Common, Common (Employee)	7325.0		9.88%	

Note: The ratio of areas for Aeronautical and Non-Aeronautical (post allocating the Common (Employee) area in the ratio of employees between Aeronautical and Non-Aeronautical) has been considered as the ratio for Common, i.e., (A) and (B) – 90.12% towards Aeronautical and 9.88% towards Non-Aeronautical.

*Numbers are based on item-wise area provided by CIAL proportionated for area figures as per the drawings by technical consultants.

7.3.3. Based on the above reclassification, following areas have been observed for each of the Aeronautical, Non-Aeronautical and Common categories

Table 23: Category-wise area utilized for Domestic Terminal

Classification	Items/ Areas included	Area (Sq.m.)	% Aero	Formula	Aero Area (Sq.m.)	Non-Aero Area (Sq.m.)
Non-Aero Area (Exclusive)	Retail Areas including Food Courts, Bank Counters and Guest Rooms	5,846	0%	A		5,846
Aero Area (Exclusive)	Air side, BHS, Security, Boarding, Check-In, Customs, GH, Medical, Transfers, VIP Lounges etc.	49,881	100%	B	49,881	
Common Area (Employee)	CIAL Admin Area, Admin Office Area etc.	5,665	96.1%	C	5,444	221
Non-Aero Area	D	6,067	0%	A + C		6,067
Aero Area	E	55,325	100%	B + C	55,325	
Aero + Non-Aero Area	F	61,392	90.12%	D + E	55,325	6,067
Common Area	Visitors and Farewellers, Service, CIAL Admin, Smokers, Common City Side & Terminal Areas	12,731	90.12%	G	11,473	1,258
Total Area		74,123		F + G	66,798	7,325

Table 24: Revised Domestic terminal area allocation as per study

Domestic Passenger Terminal		
Total Terminal Area	74123	sqm
Total Non-Aero Area	7325	sqm
Total Aero Area	66798	sqm
Non-Aero % in Domestic Passenger Terminal	9.88	%

7.3.4. Similarly, for the International Terminal, the following table details out the area proposed by CIAL and reclassification considered by the Authority into Aeronautical, Non-Aeronautical and Common areas.

Table 25: Terminal area allocation - International

S.N.	International Terminal Spaces	Area* (SQ. M.)	Allocation as per CIAL	Revised Allocation	% Aeronautical
I	Process Area	30482.33			
	Area for Departure Entry Check Points	474.71	Aero	Aero	100%
	Visitor area	456.05	Aero	Common	
	Check- in - Hall	1909.34	Aero	Aero	100%
	Area for Departure Emigration Central	1444.32	Aero	Aero	100%
	Area Requirement for Security Screening process	2539.58	Aero	Aero	100%
	Area for security hold gate	1553.97	Aero	Aero	100%
	Remote gates	1154.85	Aero	Aero	100%
	Transfers	371.25	Aero	Aero	100%
	Area for Arrival Immigration control	1906.25	Aero	Aero	100%
	Total area for Baggage claim units	5747.99	Aero	Aero	100%
	Customs checking area	812.71	Aero	Aero	100%
	Farewellers area	2247.49	Aero	Common	

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

S.N.	International Terminal Spaces	Area* (SQ. M.)	Allocation as per CIAL	Revised Allocation	% Aeronautical
	Arrival Kerb	5852.47	Aero	Common	
	Remote Arrival	206.45	Aero	Aero	100%
	Kerb area +10.60	3804.88	Aero	Common	
II	BHS	16740.70			
	Mishandled Baggage	67.24	Aero	Aero	100%
	Confiscated Baggage	66.21	Aero	Aero	100%
	Security Baggage Facilitation Officer	82.44	Aero	Aero	100%
	BMA Area	7420.07	Aero	Aero	100%
	BHS @ +5.55BHS @ +5.55(Conveyors Baggage handles	4256.39	Aero	Aero	100%
	Check-in Counters (BHS) at +10.65m Lvl	1616.24	Aero	Aero	100%
	BBA area	3232.10	Aero	Aero	100%
III	Offices	5442.81			
	At 0.15m lvl				
	Office area near connecting corridor 0.15m lvl (House Keeping/ AEP)	141.16	Aero	Common	
	AIU/Customs/AC Room/Toilet- area (near BBA area)	349.38	Aero	Aero	100%
	AOCC / Conference Room	422.43	Aero	Aero	100%
	Provision for office of stakeholders Near (Electrical area)	146.76	Aero	Excluded	-
	At 5.55m lvl				100%
	Admin/AIU/Record/Meeting/Toilet area (customs)	260.85	Aero	Aero	100%
	Baggage control Room	35.51	Aero	Aero	100%
	SHIFT in charge/Baggage Security in Charge/Level 2A office Level/ 2 B Office B	245.49		Aero	100%
	Provision for office of stakeholders	1763.49	Aero	Excluded	-
	BHS control Room/BHS Store	67.01	Aero	Aero	100%
	Customs / Offices	61.37	Aero	Aero	100%
	APHO/Duty Doctor/ Health Check area	64.62	Aero	Aero	100%
	APIS/Computer Lab	61.24	Aero	Aero	100%
	AD/Duty Technical Details Room	64.30	Aero	Aero	100%
	Refusal/Duty Officer/ AFRRO	58.44	Aero	Aero	100%
	At 10.65m lvl				100%
	Health Quarantine/Nurses Rm + 10.60 m Lvl	78.35	Aero	Aero	100%
	PRO RM/Admin Office/AFFRO	207.33	Aero	Aero	100%
	CIAL Office	95.83	Aero	Common (Employee)	96.1%
	CIAL Business Room	52.83	Aero	Common (Employee)	96.1%
	At 15.15m lvl				
	Cityside rooms / Offices for stakeholders	284.25	Aero	Aero	100%
	GH agency Office	30.48	Aero	Aero	100%
	GH agency Office	31.11	Aero	Aero	100%
	GH agency offices	190.56	Aero	Aero	100%
	Airside office area for Stakeholders	730.02	Aero	Aero	100%
	Total area	5442.81			
IV	Retail Area	9200.53			
	Mobile Cabins	18.17	Non-Aero	Non-Aero	0%
	Bank near customs counter	49.10	Non-Aero	Non-Aero	0%
	Forex at +0.15	30.97	Non-Aero	Non-Aero	0%
	Duty Free area @ +0.15m lvl	2343.84	Non-Aero	Non-Aero	0%
	Duty Free Shop @+10.60	687.98	Non-Aero	Non-Aero	0%
	Total Shops area @ +10.60	516.61	Non-Aero	Non-Aero	0%
	F & B 1,2,3, & 4 & 5	99.30	Non-Aero	Non-Aero	0%
	Spa	53.02	Non-Aero	Non-Aero	0%
	Commercial Space @=10.60	51.98	Non-Aero	Non-Aero	0%
	Bank near Emigration	45.18	Non-Aero	Non-Aero	0%
	Restaurants @ =15.15m Lvl	3049.41	Non-Aero	Non-Aero	0%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

S.N.	International Terminal Spaces	Area* (SQ. M.)	Allocation as per CIAL	Revised Allocation	% Aeronautical
	Duty Free Store at +10.60	29.66	Non-Aero	Non-Aero	0%
	Airline Offices @ +10.6m Lvl	817.54	Non-Aero	Aero	100%
	Airline Offices @ Dining +15.15m ²	385.66	Non-Aero	Aero	100%
	Airline Offices + 15.15m ²	1022.10	Non-Aero	Aero	100%
	Total area	9200.53			
V	Covered Area	20780.07			
	Canopy area at +0.15 - City Side	7280.35	Aero	Common	
	Canopy area at +0.15 - Air Side	6663.22	Aero	Aero	100%
	Canopy area at +10.65 - Air Side	6836.50	Aero	Aero	100%
	Total area	20780.07			
VI	Service area	16165.63			
	Service Building	3020.75	Aero	Common	
	Other service areas in T3	16165.63	Aero	Common	
VII	Amenity area	4697.95			
	VIP, CIP lounges	210.73	Aero	Aero	100%
	Other Amenity Areas in T3	4487.22	Aero	Aero	100%
VIII	Circulation area	39997.69			
	Steel Stair	70.45	Aero	Aero	100%
	Entry Staf/ Exit	114.73	Aero	Aero	100%
	Escalator Area	648.64	Aero	Aero	100%
	F & B / Lift Area	267.06	Aero	Non-Aero	0%
	Steel Stair	26.63	Aero	Aero	100%
	Stair @ 0.15	82.80	Aero	Aero	100%
	Escalator & Stair Area	125.49	Aero	Aero	100%
	Passage	96.98	Aero	Aero	100%
	Stair	108.50	Aero	Aero	100%
	Stair & Passage @ +5.550	192.09	Aero	Aero	100%
	Stair	301.64	Aero	Aero	100%
	Stair	70.11	Aero	Aero	100%
	Circulation @ Pier area of +10.60m LVI	9070.70	Aero	Common	
	Ramps	2797.72	Aero	Aero	100%
	FLB	1879.01	Aero	Aero	100%
	Stair /OOG lift	141.01	Aero	Aero	100%
	Pier 10.6m	7253.25	Aero	Aero	100%
	Terminal area	2975.22	Aero	Common	
	Terminal	8015.06	Aero	Common	
	Provision for Extra Island at check-in Area at +10.65M lvi	5643.54	Aero	Aero	100%
	Passage Remote Departure	117.03	Aero	Aero	100%
Sum (I:VII I)	Total T3 Area	146528.46			
	Aeronautical Area	78197.5			
	Non-Aeronautical Area	7242.3			
	Common (Employee)	148.7			
	Common	59029.8			
	Excluded**	1910.2			
(A)	Aeronautical Area including Common (Employee)	78340.4		91.53%	
(B)	Non-Aeronautical Area including Common (Employee)	7248.1		8.47%	
(C)	Aeronautical Area including Common (Employee), Common	132,371.1		91.53%	
(D)	Non-Aeronautical Area including Common (Employee), Common	12,247.1		8.47%	

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

Note: The ratio of areas for Aeronautical and Non-Aeronautical (post allocating the Common (Employee) area in the ratio of employees between Aeronautical and Non-Aeronautical) has been considered as the ratio for Common, i.e., (A) and (B) – 91.53% for the Aeronautical and 8.47% for the Non-Aeronautical.

*Numbers are based on item-wise area provided by CIAL proportionated for area figures as per the drawing by technical consultants.

** Based on the information provided by the airport operator, it is understood that these are spaces created to address the terminal operational space requirements in the future, basically in the nature of buffer area, which will help the airport to bring flexibility in the terminal in the subsequent years of terminal plan horizon. Hence, these areas have been excluded for the computation of terminal area ratios.

7.3.5. Allocation of various areas for the International Terminal are as follows:

Table 26: Category-wise area utilized for International Terminal

Classification	Items/ Areas included	Area (Sq.m.)	% Aero	Formula	Aero Area (Sq.m.)	Non-Aero Area (Sq.m.)
Non-Aero Area - Exclusive	F&B Lift Area and Retail Areas including Duty Free Shop, Restaurants, Spa and Forex Counters	7,242	0%	A		7,242
Aero Area – Exclusive	BHS, Emigration, Security, Boarding, Check-In, Customs, GH, Medical, Transfers, VIP Lounges etc.	78,198	100%	B	78,198	
Common Area (Employee)	CIAL Office, CIAL Business Room etc.	149	96.1%	C	143	6
Non-Aero Area	D	7,248	0%	A + C		7,248
Aero Area	E	78,340	100%	B + C	78,340	
Aero + Non-Aero Area	F	85,588	91.53%	D + E	78,340	7,248
Common Area	Common Circulation Spaces, Visitor and City Side Areas, Common Offices, Service Areas etc.	59,030	91.53%	G	54,030	5,000
Total Area Considered		144,618		F+G	132,371	12,247
Excluded Area	Provision of area for future use	1,910	-	H	-	-

Table 27: Revised International terminal area allocation as per study

International Passenger Terminal		
Total Terminal Area	146528	sqm
Total Non-Aero Area	12247	sqm
Total Aero Area	132371	sqm
Excluded Area	1910	sqm
Non-Aero % in International Passenger Terminal	8.47	%

7.4. Conclusion

7.4.1. Based on the assessment of the actual utilization of terminal areas for CIAL, it has been found that an average of 8.94% of total terminal area is utilized for non-aeronautical activities/ services.

Table 28: Revised terminal area allocation as per study

International Passenger Terminal		
Total Terminal Area	146528	sqm
Excluded Area	1910	sqm
Total Non-Aero Area	12247	sqm
Total Aero Area	132371	sqm
Non-Aero % in International Passenger Terminal	8.47	%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

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

8. IMPACT ON THE AERONAUTICAL GROSS BLOCK DUE TO REVISED TERMINAL ALLOCATION RATIO

8.1. Additions to the RAB (post adjustments based on reclassification of assets)

8.1.1. As discussed in Section 6, the revised Addition to Gross Block, after reclassification of assets, during the second control period is INR 1833.6 Cr.

8.2. Adjustments due to revised terminal allocation ratio

8.2.1. As discussed in Section 7, the terminal allocation ratio was assessed and found to be 8.94% as against 7.19% used by the airport operator. Based on the revised ratio, the aeronautical addition for the second control period was recomputed as given below.

Table 29: Impact of Revision of Terminal Allocation Ratio

Fixed Asset Adjustment	INR Cr.
Revised Aeronautical Additions in 2nd CP (based on the reclassifications in Section 6.5) (Excluding FA)	1,833.6 (Refer Table 20)
Total Assets Additions in 2 nd CP Classified as Common by CIAL	967.0
Total Assets Additions in 2 nd CP Classified as Common as per Study (Common includes assets – to be segregated based on Employee ratio, Terminal ratio and Car Park and Internal Roads divided based on actual cost)	973.9
Terminal Allocation Ratio as per CIAL	7.19%
Revised Terminal Allocation Ratio as per Study	8.94%
Change in Terminal Allocation Ratio	1.75%
Impact of Revision of Terminal Allocation Ratio on Common Assets	(15.9)
Revised Addition to Aeronautical Gross Block in 2nd CP	1,817.7

8.3. Conclusion

8.3.1. Post reclassification of assets and revision of terminal allocation ratio used to bifurcate the Common Assets, the total addition to aeronautical gross block in the second control period is INR 1817.7 Cr against INR 1847.1 Cr proposed by the airport operator.

9. OVERALL SUMMARY OF THE STUDY

- For the second control period (including the FY 2021 projections), CIAL has undertaken a total investment in Gross Block of INR 1963.6 Cr. The investments include the development of aeronautical and non-aeronautical assets at the airport.
- Major investments during the second control period include Construction of New International Terminal T3 (INR 922.36 Cr.), other works including Modification of Terminal 1 (INR 312.11 Cr.), Apron Works (INR 172 Cr.), Runway Re-carpeting (Yet to be capitalised), Additional Parking Bays and other works (INR 165.81 Cr.) etc.
- Based on the principles laid out in Section 5 and given the reference to the broad classification approved by the Authority in the previous Tariff Order for CIAL and select tariff order for other airports, the allocation of the assets has been examined. The same has been done using the Fixed Asset Register for FY17 to FY20 and projections for FY21 along with the information collected from the airport operator during the site visit and follow-up discussions. Accordingly, reclassifications have been made wherever required.
- Of the total investment of INR 1963.6 Cr, CIAL has classified INR 1847.10 Cr (94.1%) as Aeronautical and the remaining, i.e., INR 116.5 Cr (5.9%) as Non-Aeronautical.
- It was observed that few assets worth INR 3.17 Cr that were capitalised in FY 2016 were wrongly considered as Aeronautical Additions in FY 2017 by the airport operator. These items have been excluded from the calculations.
- Further, there is proposed adjustment on account of reclassification of some assets. For instance, the major reduction is pertaining to Butterfly Canteen and related assets that were classified as either Aeronautical or Common by CIAL and have been reclassified as Non-Aeronautical (impact of INR 5.1 Cr), based on this study. As a result of all the reclassifications, this study has led to a reduction of INR 10.3 Cr in the Aeronautical additions to Gross Block.
- After reclassification and exclusion of the wrongly included items, the Aeronautical additions for the second control period are found to be INR 1833.6 Cr (93.4%) and Non-Aeronautical additions are found to be INR 130.0 Cr (6.6%).
- The Aeronautical and Non-Aeronautical additions consider a certain percentage of Common Assets, which is a function of terminal area ratio (ratio of terminal area allocated for the provision of aeronautical and non-aeronautical activities). The additions towards Common Assets (based on this study) are worth INR 907.0 Cr (total Common are INR 973.9 Cr, however of which INR 7.3 Cr Common assets are segregated based on employee ratio and INR 59.6¹ Cr is towards Car Park and internal roads which is divided based on the actual cost incurred for the two), which have been allocated to Aeronautical and Non-Aeronautical additions based on the terminal ratio of 7.19% (Non-Aeronautical areas as a percentage of total terminal area) by the airport operator.
- The airport operator had proposed 6.28% and 9.00% of terminal area for the provision of Non-Aeronautical services/ activities in International and Domestic terminals respectively, which is 7.19% of total terminal area. However, based on the assessment of actual area allocated towards the Non-Aeronautical activities, it is found that with the reclassification of areas, especially the ones which are recognized as 'Common' by AERA and were considered as Aeronautical by the airport operator, the actual area allocation percentage has changed and lies in the optimum range studied based on the recommendations of IATA and IMG norms for airport terminals. Accordingly, the actual allocation of area (in %) towards Non-Aeronautical activities, viz. **8.47% and 9.88% for the International and Domestic terminals respectively**, has been proposed for the purposes of the tariff determination. This changes the percentage of area allocated for Non-Aeronautical activities to 8.94% from 7.19% for the entire terminal area.

¹ The number has been computed using the FAR – asset acquisition cost and asset transfer

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

- For the second control period, the impact of revision in terminal allocation ratio for Common assets results in a reduction of INR 15.9 Cr. in the Aeronautical additions. Hence, post reclassification of assets and other adjustments made (such as due to change in terminal allocation ratio which is applied on common assets), the revised Aeronautical additions to the Gross Block are INR 1817.7 Cr (92.6%) and revised Non-Aeronautical additions are INR 145.9 Cr (7.4%).
- The summary of adjustments made to aeronautical gross block additions is as follows:

Table 30: Summary of Adjustments to Aeronautical Additions

	Particulars	Value (INR Cr.)
(A)	Proposed additions as per the CIAL for 2 nd CP	1847.1
(B)	Adjustments on account of corrections in additions	(3.17)
(C)	Adjustments on account of reclassification and corrections	(10.3)
(D) =(A) + (B) + (C)	Revised additions to Gross Block for 2 nd CP as per Section 6	1833.6
(E)	Impact on capital additions in 2 nd CP due to revised terminal allocation	(15.9)
(F) = (D) + (E)	Adjusted additions to gross block for 2nd CP after revision of terminal allocation ratio	1817.7

- Revised allocation of closing gross block for the 2nd control period after making necessary adjustments to usage and terminal allocation ratio is as given in the table below. The average (simple) percentage of Aero Gross Block for the second control period is 85.4%.

Table 31: Allocation of Gross Block

% Aero Gross Block	FY 17 <i>as on 31 Mar 2017</i>	FY 18 <i>as on 31 Mar 2018</i>	FY 19 <i>as on 31 Mar 2019</i>	FY 20 <i>as on 31 Mar 2020</i>	FY 21 <i>as on 31 Mar 2021</i>
Aeronautical Ratio as per CIAL	84.5%	84.5%	85.5%	85.8%	86.8%
Revised Aeronautical Ratio	83.6%	83.3%	84.3%	84.6%	85.7%
Impact on Aero Ratio	(0.9) %	(1.2) %	(1.2) %	(1.2) %	(1.1) %

Table 32: Allocation of Gross Block – category break-up

% Aero Gross Block	As on 31 March 2020	Projected as on 31 March 2021
Land	0%	0%
Buildings and Civil Works	86%	85%
Golf Course Development	0%	0%
Runways, Roads and Culverts	96%	97%
Plant and Equipment	92%	92%
Office Equipment	91%	91%
Computers and Accessories	95%	95%
Furniture and Fixtures	86%	86%
Vehicles	91%	91%
Software	92%	93%
Total	84.6%	85.7%

- The above reclassification of assets is applied across other preceding years of the 2nd control period. Correspondingly, the revised non-aeronautical to total gross block for FY17 is proposed as 16.4%, for FY18 is proposed as 16.7%, for FY19 is proposed as 15.7% and for FY20 is proposed as 15.4%. This non-aeronautical to gross block ratio is higher than that based on the submissions by CIAL at 15.5% for FY17, 15.5% for FY18, 14.5% for FY19 and 14.2% for FY20.

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

- While item-wise assessment was made, but it has not been possible to verify the project-wise expenses incurred, as such data and mapping (items to project) are not available with the airport operator. In this regard, the airport operator provided a CA certificate to validate the expenses of the completed projects; the same has been used to verify the submissions in the MYTP. There is an opportunity for the airport operator for improving the upkeep of the information required as per AERA in order to facilitate such reviews in future.
- **Conclusion:** Based on this study, the Aeronautical capital additions for the second control period are **INR 1817.7 Cr** (92.6%) and the Non-Aeronautical additions are **INR 145.9 Cr** (7.4%). **There has been a total reduction of approx. INR 29.4 Cr in the Aeronautical additions** as against the Aeronautical additions of INR 1847.1 Cr (refer Table 2) proposed by the airport operator. The average (simple) percentage of Aero Gross Block for the second control period is 84.3% and percentage of Aero Gross Block as on 31 Mar 2020 is 84.6% (refer Table 31).

10. GLOSSARY

Abbreviation	Full Form
AAI	Airports Authority of India
AC	Air Conditioning
ACFT	Air Crash Fire Tender
AEP	Aerodrome Entry Permit
AERA	Airports Economic Regulatory Authority of India
AFRRO	Assistant Foreign Regional Registration Office
APHO	Airport Health Organisation
APIS	Advance Passenger Information System
ARR	Aggregate Revenue Requirement
ATC	Air Traffic Control
ATM	Air Traffic Movement
AUCC	Airport User Consultative Committee
BHS	Baggage Handling System
BMA	Baggage Make-Up Area
BRS	Baggage Reconciliation System
CA	Chartered Accountant
CCTV	Closed Circuit Television
CIAL	Cochin International Airport Limited
CIP	Commercially Important Person
CISF	Central Industrial Security Force
CP	Control Period
CUPPS	Common User Passenger Processing System
CUSS	Common User Self Service
DGCA	Director General of Civil Aviation
DIAL	Delhi International Airport Limited
DPR	Detailed Project Report
DTP	Desktop Publishing
ERP	Enterprise Resource Planning
F&B	Food and Beverages
FA	Financing Allowance
FAR	Fixed Asset Register
FY	Financial Year
GH	Ground Handling
HVAC	Heating, Ventilation and Air Conditioning
IATA	International Air Transport Association
IMG	Inter-Ministerial Group
IT	Information Technology
LAN	Local Area Network
MD	Managing Director

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

MPPA	Million Passengers per Annum
MYTP	Multi-Year Tariff Proposal
NRI	Non-Resident Indian
NRK	Non-Resident Keralite
OMDA	Operations, Management and Development Agreement
OPEX	Operational Expenditure
PCN	Pavement Classification Number
PPP	Public, Private Partnership
RAB	Regulatory Asset Base
RFP	Request for Proposal
SSA	State Support Agreement
T2	Terminal 2
T3	Terminal 3
UAE	United Arab Emirates
VDGS	Visual Docking Guidance System
VIP	Very Important Person

EXHIBIT – 1: ASSETS COMMISSIONED BY CIAL IN 2ND CONTROL PERIOD AS PER FIXED ASSET REGISTER (FY17-FY20)

Unique Identifier	Asset Class	Capitalized on	Description	Useful Life	Acquisition Value	Classification as per CIAL	Revised Allocation	% Aeronautical
1200001970	Buildings & Civil Works	11/04/2016	Traffic sign Boards along Approach Road	10	1,836,541.66	Aeronautical	Aeronautical	100%
1200001980	Buildings & Civil Works	11/03/2017	T3 Building Terminal	60	196,466,987.58	Common	Common	91.06%
1200001981	Buildings & Civil Works	11/03/2017	Toilet partition & Door works	10	14,146,710.56	Common	Common	91.06%
1200001983	Buildings & Civil Works	11/03/2017	PMC customs & Immigration	10	1,150,990.73	Common	Common	91.06%
1200001984	Buildings & Civil Works	11/03/2017	STEEL WORK	60	342,318,968.05	Common	Common	91.06%
1200001985	Buildings & Civil Works	11/03/2017	SheraBoards	15	4,909,475.23	Common	Common	91.06%
1200001986	Buildings & Civil Works	11/03/2017	Sanitary Installation	10	32,555,996.35	Common	Common	91.06%
1200001987	Buildings & Civil Works	11/03/2017	ROOFING WORK	15	242,527,975.67	Common	Common	91.06%
1200001988	Buildings & Civil Works	11/03/2017	R.C.C. WORK	60	1,982,815,369.04	Common	Common	91.06%
1200001989	Buildings & Civil Works	11/03/2017	PMC- T3 Building	60	165,761,620.46	Common	Common	91.06%
1200001990	Buildings & Civil Works	11/03/2017	T3 Building 4 Service & Utility	60	51,331,625.20	Common	Common	91.06%
1200001992	Buildings & Civil Works	11/03/2017	Water Proofing	15	7,720,581.38	Common	Common	91.06%
1200001993	Buildings & Civil Works	11/03/2017	Steel Works	60	54,119,771.21	Common	Common	91.06%
1200001995	Buildings & Civil Works	11/03/2017	Roofing Works	15	8,351,368.08	Common	Common	91.06%
1200001996	Buildings & Civil Works	11/03/2017	RCC Works	60	138,827,707.21	Common	Common	91.06%
1200001997	Buildings & Civil Works	11/03/2017	Pile Works	60	3,815,762.27	Common	Common	91.06%
1200001998	Buildings & Civil Works	11/03/2017	Masonry Works	60	8,389,915.19	Common	Common	91.06%
1200001999	Buildings & Civil Works	11/03/2017	Joinery Works	60	2,310,374.37	Common	Common	91.06%
1200002000	Buildings & Civil Works	11/03/2017	Interior works in executive lounge & offices in T3	15	7,679,021.77	Non-Aeronautical	Non-Aeronautical	0%
1200002010	Buildings & Civil Works	01/04/2016	INDAS Grant Reinstated Assets 2016-APEDA	52	23,818,585.82	Excluded	Excluded	0%
1200002011	Buildings & Civil Works	01/04/2016	INDAS Grant Reinstated Assets 2016-APEDA	55	7,544,833.43	Excluded	Excluded	0%
1200002020	Buildings & Civil Works	01/04/2016	INDAS Grant Reinstated Assets 2016-GOK	50	60,417,061.58	Excluded	Excluded	0%
1200002021	Buildings & Civil Works	01/04/2016	INDAS Grant Reinstated Assets 2016-GOK	51	25,331,760.95	Excluded	Excluded	0%
1200002070	Buildings & Civil Works	01/04/2017	Butterfly canteen in front of T3	60	51,316,950.88	Common	Non-Aeronautical	0%
1200002071	Buildings & Civil Works	01/04/2017	PMC on Butterfly canteen in front of T3	60	2,125,693.29	Common	Non-Aeronautical	0%
1200002080	Buildings & Civil Works	01/04/2017	Rest room in front of T3	60	4,392,543.67	Common	Common	91.06%
1200002090	Buildings & Civil Works	01/04/2017	Toll plaza T3	60	17,570,174.74	Common	Common	91.06%
1200002100	Buildings & Civil Works	29/06/2017	Connecting corridor between T3 & Domestic Terminal	60	22,919,998.32	Aeronautical	Aeronautical	100%
1200002101	Buildings & Civil Works	29/06/2017	Flooring Works	15	3,278,362.64	Aeronautical	Common	91.06%
1200002102	Buildings & Civil Works	29/06/2017	Roofing Works	15	2,375,159.54	Aeronautical	Common	91.06%
1200002104	Buildings & Civil Works	29/06/2017	PMC-Connecting Corridor	60	1,071,000.00	Aeronautical	Aeronautical	100%
1200002110	Buildings & Civil Works	01/06/2017	T3 Food Court Interior Works	15	14,743,568.04	Common	Non-Aeronautical	0%
1200002120	Buildings & Civil Works	31/01/2018	GSE Building no 1 (2017-18)	60	31,489,682.38	Aeronautical	Aeronautical	100%
1200002121	Buildings & Civil Works	31/01/2018	PMC of GSE Building no 1 (2017-18)	60	1,620,843.37	Aeronautical	Aeronautical	100%
1200002122	Buildings & Civil Works	31/01/2018	Flooring-GSE Building no 2 (2017-18)	15	3,706,275.40	Aeronautical	Aeronautical	100%
1200002123	Buildings & Civil Works	31/01/2018	Roofing-GSE Building no 1 (2017-18)	15	2,998,269.59	Aeronautical	Aeronautical	100%
1200002126	Buildings & Civil Works	31/01/2018	Electrification-GSE Building no 1 (2017-18)	10	6,999,706.79	Aeronautical	Aeronautical	100%
1200002130	Buildings & Civil Works	31/01/2018	GSE Building no 2 (2017-18)	60	31,489,680.76	Aeronautical	Aeronautical	100%
1200002131	Buildings & Civil Works	31/01/2018	PMC of GSE Building no 2 (2017-18)	60	1,620,843.34	Aeronautical	Aeronautical	100%
1200002132	Buildings & Civil Works	31/01/2018	Flooring -GSE Building no 2 (2017-18)	15	3,706,275.25	Aeronautical	Aeronautical	100%
1200002133	Buildings & Civil Works	31/01/2018	Roofing GSE Building no 2 (2017-18)	15	2,998,269.63	Aeronautical	Aeronautical	100%
1200002136	Buildings & Civil Works	31/01/2018	Electrification-GSE Building no 2 (2017-18)	10	7,207,960.30	Aeronautical	Aeronautical	100%
1200002210	Buildings & Civil Works	17/04/2017	Entrance Gate at Athani	60	5,919,896.78	Aeronautical	Aeronautical	100%
1200002230	Buildings & Civil Works	01/04/2018	T3: Plumbing Works 2018-19	15	2,539,608.84	Common	Common	91.06%
1200002240	Buildings & Civil Works	19/12/2018	T1: Interior Refurbishment of T1	15	546,646,310.40	Common	Common	91.06%
1200002241	Buildings & Civil Works	19/12/2018	T1: Interior Refurbishment Flooring	15	129,348,953.16	Common	Common	91.06%
1200002242	Buildings & Civil Works	19/12/2018	T1: Interior Refurbishment Finishing	15	12,726,631.82	Common	Common	91.06%
1200002243	Buildings & Civil Works	19/12/2018	T1: Interior Refurbishment Water proofing	15	4,756,589.93	Common	Common	91.06%
1200002244	Buildings & Civil Works	19/12/2018	T1: Interior Refurbishment Sanitary Installation	10	16,651,904.68	Common	Common	91.06%
1200002245	Buildings & Civil Works	19/12/2018	T1: Interior Refurbishment PMC KITCO	15	37,751,648.81	Common	Common	91.06%
1200002246	Buildings & Civil Works	19/12/2018	T1: Interest Capitalized on T1 Borrowings	15	8,646,936.00	Common	Common	91.06%
1200002250	Buildings & Civil Works	19/12/2018	T1: Construction of Baggage Area	60	286,716,528.90	Aeronautical	Aeronautical	100%
1200002251	Buildings & Civil Works	19/12/2018	Flooring Work	15	27,772,687.09	Aeronautical	Common	91.06%
1200002252	Buildings & Civil Works	19/12/2018	Finishing Works	15	10,899,117.92	Common	Common	91.06%
1200002253	Buildings & Civil Works	19/12/2018	Waterproofing and Miscellaneous work	10	1,551,569.27	Common	Common	91.06%
1200002254	Buildings & Civil Works	19/12/2018	Sanitary Installation	15	4,175,049.92	Common	Common	91.06%
1200002255	Buildings & Civil Works	19/12/2018	T1: Interest Capitalized on T1 Borrowings	60	3,828,318.00	Common	Common	91.06%
1200002260	Buildings & Civil Works	19/12/2018	T1: Construction of Fixed Link Bridges	30	69,784,668.17	Aeronautical	Aeronautical	100%
1200002262	Buildings & Civil Works	19/12/2018	T1: Fixed Link Bridges Finishing works	15	2,750,943.11	Aeronautical	Aeronautical	100%
1200002263	Buildings & Civil Works	19/12/2018	T1: PMC for Fixed Link Bridge	30	2,698,404.29	Aeronautical	Aeronautical	100%
1200002270	Buildings & Civil Works	19/12/2018	T1: Facelift works for city side	15	74,727,504.45	Common	Common	91.06%
1200002271	Buildings & Civil Works	19/12/2018	T1: Facelift works for city side Flooring work	15	12,995,846.78	Common	Common	91.06%
1200002272	Buildings & Civil Works	19/12/2018	T1: Facelift works for city side Facade Work	20	12,873,522.97	Common	Common	91.06%
1200002273	Buildings & Civil Works	19/12/2018	T1: Facelift works for city side Finishing works	15	2,878,332.04	Common	Common	91.06%
1200002274	Buildings & Civil Works	19/12/2018	T1: PMC Facelift works for city side	15	3,732,696.29	Common	Common	91.06%
1200002275	Buildings & Civil Works	19/12/2018	T1: Interest Capitalized on T1 Borrowings	15	1,239,527.00	Common	Common	91.06%
1200002280	Buildings & Civil Works	20/04/2018	open cell ceiling for Trade Fair and exhibition Ce	15	2,301,483.38	Aeronautical	Non-Aeronautical	0%
1200002290	Buildings & Civil Works	15/12/2018	NAKA MORCHA	60	18,536,857.60	Aeronautical	Aeronautical	100%
1200002291	Buildings & Civil Works	15/12/2018	NAKA MORCHA Electrical Works	10	1,550,403.32	Aeronautical	Aeronautical	100%
1200002300	Buildings & Civil Works	01/12/2018	Civil Works for installation of Incinerator	60	8,245,872.69	Aeronautical	Aeronautical	100%
1200002310	Buildings & Civil Works	31/01/2019	Renovation of Old Radar Building	60	2,333,058.13	Aeronautical	Aeronautical	100%
1200002320	Buildings & Civil Works	21/03/2019	T1: Facelift works for AIRSIDE	15	11,518,306.78	Common	Common	91.06%
1200002321	Buildings & Civil Works	21/03/2019	T1: Facade Works (Airside Facelift)	20	9,467,536.41	Common	Common	91.06%
1200002330	Buildings & Civil Works	15/05/2019	Substation buildg Augmentation of 110KV Substation	60	15,323,075.52	Aeronautical	Aeronautical	100%
1200002340	Buildings & Civil Works	31/10/2019	Interior works MD's office, meeting room&other area	15	12,650,568.49	Aeronautical	Common (Employee)	95.60%
1200002350	Buildings & Civil Works	09/01/2020	Construct an Exten in Terminal building 4 Lifts	60	4,113,921.70	Aeronautical	Common	91.06%
1210000090	Buildings & Civil Works	01/04/2016	INDAS Grant Reinstated Assets 2016-SHM	21	14,135,455.77	Excluded	Excluded	0%
1220000100	Buildings & Civil Works	11/03/2017	Compound wall work connected with ILS-09	10	2,410,233.50	Aeronautical	Aeronautical	100%
1220000150	Buildings & Civil Works	11/03/2017	T3 Security Compound Wall	5	6,590,021.12	Aeronautical	Aeronautical	100%
1220000160	Buildings & Civil Works	01/04/2017	Providing fencing along approach road from Athani	5	1,541,761.32	Aeronautical	Aeronautical	100%
1220000170	Buildings & Civil Works	01/10/2017	Chain link fencing along the side of security surv	5	6,563,507.12	Aeronautical	Aeronautical	100%
1220000190	Buildings & Civil Works	30/10/2018	Compound wall around CIASL MRO premises	5	7,100,611.57	Aeronautical	Aeronautical	100%
1220000200	Buildings & Civil Works	30/09/2019	Reconstruction of compound wall near Fire-station	5	17,618,305.76	Aeronautical	Aeronautical	100%
1220000210	Buildings & Civil Works	01/09/2019	Reconstruction of compound wall -East side Hangar	5	8,798,322.10	Aeronautical	Aeronautical	100%
1220000220	Buildings & Civil Works	04/05/2019	Reconst.of compound-wall at southern side runway	5	16,576,146.38	Aeronautical	Aeronautical	100%
1220000230	Buildings & Civil Works	19/04/2019	Reconst.of compound-wall at west side of runway	5	5,072,865.15	Aeronautical	Aeronautical	100%
1220000240	Buildings & Civil Works	30/09/2019	Reconstr of compound wall at North side of runway	5	8,381,549.27	Aeronautical	Aeronautical	100%
1220000250	Buildings & Civil Works	01/01/2020	Reconstr of compound wall@ southern side of runway	5	4,669,719.69	Aeronautical	Aeronautical	100%
1230000000	Buildings & Civil Works	11/03/2017	Customs Kennel	30	5,159,660.91	Aeronautical	Aeronautical	100%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

Unique Identifier	Asset Class	Capitalized on	Description	Useful Life	Acquisition Value	Classification as per CIAL	Revised Allocation	% Aeronautical
12000019810	Buildings & Civil Works	11/03/2017	Plumbing Works	15	112,597,087.89	Common	Common	91.06%
12000019811	Buildings & Civil Works	11/03/2017	METAL FALSE CEILING WORK	20	335,869,379.68	Common	Common	91.06%
12000019812	Buildings & Civil Works	11/03/2017	PMC Metal false ceiling	20	13,646,969.78	Common	Common	91.06%
12000019813	Buildings & Civil Works	11/03/2017	Internal Water Supply	15	3,030,276.03	Common	Common	91.06%
12000019814	Buildings & Civil Works	11/03/2017	Interior works for Reserved Lounges	15	15,285,076.34	Non-Aeronautical	Non-Aeronautical	0%
12000019817	Buildings & Civil Works	11/03/2017	Interior Works	15	232,377,066.97	Common	Common	91.06%
12000019818	Buildings & Civil Works	11/03/2017	PMC Interior Works	15	9,417,178.75	Common	Common	91.06%
12000019819	Buildings & Civil Works	11/03/2017	INTERIOR GLASS PARTITION & DOORS	15	69,513,727.66	Common	Common	91.06%
12000019820	Buildings & Civil Works	11/03/2017	Immigration Counters	10	28,665,269.93	Common	Aeronautical	100%
12000019821	Buildings & Civil Works	11/03/2017	Hand Rails	20	26,548,721.66	Common	Common	91.06%
12000019822	Buildings & Civil Works	11/03/2017	PMC Hand rails	20	1,077,888.90	Common	Common	91.06%
12000019824	Buildings & Civil Works	11/03/2017	Flooring works	15	419,689,938.98	Common	Common	91.06%
12000019825	Buildings & Civil Works	11/03/2017	PMC Flooring	15	19,321,984.81	Common	Common	91.06%
12000019826	Buildings & Civil Works	11/03/2017	FINISHING WORK	15	49,960,150.66	Common	Common	91.06%
12000019827	Buildings & Civil Works	11/03/2017	EXTERIOR FACADE WORKS	20	415,996,950.33	Common	Common	91.06%
12000019828	Buildings & Civil Works	11/03/2017	PMC Facades	20	19,603,373.64	Common	Common	91.06%
12000019829	Buildings & Civil Works	11/03/2017	EARTHWORK	60	59,782,547.52	Common	Common	91.06%
12000019830	Buildings & Civil Works	11/03/2017	Duty Free Shop	15	22,304,199.05	Non-Aeronautical	Non-Aeronautical	0%
12000019831	Buildings & Civil Works	11/03/2017	Cladding & Finishing works	15	356,213,662.45	Common	Common	91.06%
12000019832	Buildings & Civil Works	11/03/2017	PMC Cladding & Finishing	15	14,514,018.37	Common	Common	91.06%
12000019833	Buildings & Civil Works	11/03/2017	WATER PROOFING	15	46,719,099.04	Common	Common	91.06%
12000019834	Buildings & Civil Works	11/03/2017	PILE WORK	60	19,096,496.20	Common	Common	91.06%
12000019835	Buildings & Civil Works	11/03/2017	MASONRY WORK	60	109,548,646.28	Common	Common	91.06%
12000019836	Buildings & Civil Works	11/03/2017	FLOORING WORK	15	28,884,938.97	Common	Common	91.06%
12000019837	Buildings & Civil Works	31/03/2017	CONCRETE WORK	60	30,371,735.90	Common	Common	91.06%
12000019838	Buildings & Civil Works	11/03/2017	Sub Asset IDC T3 Building Terminal	10	2,211,389.79	Common	Common	91.06%
12000019839	Buildings & Civil Works	11/03/2017	Sub Asset IDC T3 Building Terminal	15	40,496,921.10	Common	Common	91.06%
12000019840	Buildings & Civil Works	11/03/2017	Sub Asset IDC T3 Building Terminal	20	25,621,694.48	Common	Common	91.06%
12000019841	Buildings & Civil Works	11/03/2017	Sub Asset IDC T3 Building Terminal	60	103,676,876.10	Common	Common	91.06%
12000019910	Buildings & Civil Works	11/03/2017	Flooring Works	15	26,790,089.82	Common	Common	91.06%
12000019911	Buildings & Civil Works	11/03/2017	Finishing Works	15	4,990,293.42	Common	Common	91.06%
12000019912	Buildings & Civil Works	11/03/2017	Earth Works	60	25,497,714.13	Common	Common	91.06%
12000019913	Buildings & Civil Works	11/03/2017	Concrete Works	60	7,229,693.92	Common	Common	91.06%
12000019915	Buildings & Civil Works	11/03/2017	Sub Asset IDC T3 Building 4 Service & Utility	15	1,534,631.83	Common	Common	91.06%
12000019916	Buildings & Civil Works	11/03/2017	Sub Asset IDC T3 Building 4 Service & Utility	60	9,421,199.13	Common	Common	91.06%
4000000430	Computers & Accessories	09/12/2016	Personal Computer 29 Nos	3	1,491,579.30	Common	Common	91.06%
4000000440	Computers & Accessories	09/12/2016	Personal Computer 42 Nos	3	2,103,129.00	Common	Common	91.06%
4000000670	Computers & Accessories	22/02/2020	IAMS Hardware revamping/Netcon Technologies India	6	38,435,414.00	Common	Common	91.06%
4040001040	Computers & Accessories	31/10/2017	Upgradation of DC & DR storage	6	2,640,605.00	Aeronautical	Aeronautical	100%
4040001110	Computers & Accessories	30/09/2018	Personal Computer 46 NOS (PO#5520000030)	3	1,820,049.34	Common	Common	91.06%
4040001150	Computers & Accessories	31/01/2019	DFS-Servers & Storages-RMS/DFS	6	6,167,965.46	Common	Common	91.06%
4040001160	Computers & Accessories	30/12/2018	Automatic Number Plate Recognition 4510001327	3	2,897,055.00	Aeronautical	Aeronautical	100%
4040001162	Computers & Accessories	30/12/2018	Servers of Automatic Number plate	6	1,466,944.52	Common	Common	91.06%
5000004510	Furniture & Fixtures	30/06/2016	Mid Back chair- bravo: 250 no for T3	7	1,482,490.00	Common	Common	91.06%
5050000070	Furniture & Fixtures	30/06/2016	Frangible Hut/Cabin	3	1,296,050.00	Common	Common	91.06%
5070002710	Furniture & Fixtures	11/03/2017	T3 Single seater wooden sofas	7	12,133,497.00	Common	Common	91.06%
5070002720	Furniture & Fixtures	11/03/2017	T3 Elephant Chammayam	7	2,131,500.00	Common	Common	91.06%
5070003010	Furniture & Fixtures	31/03/2017	T3 Dining Chair made of 1st Class teak wood 82 Nos	7	1,148,000.00	Common	Common	91.06%
5070003280	Furniture & Fixtures	18/05/2017	Q Managers for New International terminal	7	1,075,000.00	Common	Aeronautical	100%
5070004220	Furniture & Fixtures	15/12/2017	Supply of 210 nos single seater t/wood sofas for T	7	4,592,100.00	Common	Common	91.06%
5070004260	Furniture & Fixtures	31/12/2017	Interior Works MD Esthappan 2017-18 Rate Contract	7	3,386,700.74	Common	Common	91.06%
5070004270	Furniture & Fixtures	31/01/2018	Interior Works Princecon Bui 2017-18 Rate Contract	7	3,384,873.87	Common	Common	91.06%
5070004280	Furniture & Fixtures	31/12/2017	Interior Works MD Esthappan 2017-18 Rate Contract	7	1,507,552.02	Common	Common	91.06%
5070004350	Furniture & Fixtures	19/12/2018	T1:Table & Chairs for the Food court	7	2,338,320.14	Common	Non-Aeronautical	0%
5070004361	Furniture & Fixtures	19/12/2018	T1 Lounge: Sofa Sets	7	2,723,865.58	Common	Common	91.06%
5070004363	Furniture & Fixtures	19/12/2018	T1 Bar :Furniture for BAR	7	1,329,600.00	Common	Common	91.06%
5070004380	Furniture & Fixtures	21/12/2018	Trolley pusher	7	1,786,200.00	Aeronautical	Aeronautical	100%
5070004390	Furniture & Fixtures	19/12/2018	T1 Museum: Courtyard (Departure Area)	7	3,092,500.00	Common	Common	91.06%
5070004420	Furniture & Fixtures	19/12/2018	T1: 700 Nos single seater Teak wood sofas	7	6,282,563.00	Common	Common	91.06%
5070004580	Furniture & Fixtures	21/03/2019	T1 :Gondalas at Departure area of T1	7	3,340,013.23	Common	Common	91.06%
5070004600	Furniture & Fixtures	01/04/2018	Mural Painting (Parayi Petta Panthirukulam)	7	3,500,000.00	Common	Common	91.06%
5070004940	Furniture & Fixtures	01/03/2020	Revamping of Road Sign Boards	7	1,206,968.77	Aeronautical	Aeronautical	100%
5070004970	Furniture & Fixtures	01/03/2020	Mural Painting T1	7	1,250,000.00	Common	Common	91.06%
1500001890	Plant & Equipment	11/03/2017	Bay Coordinate Boards	8	2,894,502.60	Common	Common	91.06%
1500001920	Plant & Equipment	11/03/2017	Cables & Wirings	10	7,988,830.95	Common	Common	91.06%
1500001940	Plant & Equipment	11/03/2017	T3 Electrical Installations	10	18,468,192.81	Common	Common	91.06%
1500001941	Plant & Equipment	11/03/2017	Panel	10	57,947,109.11	Common	Common	91.06%
1500001942	Plant & Equipment	11/03/2017	Lighting Protection	10	2,215,358.68	Common	Common	91.06%
1500001943	Plant & Equipment	11/03/2017	Light Fixtures	10	7,635,393.80	Common	Common	91.06%
1500001946	Plant & Equipment	11/03/2017	Earthing & Safety Equipments	10	15,756,828.75	Common	Common	91.06%
1500001948	Plant & Equipment	11/03/2017	Capacitor panel - 500KVAR	5	5,941,013.66	Common	Common	91.06%
1500001949	Plant & Equipment	11/03/2017	Cable & Wiring	10	152,549,685.20	Common	Common	91.06%
1500001950	Plant & Equipment	11/03/2017	T3 Electrical substation	10	19,093,549.41	Common	Common	91.06%
1500001960	Plant & Equipment	11/03/2017	LED sign boards - Entrance Gate	8	1,012,919.66	Common	Common	91.06%
1500001970	Plant & Equipment	11/03/2017	T3 Electrical Works	10	30,745,914.29	Common	Common	91.06%
1500001971	Plant & Equipment	11/03/2017	Cable & Wiring	10	7,891,434.70	Common	Common	91.06%
1500001972	Plant & Equipment	11/03/2017	ACCESS PLATFORM	5	5,676,013.86	Common	Common	91.06%
1500001974	Plant & Equipment	11/03/2017	Sub Asset IDC T3 Electrical Works	10	1,141,249.61	Common	Common	91.06%
1500001980	Plant & Equipment	11/03/2017	T3 Electrical Works for Apron (AGL)	10	27,237,897.80	Aeronautical	Aeronautical	100%
1500001981	Plant & Equipment	11/03/2017	Transformers and Connectors	5	2,488,239.87	Aeronautical	Common	91.06%
1500001990	Plant & Equipment	11/03/2017	T3 High Mast Lighting System	10	12,663,894.40	Common	Common	91.06%
1500001991	Plant & Equipment	11/03/2017	LIGHT LUMINAIRES	5	10,439,327.75	Common	Common	91.06%
1500002000	Plant & Equipment	11/03/2017	T3 Light Fittings	5	54,976,406.01	Common	Common	91.06%
1500002002	Plant & Equipment	11/03/2017	Sub Asset IDC T3 Light Fittings	5	1,775,466.88	Common	Common	91.06%
1500002010	Plant & Equipment	11/03/2017	T3 Internal sign Boards	8	23,028,804.85	Common	Common	91.06%
1500002011	Plant & Equipment	11/03/2017	T3 External Sign Boards-ACP works	10	4,144,272.46	Common	Common	91.06%
1500002012	Plant & Equipment	11/03/2017	T3 External Sign Boards	10	5,716,110.68	Common	Common	91.06%
1500002013	Plant & Equipment	11/03/2017	T3 Airside Sign Boards	8	1,404,614.02	Common	Common	91.06%
1500002020	Plant & Equipment	11/03/2017	Electrification of Phase II -Road & ROB	8	17,105,860.84	Aeronautical	Aeronautical	100%
1500002190	Plant & Equipment	13/10/2017	Electrical Works for the Construction of Car Park	10	16,575,616.84	Non-Aeronautical	Non-Aeronautical	0%
1500002191	Plant & Equipment	13/10/2017	Light Fittings	5	15,975,707.98	Non-Aeronautical	Non-Aeronautical	0%
1500002192	Plant & Equipment	13/10/2017	Hign Mast Lighting	10	9,051,481.97	Non-Aeronautical	Non-Aeronautical	0%
1500002200	Plant & Equipment	30/06/2017	T3:Additional Electrical Works	10	6,446,473.93	Common	Common	91.06%
1500002210	Plant & Equipment	31/05/2017	Additional light Fittings for T3	5	1,254,755.25	Common	Common	91.06%
1500002250	Plant & Equipment	18/07/2018	OFC cabling to remote locations for the AAI	10	1,016,355.60	Common	Common	91.06%
1500002290	Plant & Equipment	19/12/2018	T1: INTERNAL ELECTRIFICATION	10	45,401,389.97	Common	Common	91.06%
1500002291	Plant & Equipment	19/12/2018	T1: INTERNAL ELECTRIFICATION	10	7,933,311.28	Common	Common	91.06%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

Unique Identifier	Asset Class	Capitalized on	Description	Useful Life	Acquisition Value	Classification as per CIAL	Revised Allocation	% Aeronautical
1500002300	Plant & Equipment	19/12/2018	T1:Way Finding Signages	10	3,339,542.18	Common	Common	91.06%
1500002310	Plant & Equipment	27/12/2018	T1 : Bay Coordinate Boards	10	1,069,899.98	Common	Common	91.06%
1500002330	Plant & Equipment	19/12/2018	T1: Revamping Power Distribution system(HT Modf)	10	53,158,535.21	Common	Common	91.06%
1500002340	Plant & Equipment	19/12/2018	T1:Remote sensing doors & automt sliding doors(37)	10	10,113,037.58	Common	Common	91.06%
1500002360	Plant & Equipment	19/12/2018	T1: Design & PMC For electrical MEP works	10	14,131,726.48	Common	Common	91.06%
1500002370	Plant & Equipment	21/03/2019	T1 : Additional MEP Works(Elect installations)	10	2,515,680.26	Common	Common	91.06%
1500002410	Plant & Equipment	28/06/2019	Additional Signages in T1	10	1,817,619.60	Aeronautical	Common	91.06%
1500002440	Plant & Equipment	09/10/2019	Submersible Pump set KRTK-250-/50	10	2,388,879.24	Aeronautical	Aeronautical	100%
1500002450	Plant & Equipment	15/05/2019	2 Nos. 40MVA, 110KV Transformer for substation	10	49,800,000.00	Aeronautical	Aeronautical	100%
1500002460	Plant & Equipment	15/05/2019	ABB Hybrid 145KV PASS switch gear	10	13,500,000.00	Aeronautical	Common	91.06%
1500002470	Plant & Equipment	15/05/2019	EHT/ HT & electrification for 110 KV Augmentation	10	56,569,187.98	Aeronautical	Aeronautical	100%
1500002490	Plant & Equipment	15/11/2019	Electrical works (widening of storm water drain)	10	6,429,328.60	Aeronautical	Aeronautical	100%
1500002500	Plant & Equipment	30/06/2019	Electrification of Incinerator & old radar Building	10	2,476,435.00	Aeronautical	Aeronautical	100%
1520001150	Plant & Equipment	11/03/2017	2000KVA 11KV Packaged SS-2	10	3,480,578.98	Common	Common	91.06%
1520001151	Plant & Equipment	11/03/2017	2000KVA 11KV Packaged SS-1	10	8,351,589.88	Common	Common	91.06%
1520001152	Plant & Equipment	11/03/2017	1600KVA 11KV Packaged SS-2	10	7,422,929.54	Common	Common	91.06%
1520001153	Plant & Equipment	11/03/2017	1600KVA 11KV Packaged SS-1	10	7,422,929.54	Common	Common	91.06%
1520001160	Plant & Equipment	11/03/2017	T3 DG Sets :11KV 3MVA DG set	10	105,518,869.41	Common	Common	91.06%
1520001161	Plant & Equipment	11/03/2017	T3 DG Sets :11KV 1.5MVA DG set	10	45,287,470.05	Common	Common	91.06%
1520001162	Plant & Equipment	11/03/2017	DG set room treatment	30	6,983,921.80	Common	Common	91.06%
1520001163	Plant & Equipment	11/03/2017	Sub Asset IDC T3 DG Sets :11KV 3MVA DG set	10	5,027,374.60	Common	Common	91.06%
1520001270	Plant & Equipment	11/03/2017	Data Centre for T3	6	10,912,913.78	Aeronautical	Aeronautical	100%
1520001370	Plant & Equipment	10/06/2019	Sign boards inside perimeter wall	5	1,347,031.20	Aeronautical	Aeronautical	100%
1520001400	Plant & Equipment	29/11/2019	DG sets Trolley mounted	10	1,940,000.00	Aeronautical	Aeronautical	100%
1530000910	Plant & Equipment	11/03/2017	T3 BMS for HVAC system	15	6,692,619.34	Common	Common	91.06%
1530000912	Plant & Equipment	11/03/2017	Field Devices	8	3,651,008.52	Common	Common	91.06%
1530000913	Plant & Equipment	11/03/2017	Direct Digital Controllers (DDC)	8	3,234,441.18	Common	Common	91.06%
1530000914	Plant & Equipment	11/03/2017	Central Monitoring System	8	2,539,807.48	Common	Common	91.06%
1530000920	Plant & Equipment	11/03/2017	T3 HVAC systems	15	95,330,502.90	Common	Common	91.06%
1530000921	Plant & Equipment	11/03/2017	Floor Mounted Air Handling Units	8	52,055,238.71	Common	Common	91.06%
1530000922	Plant & Equipment	11/03/2017	Ducting & Insulation	10	93,327,979.61	Common	Common	91.06%
1530000923	Plant & Equipment	11/03/2017	Cooling Tower	8	11,786,968.58	Common	Common	91.06%
1530000924	Plant & Equipment	11/03/2017	Chiller Unit	8	87,662,016.93	Common	Common	91.06%
1530000925	Plant & Equipment	11/03/2017	Chemical Treatment System	4	3,823,714.42	Common	Common	91.06%
1530000926	Plant & Equipment	11/03/2017	Ceiling Suspended Units	8	2,451,829.80	Common	Common	91.06%
1530000928	Plant & Equipment	11/03/2017	ASSOCIATED ELECTRICAL WORKS	8	21,894,372.56	Common	Common	91.06%
1530000929	Plant & Equipment	11/03/2017	ASSOCIATED CIVIL WORKS	8	1,059,837.78	Common	Common	91.06%
1530000970	Plant & Equipment	20/08/2016	ITC - Split AC -1.5TR	5	1,271,980.00	Aeronautical	Aeronautical	100%
1530001000	Plant & Equipment	11/03/2017	T3 SITC of Airconditioning Works(VRF & DX) System	8	4,167,243.80	Common	Common	91.06%
1530001090	Plant & Equipment	01/01/2018	SITC of VRF A/c for the 3rd and 4th floors of cent	10	1,442,364.75	Aeronautical	Common	91.06%
1530001140	Plant & Equipment	19/12/2018	T1: BMS Air conditioning Management system	10	11,518,705.00	Common	Common	91.06%
1530001190	Plant & Equipment	21/03/2019	T1: HVAC systems & assc air terminal devices	15	19,576,725.76	Common	Common	91.06%
1530001191	Plant & Equipment	21/03/2019	T1: AHU,cooling Tower,chiller unit,ventilatr etc	8	21,057,991.22	Common	Common	91.06%
1530001192	Plant & Equipment	21/03/2019	T1: HVAC Ducting & Insulations	10	39,433,690.74	Common	Common	91.06%
1530001193	Plant & Equipment	21/03/2019	T1: Interest Capitalized on T1 Borrowings	15	1,195,298.00	Common	Common	91.06%
1530001200	Plant & Equipment	28/02/2019	T1: Additional HVAC works	15	11,774,604.26	Common	Common	91.06%
1540000080	Plant & Equipment	11/03/2017	T3 Aerobridges	15	250,521,044.79	Aeronautical	Aeronautical	100%
1540000081	Plant & Equipment	11/03/2017	Sub Asset IDC T3 Aerobridges	15	8,258,269.34	Aeronautical	Aeronautical	100%
1540000090	Plant & Equipment	19/12/2018	T1: Foundation Bolt for 6 Aerobridge	15	2,447,550.92	Aeronautical	Aeronautical	100%
1540000100	Plant & Equipment	25/03/2019	T1: Aerobridge (1 Nos)	15	26,555,907.94	Aeronautical	Aeronautical	100%
1540000110	Plant & Equipment	25/03/2019	T1: Aerobridge (1 Nos)	15	26,555,907.94	Aeronautical	Aeronautical	100%
1540000120	Plant & Equipment	08/04/2019	T1: Aerobridge (1 Nos)	15	27,200,862.94	Aeronautical	Aeronautical	100%
1540000130	Plant & Equipment	08/04/2019	T1: Aerobridge (1 Nos)	15	27,200,862.93	Aeronautical	Aeronautical	100%
1580000160	Plant & Equipment	27/06/2017	SITC of LED lights 2.7 MWp-solar carport	5	2,904,985.40	Aeronautical	Non-Aeronautical	0%
1580000211	Plant & Equipment	19/12/2018	T1: 30W LED downlight fitting	5	2,439,600.00	Common	Common	91.06%
1580000230	Plant & Equipment	27/11/2018	LED taxiway guidance signboards	5	1,671,256.94	Common	Aeronautical	100%
1580000250	Plant & Equipment	19/12/2018	T1: Light Fittings for City Side facelift works	5	3,261,371.56	Common	Common	91.06%
1610000130	Plant & Equipment	11/03/2017	Escalator -GF to FF - 5.5M	15	11,317,207.71	Common	Common	91.06%
1610000131	Plant & Equipment	11/03/2017	Escalator -SF to TF - 3.85M	15	6,723,607.70	Common	Common	91.06%
1610000132	Plant & Equipment	11/03/2017	Escalator Semi OD -GF to SF - 10.5M	15	3,588,322.54	Common	Common	91.06%
1610000133	Plant & Equipment	11/03/2017	Escalator -GF to SF - 10.5M	15	7,527,659.89	Common	Common	91.06%
1610000134	Plant & Equipment	11/03/2017	Semi OD Escalator-GF-SF,Vht 10.5M	15	5,582,759.00	Common	Common	91.06%
1610000135	Plant & Equipment	11/03/2017	Sub Asset IDC Escalator -GF to FF - 5.5M	15	1,178,176.63	Common	Common	91.06%
1610000140	Plant & Equipment	11/03/2017	5000Kg Service Elevator	15	10,582,450.97	Common	Common	91.06%
1610000141	Plant & Equipment	11/03/2017	800Kg Elevator - 4S4O - 14.35M OS	15	2,973,060.40	Common	Common	91.06%
1610000142	Plant & Equipment	11/03/2017	800Kg Elevator - 2S2O - 5.4M SSZ	15	2,773,811.95	Common	Common	91.06%
1610000143	Plant & Equipment	11/03/2017	800Kg Elevator - 2S2O - 5.4M SS	15	2,434,669.15	Common	Common	91.06%
1610000144	Plant & Equipment	11/03/2017	800Kg Elevator - 2S2O - 5.4M OS	15	2,688,889.51	Common	Common	91.06%
1610000145	Plant & Equipment	11/03/2017	800Kg Elevator - 2S2O - 5.1M SSZ	15	2,489,269.64	Common	Common	91.06%
1610000146	Plant & Equipment	11/03/2017	800Kg Elevator - 2S2O - 5.1M SS	15	2,432,882.17	Common	Common	91.06%
1610000147	Plant & Equipment	11/03/2017	800Kg Elevator - 2S2O - 3.85M SS	15	2,430,507.85	Common	Common	91.06%
1610000148	Plant & Equipment	11/03/2017	800Kg Elevator - 2S2O - 10.5M SS	15	2,403,836.23	Common	Common	91.06%
1610000149	Plant & Equipment	11/03/2017	3000Kg Service Elevator	15	8,517,433.66	Common	Common	91.06%
1610000150	Plant & Equipment	11/03/2017	Travelator - 60M	15	13,647,500.34	Common	Common	91.06%
1610000151	Plant & Equipment	11/03/2017	Travelator - 42.25M	15	10,971,885.87	Common	Common	91.06%
1610000152	Plant & Equipment	11/03/2017	Travelator - 35M	15	9,155,595.37	Common	Common	91.06%
1610000153	Plant & Equipment	11/03/2017	Sub Asset IDC Travelator - 60M	15	1,095,288.89	Common	Common	91.06%
1610000160	Plant & Equipment	01/05/2017	SITC OF Scissor lifts for T-3	15	2,506,125.00	Common	Common	91.06%
1610000170	Plant & Equipment	01/11/2017	2 Nos Crawler Access Platforms fot T3(PALAZZANI)	15	9,457,484.00	Common	Common	91.06%
1610000190	Plant & Equipment	31/10/2017	2 Nos Pitless Lift in T3 City Side	15	5,043,390.00	Common	Common	91.06%
1610000200	Plant & Equipment	31/10/2017	2 Nos Pitless Lift in T3 Lounge	15	9,598,401.20	Common	Common	91.06%
1610000210	Plant & Equipment	19/12/2018	T1: Reversble escalator- 5.5 M	15	4,948,055.92	Common	Common	91.06%
1610000211	Plant & Equipment	19/12/2018	T1: 1040Kg ServiceCumPasenger elevator	15	2,304,179.76	Common	Common	91.06%
1610000212	Plant & Equipment	19/12/2018	T1: 1280Kg Passenger elevator	15	3,479,214.87	Common	Common	91.06%
1610000213	Plant & Equipment	19/12/2018	T1: 1280Kg Passenger elevator	15	3,479,214.87	Common	Common	91.06%
1610000214	Plant & Equipment	19/12/2018	T1: 612 Kg Passenger elevator (Level 4)	15	2,236,885.70	Common	Common	91.06%
1610000215	Plant & Equipment	19/12/2018	T1: reversble escalator- 5.7 M	15	5,777,121.68	Common	Common	91.06%
1610000216	Plant & Equipment	19/12/2018	T1: reversble escalator- 5.7 M	15	5,777,121.68	Common	Common	91.06%
1610000217	Plant & Equipment	19/12/2018	T1: Reversble escalator- 5.5 M	15	4,880,500.45	Common	Common	91.06%
1610000218	Plant & Equipment	19/12/2018	T1: 1040Kg ServiceCumPasenger elevator	15	2,978,555.41	Common	Common	91.06%
1610000219	Plant & Equipment	19/12/2018	T1: 1040Kg ServiceCumPasenger elevator	15	2,978,532.16	Common	Common	91.06%
1610000220	Plant & Equipment	19/12/2018	T1: Elevator 800Kg Elevator-for bay 1 &2	15	2,061,415.00	Common	Common	91.06%
1610000230	Plant & Equipment	15/11/2019	Passenger Elevator for central block of T1	15	2,061,415.00	Aeronautical	Common	91.06%
1620000430	Plant & Equipment	11/03/2017	T3 FIRE FIGHTING, DETECTION & ALARM SYSTEM	15	20,665,771.94	Common	Common	91.06%
1620000431	Plant & Equipment	11/03/2017	Sprinkler System	15	7,226,845.24	Common	Common	91.06%
1620000432	Plant & Equipment	11/03/2017	Hydrant System	15	47,871,760.72	Common	Common	91.06%
1620000433	Plant & Equipment	11/03/2017	Fire Fighting, Detection, Alarm System MEP	15	13,156,612.76	Common	Common	91.06%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

Unique Identifier	Asset Class	Capitalized on	Description	Useful Life	Acquisition Value	Classification as per CIAL	Revised Allocation	% Aeronautical
1620000434	Plant & Equipment	11/03/2017	Sub Asset IDC T3 FIRE FIGHTING, DETECTION & ALARM	15	2,848,276.23	Common	Common	91.06%
1620000460	Plant & Equipment	19/12/2018	T1:FIRE HYDRANT & DETECTION SYSTEM	15	5,475,589.38	Common	Common	91.06%
1620000470	Plant & Equipment	19/12/2018	T1: Fire Protection & Detection System	15	56,700,268.31	Common	Common	91.06%
1650000650	Plant & Equipment	19/12/2018	T1: 31 nos. Crossfields Make Water Coolers	15	1,299,220.00	Common	Common	91.06%
1660000390	Plant & Equipment	11/03/2017	60KVA UPS	5	4,094,425.38	Aeronautical	Common	91.06%
1660000392	Plant & Equipment	11/03/2017	30KVA UPS	5	5,418,938.38	Aeronautical	Common	91.06%
1660000420	Plant & Equipment	11/03/2017	Design & SITC of UPS Systems	5	18,212,687.02	Aeronautical	Common	91.06%
1680000250	Plant & Equipment	11/03/2017	T3 Passenger baggage Trolley	3	25,957,624.75	Aeronautical	Aeronautical	100%
1680000260	Plant & Equipment	30/11/2016	CPC trolleys 100 Nos	3	1,237,600.00	Aeronautical	Aeronautical	100%
1680000280	Plant & Equipment	31/10/2018	Passenger baggage Trolley 255 Nos	3	2,305,500.90	Aeronautical	Aeronautical	100%
1680000320	Plant & Equipment	01/01/2019	Shopping Trolleys-DFS	3	2,450,000.00	Non-Aeronautical	Non-Aeronautical	0%
1680000340	Plant & Equipment	28/02/2019	PASSENGER BAGGAGE TROLLEYS.	3	2,911,259.96	Aeronautical	Aeronautical	100%
1680000350	Plant & Equipment	27/03/2019	Passenger baggage trolleys	3	3,815,377.96	Aeronautical	Aeronautical	100%
1680000360	Plant & Equipment	08/04/2019	PASSENGER BAGGAGE TROLLEYS 116 NOS	3	1,048,776.88	Aeronautical	Aeronautical	100%
1700001170	Plant & Equipment	11/03/2017	T3 CT based Inline and Standalone X-BIS	15	454,612,358.61	Aeronautical	Aeronautical	100%
1700001171	Plant & Equipment	11/03/2017	Sub Asset IDC T3 CT based Inline and Standalone X	15	15,142,214.32	Aeronautical	Aeronautical	100%
1700001180	Plant & Equipment	11/03/2017	T3 EPABX Systems	7	9,437,852.72	Aeronautical	Aeronautical	100%
1700001190	Plant & Equipment	11/03/2017	T3 Flight Information Display System	10	46,407,380.02	Aeronautical	Aeronautical	100%
1700001191	Plant & Equipment	11/03/2017	Sub Asset IDC T3 Flight Information Display Syste	10	1,310,954.16	Aeronautical	Aeronautical	100%
1700001200	Plant & Equipment	11/03/2017	T3 LAN	7	46,700,920.85	Common	Common	91.06%
1700001210	Plant & Equipment	11/03/2017	T3 PA Systems	10	20,639,003.17	Aeronautical	Aeronautical	100%
1700001220	Plant & Equipment	11/03/2017	T3 VDS	15	26,902,840.94	Aeronautical	Aeronautical	100%
1700001230	Plant & Equipment	01/04/2017	SITC of Video Wall System in T3	15	24,727,137.73	Aeronautical	Aeronautical	100%
1700001310	Plant & Equipment	03/08/2016	Aircraft Recovery Equipments	15	28,558,613.70	Aeronautical	Aeronautical	100%
1700001311	Plant & Equipment	03/08/2016	Low Pressure Airbags	10	4,009,587.82	Aeronautical	Aeronautical	100%
1700001312	Plant & Equipment	03/08/2016	Lifting Column Control Console	10	1,269,441.71	Aeronautical	Aeronautical	100%
1700001330	Plant & Equipment	01/04/2016	INDAS Grant Reinstated Assets 2016-APEDA	7	48,004,489.72	Excluded	Excluded	0%
1700001331	Plant & Equipment	01/04/2016	INDAS Grant Reinstated Assets 2016-APEDA	2	2,536,545.55	Excluded	Excluded	0%
1700001340	Plant & Equipment	01/04/2016	INDAS Grant Reinstated Assets 2016-SHM	7	2,944,330.69	Excluded	Excluded	0%
1700001341	Plant & Equipment	01/04/2016	INDAS Grant Reinstated Assets 2016-SHM	8	1,355,132.69	Excluded	Excluded	0%
1700001342	Plant & Equipment	01/04/2016	INDAS Grant Reinstated Assets 2016-SHM	9	23,512,323.03	Excluded	Excluded	0%
1700001920	Plant & Equipment	11/03/2017	DSITC of CC TV Surveillance system	15	277,015,551.50	Aeronautical	Aeronautical	100%
1700001930	Plant & Equipment	11/03/2017	Server	6	26,515,952.09	Aeronautical	Common	91.06%
1700001940	Plant & Equipment	11/03/2017	Video Management Software	5	18,020,853.17	Aeronautical	Aeronautical	100%
1700001950	Plant & Equipment	11/03/2017	Pallet screening DV X-BIS - RAP 632DV	15	6,256,935.34	Aeronautical	Aeronautical	100%
1700001960	Plant & Equipment	11/03/2017	Video Analytics Software	5	5,434,364.72	Aeronautical	Aeronautical	100%
1700001970	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	4,156,392.69	Aeronautical	Aeronautical	100%
1700001980	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	3,897,176.89	Aeronautical	Aeronautical	100%
1700001990	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	3,897,176.89	Aeronautical	Aeronautical	100%
1700002000	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	3,897,176.89	Aeronautical	Aeronautical	100%
1700002010	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	3,897,176.89	Aeronautical	Aeronautical	100%
1700002020	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	3,897,176.89	Aeronautical	Aeronautical	100%
1700002030	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	3,897,176.89	Aeronautical	Aeronautical	100%
1700002040	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	3,897,176.89	Aeronautical	Aeronautical	100%
1700002050	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002060	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002070	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002080	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002090	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002100	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002110	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002120	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,772,038.15	Aeronautical	Aeronautical	100%
1700002130	Plant & Equipment	11/03/2017	Registered Baggage DV X-BIS RAP 627DV	15	3,925,939.96	Aeronautical	Aeronautical	100%
1700002140	Plant & Equipment	11/03/2017	Personal Computer	3	3,685,373.81	Aeronautical	Common	91.06%
1700002150	Plant & Equipment	11/03/2017	Face detection & Identification software	5	2,717,182.39	Aeronautical	Aeronautical	100%
1700002160	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	2,538,528.04	Aeronautical	Aeronautical	100%
1700002170	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	2,538,528.04	Aeronautical	Aeronautical	100%
1700002180	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	2,538,528.04	Aeronautical	Aeronautical	100%
1700002190	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	2,538,528.04	Aeronautical	Aeronautical	100%
1700002200	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	2,529,589.56	Aeronautical	Aeronautical	100%
1700002210	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	2,529,589.56	Aeronautical	Aeronautical	100%
1700002220	Plant & Equipment	11/03/2017	Hand Baggage Dual View X-BIS-RAP 620 DV	15	2,529,589.56	Aeronautical	Aeronautical	100%
1700002260	Plant & Equipment	01/05/2017	In-building Tetra Coverage Solution for new T3	15	4,884,828.42	Aeronautical	Aeronautical	100%
1700002280	Plant & Equipment	31/05/2017	Advanced Visual Docking Guidance System 11NOS T3	10	16,132,167.51	Aeronautical	Aeronautical	100%
1700002290	Plant & Equipment	31/12/2017	SITC of 259 Nos Tetra Radios	5	9,673,495.09	Aeronautical	Aeronautical	100%
1700002400	Plant & Equipment	19/12/2018	T1:Smoking cabin	10	1,344,000.00	Common	Common	91.06%
1700002450	Plant & Equipment	19/12/2018	T1: SITC of In Building Tetra Coverage Solution	15	1,798,205.00	Common	Common	91.06%
1700002460	Plant & Equipment	19/12/2018	T1: DSITC OF CUPPS, CUSS &BRS	6	38,240,809.19	Common	Aeronautical	100%
1700002500	Plant & Equipment	28/02/2019	T-3Tetra IBS Redundant	15	1,477,252.50	Aeronautical	Aeronautical	100%
1700002530	Plant & Equipment	10/06/2018	Division of DI pipes (Storm Water Drain)	15	18,662,253.60	Aeronautical	Aeronautical	100%
1700002540	Plant & Equipment	30/06/2018	SITC of PMR Tetra Radios	5	10,427,829.40	Aeronautical	Aeronautical	100%
1700002550	Plant & Equipment	30/06/2018	SITC of Incinerator (Waste management System)	15	1,900,000.00	Aeronautical	Aeronautical	100%
1700002560	Plant & Equipment	19/12/2018	T1 : SITC of IT infrastructure support Facilities	10	12,440,859.35	Common	Common	91.06%
1700002561	Plant & Equipment	19/12/2018	T1 : Flight Information Display Systems	10	13,021,019.17	Common	Aeronautical	100%
1700002562	Plant & Equipment	19/12/2018	T1 : Computers	3	2,627,782.53	Common	Common	91.06%
1700002564	Plant & Equipment	19/12/2018	T1 : UPS	5	2,934,925.95	Common	Common	91.06%
1700002580	Plant & Equipment	01/03/2019	SILT PUSHER	15	14,410,834.94	Aeronautical	Aeronautical	100%
1700002680	Plant & Equipment	29/07/2019	Flight Information Display System (restored-floods)	10	2,147,099.74	Aeronautical	Aeronautical	100%
1700002681	Plant & Equipment	29/07/2019	Computers for FIDS	3	1,762,873.08	Aeronautical	Aeronautical	100%
1700002700	Plant & Equipment	31/10/2019	DSITC of CCTV Surveillance -Flood restoration	15	15,533,435.79	Aeronautical	Aeronautical	100%
1700002720	Plant & Equipment	31/01/2020	SITC of Cascade fountains in T3	10	1,160,000.00	Common	Common	91.06%
1700002750	Plant & Equipment	28/02/2020	Microsoft SQL license	5	1,230,000.00	Aeronautical	Common	91.06%
1700002770	Plant & Equipment	01/03/2020	ANPR System for airside gates	5	1,400,000.00	Aeronautical	Aeronautical	100%
1700002771	Plant & Equipment	01/03/2020	ANPR System for airside gates	15	1,409,736.00	Aeronautical	Aeronautical	100%
1710000120	Plant & Equipment	31/10/2017	SITC of Precision Approach Lighting System (CAT -1	10	33,210,555.11	Aeronautical	Aeronautical	100%
1770000820	Plant & Equipment	27/11/2018	Genie Make Scissor Ladder in T3	10	1,545,000.00	Aeronautical	Common	91.06%
1770000830	Plant & Equipment	31/03/2020	2 automatic sliding door for T	10	3,641,372.00	Aeronautical	Common	91.06%
1790000070	Plant & Equipment	07/09/2019	Godrej 3 TON Electric forklift	15	1,078,000.00	Aeronautical	Aeronautical	100%
1800000100	Plant & Equipment	06/05/2017	Scissor Ladder 3 NOS	10	2,213,250.00	Common	Common	91.06%
1820000130	Plant & Equipment	10/05/2019	online water quality monitoring system for STP	15	1,300,000.00	Aeronautical	Aeronautical	100%
1830000080	Plant & Equipment	11/03/2017	Providing & Laying Drip Irrigation system	10	2,323,606.88	Aeronautical	Aeronautical	100%
1840000040	Plant & Equipment	01/09/2019	HoldingTank,Pump House, Plumbing works in T3	15	5,114,341.98	Aeronautical	Common	91.06%
1850000340	Plant & Equipment	31/10/2018	Presure Jet machine-heavy duty(HK equip for floods	10	1,050,847.50	Aeronautical	Aeronautical	100%
1850000370	Plant & Equipment	07/09/2019	self priming dewatering pump sets -2 NOS	10	1,199,000.00	Aeronautical	Aeronautical	100%
1860000030	Plant & Equipment	01/06/2018	Ride On Scrubber-Roots Scrub 3 NOS	5	1,497,000.00	Aeronautical	Aeronautical	100%
1860000050	Plant & Equipment	28/02/2019	Runways sweeper machine	15	1,602,833.13	Aeronautical	Aeronautical	100%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

Unique Identifier	Asset Class	Capitalized on	Description	Useful Life	Acquisition Value	Classification as per CIAL	Revised Allocation	% Aeronautical
1860000070	Plant & Equipment	12/02/2020	Truck Mounted Sweeper Machine	15	4,550,000.00	Aeronautical	Aeronautical	100%
1870000000	Plant & Equipment	11/03/2017	T3 Baggage Handling System	15	547,873,080.90	Aeronautical	Aeronautical	100%
1870000001	Plant & Equipment	11/03/2017	Sub Asset IDC T3 Baggage Handling System	10	23,675,810.96	Aeronautical	Aeronautical	100%
1870000030	Plant & Equipment	19/12/2018	T1: SITC of Baggage handling System	15	202,861,186.77	Aeronautical	Aeronautical	100%
1870000031	Plant & Equipment	19/12/2018	T1: Interest Capitalized on T1 Borrowings	15	2,345,460.00	Common	Common	91.06%
1870000040	Plant & Equipment	31/01/2019	T1: SS cladding for Arrival baggage conveyors T1:	15	1,925,000.00	Aeronautical	Aeronautical	100%
1870000050	Plant & Equipment	14/09/2019	Arrival Baggage Handling System T3 (Flood restorat	15	111,461,844.28	Aeronautical	Aeronautical	100%
1870000070	Plant & Equipment	30/06/2019	BHS modification works at T1	15	13,027,946.49	Aeronautical	Aeronautical	100%
1870000080	Plant & Equipment	12/03/2020	Baggage exit clearance stations in BHS at T3	15	2,997,797.40	Aeronautical	Aeronautical	100%
1880000050	Plant & Equipment	11/03/2017	Vintex-CO2 Fire Extinguisher - 4.5 Kg-525Nos	15	1,984,122.42	Aeronautical	Common	91.06%
1880000140	Plant & Equipment	13/01/2020	Fire extinguishers	15	1,820,750.00	Aeronautical	Common	91.06%
1910000210	Plant & Equipment	11/03/2017	Door Framed Metal Detector (45 Nos)	15	10,963,775.05	Aeronautical	Aeronautical	100%
1930000210	Plant & Equipment	21/03/2019	T1: Re-Check Station Unit 6 nos	15	12,224,461.10	Common	Aeronautical	100%
1940000010	Plant & Equipment	12/06/2019	Bullet proof jacket 64 NOS	5	2,497,143.04	Aeronautical	Aeronautical	100%
1950000130	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,852,445.66	Aeronautical	Aeronautical	100%
1950000140	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,852,445.53	Aeronautical	Aeronautical	100%
1950000150	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,852,445.53	Aeronautical	Aeronautical	100%
1950000160	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000170	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000180	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000190	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000200	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000210	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000220	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000230	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000240	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1950000250	Plant & Equipment	11/03/2017	Explosive Trace Detector (ETD)	15	1,850,039.74	Aeronautical	Aeronautical	100%
1980000070	Plant & Equipment	01/09/2018	Hand Baggage DV X-BIS-RAP 620	15	4,032,793.38	Aeronautical	Aeronautical	100%
1980000080	Plant & Equipment	01/09/2018	Hand Baggage DV X-BIS-RAP 620	15	4,032,793.38	Aeronautical	Aeronautical	100%
1980000090	Plant & Equipment	01/09/2018	Registered Baggage DV X-BIS RAP 627	15	5,140,274.31	Aeronautical	Aeronautical	100%
1980000100	Plant & Equipment	21/03/2019	T1:CT based Inline X-BIS for Terminal-1 (4 NOS)	15	398,514,749.63	Aeronautical	Aeronautical	100%
1980000101	Plant & Equipment	21/03/2019	T1: Interest Capitalized on T1 Borrowings	15	5,912,806.00	Common	Common	91.06%
2010000000	Plant & Equipment	31/01/2017	SITC of Bollards & Boom Barriers	15	6,338,641.35	Aeronautical	Aeronautical	100%
2010000010	Plant & Equipment	09/07/2017	SITC of Bollards & Boom Barriers at Airside Entry	15	2,120,300.05	Aeronautical	Aeronautical	100%
2010000020	Plant & Equipment	30/11/2019	SITC of Bollards & Boom Barrier for Naka Morcha	15	8,217,884.00	Aeronautical	Aeronautical	100%
15000019410	Plant & Equipment	11/03/2017	Detailed engineering MEP	10	60,883,500.89	Common	Common	91.06%
15000019412	Plant & Equipment	11/03/2017	Sub Asset IDC T3 Electrical Installations	10	9,587,269.55	Common	Common	91.06%
15300009210	Plant & Equipment	11/03/2017	AIR TERMINAL DEVICES	15	14,742,505.97	Common	Common	91.06%
15300009211	Plant & Equipment	11/03/2017	Air Separator Expansion Tank Press Unit	4	2,938,405.93	Common	Common	91.06%
15300009212	Plant & Equipment	11/03/2017	VENTILATION SYSTEM	8	19,123,800.72	Common	Common	91.06%
15300009215	Plant & Equipment	11/03/2017	Sub Asset IDC T3 HVAC systems	8	6,446,855.87	Common	Common	91.06%
15300009216	Plant & Equipment	11/03/2017	Sub Asset IDC T3 HVAC systems	10	3,026,529.96	Common	Common	91.06%
15300009217	Plant & Equipment	11/03/2017	Sub Asset IDC T3 HVAC systems	15	2,702,014.26	Common	Common	91.06%
16100001410	Plant & Equipment	11/03/2017	1600Kg Elevator - 3S3O - 10.5M SS	15	7,440,222.05	Common	Common	91.06%
16100001411	Plant & Equipment	11/03/2017	1250Kg Elevator - 4S4O - 14.35M SS	15	3,912,026.93	Common	Common	91.06%
16100001412	Plant & Equipment	11/03/2017	1000Kg Glass Elevator,Tr-10.5M	15	7,323,112.79	Common	Common	91.06%
16100001413	Plant & Equipment	11/03/2017	1000Kg Glass Elevator - 5.4M OS	15	7,309,872.11	Common	Common	91.06%
16100001414	Plant & Equipment	11/03/2017	Sub Asset IDC 5000Kg Service Elevator	15	2,221,907.05	Common	Common	91.06%
1400000270	Runways, Roads & Culverts	11/03/2017	Approach Road Bridge	30	248,641,764.09	Aeronautical	Aeronautical	100%
1400000271	Runways, Roads & Culverts	11/03/2017	PMC ROB	30	19,808,211.43	Aeronautical	Aeronautical	100%
1400000280	Runways, Roads & Culverts	11/03/2017	T3 Apron	30	1,635,126,607.07	Aeronautical	Aeronautical	100%
1400000281	Runways, Roads & Culverts	11/03/2017	Sub Asset IDC T3 Apron	30	54,194,125.41	Aeronautical	Aeronautical	100%
1400000290	Runways, Roads & Culverts	11/03/2017	Interior Roads in car park area	10	198,700,712.53	Car Park T3	Car Park T3	65.70%
1400000310	Runways, Roads & Culverts	11/03/2017	Railway Overbridge	30	113,288,788.00	Aeronautical	Aeronautical	100%
1400000320	Runways, Roads & Culverts	11/03/2017	Approach Road Widening	10	84,300,298.83	Aeronautical	Aeronautical	100%
1400000321	Runways, Roads & Culverts	11/03/2017	Flexible pavement work	5	108,720,671.96	Aeronautical	Aeronautical	100%
1400000350	Runways, Roads & Culverts	11/03/2017	T3 Fly Over	30	326,568,691.53	Aeronautical	Aeronautical	100%
1400000351	Runways, Roads & Culverts	11/03/2017	SheraBoards	15	2,295,192.59	Aeronautical	Aeronautical	100%
1400000353	Runways, Roads & Culverts	11/03/2017	Sub Asset IDC T3 Fly Over	30	10,573,615.46	Aeronautical	Aeronautical	100%
1400000370	Runways, Roads & Culverts	15/04/2017	Additional Interior Roads in car park area (17-18)	10	121,434,655.37	Car Park T3	Car Park T3	65.70%
1400000371	Runways, Roads & Culverts	15/04/2017	PMC & Detailed engineering	10	4,458,653.33	Non-Aeronautical	Non-Aeronautical	0%
1400000380	Runways, Roads & Culverts	31/01/2018	Providing & laying interlocking paver tiles in Car	15	2,842,206.10	Non-Aeronautical	Non-Aeronautical	0%
1400000400	Runways, Roads & Culverts	10/05/2018	Drain in hangar area & develop of area nearGSE bld	30	45,516,250.97	Aeronautical	Aeronautical	100%
1400000410	Runways, Roads & Culverts	25/07/2018	Interlocking Paver Tiles in CIAL Academy Premises	5	4,811,971.24	Aeronautical	Non-Aeronautical	0%
1400000420	Runways, Roads & Culverts	27/02/2019	Avanacode road Diversion & Peripheral road constr	30	20,921,632.94	Aeronautical	Aeronautical	100%
1400000430	Runways, Roads & Culverts	30/06/2018	Construction & Widening of Storm Water Drains	30	18,476,159.72	Aeronautical	Aeronautical	100%
1400000440	Runways, Roads & Culverts	21/03/2019	Roads to T1 : Domestic roads	5	162,733,373.57	Car Park T1	Car Park T1	66.20%
1400000441	Runways, Roads & Culverts	21/03/2019	Roads to T1 : Substation Road	5	3,651,621.47	Car Park T1	Car Park T1	66.20%
1400000442	Runways, Roads & Culverts	21/03/2019	Roads to T1 : Naka Morch aroad	5	18,696,784.68	Car Park T1	Car Park T1	66.20%
1400000443	Runways, Roads & Culverts	21/03/2019	Roads to T1 : Additional Area for parking	5	25,625,219.66	Car Park T1	Car Park T1	66.20%
1400000444	Runways, Roads & Culverts	21/03/2019	Roads to T1 : Service Road Electrical works	10	3,124,041.50	Car Park T1	Car Park T1	66.20%
1400000445	Runways, Roads & Culverts	21/03/2019	Electrical-Road-Naka,Domestic,golf,SS	10	7,630,463.64	Aeronautical	Common	91.06%
1400000446	Runways, Roads & Culverts	21/03/2019	Roads to T1 : Consultancy	5	8,046,794.41	Car Park T1	Car Park T1	66.20%
1400000449	Runways, Roads & Culverts	21/03/2019	Golf Entry & exit Roads	5	4,262,578.21	Aeronautical	Non-Aeronautical	0%
1410000230	Runways, Roads & Culverts	01/04/2016	INDAS Grant Reinstated Assets 2016-SHM	9	20,936,123.41	Aeronautical	Aeronautical	100%
14000004410	Runways, Roads & Culverts	21/03/2019	Roads to T1 : Service roads	5	1,039,842.56	Aeronautical	Aeronautical	100%
4050000360	Software	31/07/2016	SAP ERP Licence	5	2,828,678.58	Aeronautical	Common	91.06%
4050000410	Software	01/03/2018	GST Patch for SAP(GST implementation)	5	3,145,774.00	Aeronautical	Common	91.06%
4050000450	Software	27/11/2018	MS Office 2019 Standard 125 licences	5	2,885,000.00	Common	Common	91.06%
4050000500	Software	30/09/2018	Oracle Database (PO#552000030)	5	1,289,101.18	Aeronautical	Aeronautical	100%
4050000530	Software	31/03/2019	DSITC of iOS native Mobile App	5	1,661,016.95	Aeronautical	Common	91.06%
4050000540	Software	01/03/2019	Retail Management software for Duty free	5	3,400,000.00	Aeronautical	Non-Aeronautical	0%
4050000550	Software	20/05/2019	SITC vRealize Operation Manager & Log Insight	5	1,006,549.00	Aeronautical	Aeronautical	100%
4050000580	Software	10/07/2019	MS Office 2019 Standard & Pro plus	5	1,984,400.00	Aeronautical	Common	91.06%
6000000510	Vehicles	11/03/2017	Buggies for Terminal T3	8	2,414,302.18	Aeronautical	Aeronautical	100%
6000000540	Vehicles	21/02/2017	Mahindra Scorpio	8	1,048,165.00	Aeronautical	Common (Employee)	95.60%
6000000800	Vehicles	14/03/2017	Toyota Innova Crysta	8	1,840,519.00	Aeronautical	Common (Employee)	95.60%
6000000810	Vehicles	31/08/2018	Mahindra S5 SUV for Fire Dept(KL63F523)	8	1,342,989.13	Aeronautical	Aeronautical	100%
6000000820	Vehicles	07/08/2018	Ambulance (Poomkudy motors:4510001260)	8	1,186,600.92	Aeronautical	Aeronautical	100%
6000000830	Vehicles	07/08/2018	Ambulance (Poomkudy motors:4510001260)	8	1,186,600.92	Aeronautical	Aeronautical	100%
6000000840	Vehicles	31/01/2019	Tractor for Cargo Department	8	1,729,914.20	Aeronautical	Aeronautical	100%
6000000890	Vehicles	30/05/2019	Ambulance T1AMB 3350 FM(Poomkuddy motor)	8	1,807,919.00	Aeronautical	Aeronautical	100%
6000000900	Vehicles	30/05/2019	Ambulance T1AMB 3350 FM(Poomkuddy motor)	8	1,807,919.00	Aeronautical	Aeronautical	100%
6000000910	Vehicles	30/05/2019	Ambulance T1AMB 3350 FM(Poomkuddy motor)	8	1,807,919.00	Aeronautical	Aeronautical	100%
6000000920	Vehicles	30/05/2019	Ambulance T1AMB 3350 FM(Poomkuddy motor)	8	1,807,919.00	Aeronautical	Aeronautical	100%

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

Unique Identifier	Asset Class	Capitalized on	Description	Useful Life	Acquisition Value	Classification as per CIAL	Revised Allocation	% Aeronautical
6000000930	Vehicles	30/06/2019	Innova Crysta 24L Z7-White Pearl Crystal	8	2,723,126.00	Aeronautical	Common (Employee)	95.60%
6000000940	Vehicles	20/06/2019	Airport runway surface friction tester	8	11,001,100.00	Aeronautical	Aeronautical	100%
6000000950	Vehicles	12/06/2019	6 pax FRP speed boat	13	1,287,119.00	Aeronautical	Aeronautical	100%
6000000980	Vehicles	16/11/2019	6 seater GRP Monohull speed boat	13	1,193,333.33	Aeronautical	Aeronautical	100%
6000000990	Vehicles	16/11/2019	6 seater GRP Monohull speed boat	13	1,193,333.33	Aeronautical	Aeronautical	100%
6000001000	Vehicles	16/11/2019	6 seater GRP Monohull speed boat	13	1,193,333.33	Aeronautical	Aeronautical	100%
6000001020	Vehicles	11/03/2020	Mobile Command Post Vehicle	8	9,842,000.00	Aeronautical	Aeronautical	100%
6000001030	Vehicles	01/03/2020	Moving Boat purchased Berkyl, Germany	13	7,677,994.75	Aeronautical	Aeronautical	100%

EXHIBIT – 2: ASSETS TO BE COMMISSIONED BY CIAL IN 2ND CONTROL PERIOD (FY21)

Sl. No.	Asset Class	Capitalized on	Description	Useful Life	Acquisition Value (INR Cr.)	Classification as per CIAL	Revised Allocation	% Aeronautical
1	Computers and Accessories	2021	Datacenter Revamp at ATC	6	1.00	Aeronautical	Aeronautical	100%
2	Computers and Accessories	2021	Access control & Attendance management System	3	2.24	Aeronautical	Common (Employee)	96.10%
3	Office Equipment	2021	UV-C Systems - T1 & T3	5	2.50	Aeronautical	Common	91.06%
4	Plant and Equipment	2021	BDDS	15	1.00	Aeronautical	Aeronautical	100%
5	Computers and Accessories	2021	Biometric Access Control System for AEP	3	0.39	Aeronautical	Common (Employee)	96.10%
6	Computers and Accessories	2021	IT systems for Cargo revamping	6	1.00	Aeronautical	Aeronautical	100%
7	Runway, Roads and Culverts	2021	Service Road and other miscellaneous CWIP (Civil Works)	10	2.79	Aeronautical	Aeronautical	100%
8	Buildings & Civil Works	2021	Minor works (Civil Works)	15	2.00	Common	Common	91.06%
9	Runway, Roads and Culverts	2021	Reconstruction of compound wall and providing concertina coils (southern side) - Civil Works	5	4.20	Aeronautical	Aeronautical	100%
10	Buildings & Civil Works	2021	PET ground Infront of fire station (Civil Works)	60	0.50	Aeronautical	Aeronautical	100%
11	Plant and Equipment	2021	Foam filling system at Fire Station building roof for ACFTs (Civil Works)	10	0.10	Aeronautical	Aeronautical	100%
12	Buildings & Civil Works	2021	Roof storage on main fire station terrace (Civil Works)	15	0.20	Aeronautical	Aeronautical	100%
13	Runway, Roads and Culverts	2021	Flood Control Measures (Civil Works)	10	23.39	Aeronautical	Aeronautical	100%
14	Runway, Roads and Culverts	2021	Widening of storm water drain Avanamcode to Neduvannoor (Civil Works)	10	6.48	Aeronautical	Aeronautical	100%
15	Runway, Roads and Culverts	2021	Recarpetting of runway	15	97.91	Aeronautical	Aeronautical	100%
16	Plant and Equipment	2021	Upgradation of light fittings	10	36.35	Aeronautical	Aeronautical	100%
17	Runway, Roads and Culverts	2021	Construction of Rapid Exit & Vertical Link	30	43.47	Aeronautical	Aeronautical	100%
18	Buildings & Civil Works	2021	Construction of new convention centre	60	0.99	Non-Aeronautical	Non-Aeronautical	0%
19	Plant and Equipment	2021	CCTV additional	15	2.45	Aeronautical	Aeronautical	100%
20	Plant and Equipment	2021	Civil works for Aerobridge Phase II	15	0.59	Aeronautical	Aeronautical	100%
21	Buildings & Civil Works	2021	CIAL quarters at Thuravumkara	60	0.31	Aeronautical	Common (Employee)	96.10%
22	Plant and Equipment	2021	Information Displays	10	1.00	Aeronautical	Common	91.06%
23	Computers and Accessories	2021	UPS Systems	3	0.20	Aeronautical	Common (Employee)	96.10%
24	Computers and Accessories	2021	Redundant cabling System	6	0.58	Aeronautical	Common	91.06%
25	Computers and Accessories	2021	Local Area Networking	6	0.30	Aeronautical	Common	91.06%
26	Computers and Accessories	2021	Video Conferencing systems	3	1.00	Aeronautical	Common (Employee)	96.10%
27	Computers and Accessories	2021	Presentation Systems	3	0.10	Aeronautical	Non-Aeronautical	0%
28	Plant and Equipment	2021	Replacing old equipments	10	0.20	Aeronautical	Aeronautical	100%
29	Vehicles	2021	Replacing diesel tractors with electrical tractors	8	0.35	Aeronautical	Aeronautical	100%
30	Plant and Equipment	2021	Purchasing plastic / wooden skids	10	0.05	Aeronautical	Aeronautical	100%
31	Plant and Equipment	2021	Weighing Machines	10	0.20	Aeronautical	Aeronautical	100%
32	Computers and Accessories	2021	Software upgradation for paperless transaction	6	0.05	Aeronautical	Aeronautical	100%
33	Plant and Equipment	2021	Commercial RO water plant	15	0.75	Aeronautical	Common	91.06%
34	Plant and Equipment	2021	Additional Access platforms	10	0.70	Aeronautical	Common	91.06%
35	Vehicles	2021	Procurement of new vehicles to replace Bolero, Gypsy, etc.	8	0.15	Aeronautical	Aeronautical	100%
36	Plant and Equipment	2021	Procurement of Triage equipments	15	0.50	Aeronautical	Aeronautical	100%
37	Plant and Equipment	2021	Procurement of Nomex fire protective jackets	15	0.30	Aeronautical	Aeronautical	100%
38	Plant and Equipment	2021	Procurement of fire and rescue equipments	15	0.25	Aeronautical	Aeronautical	100%
39	Plant and Equipment	2021	BA set air compressor and containment fill station	15	0.50	Aeronautical	Aeronautical	100%
40	Plant and Equipment	2021	High expansion foam generator (02 Nos)	15	0.25	Aeronautical	Aeronautical	100%
41	Plant and Equipment	2021	Fire extinguisher procurement to replace expired ones	15	0.20	Aeronautical	Aeronautical	100%
42	Plant and Equipment	2021	Fire Alarm system in terminals and ancillary buildings	15	0.50	Aeronautical	Common	91.06%
43	Plant and Equipment	2021	Hight pressure pump for Static tank/Sump	15	0.30	Aeronautical	Aeronautical	100%
44	Plant and Equipment	2021	Commercial zone in front of Butterfly Restaurant - Electrical	10	0.50	Non-Aeronautical	Non-Aeronautical	0%
45	Plant and Equipment	2021	Upgradation of Restaurant and other F&B at CGC - Electrical	10	1.00	Non-Aeronautical	Non-Aeronautical	0%
46	Plant and Equipment	2021	Building & Parking near Athani - Electrical	10	0.25	Non-Aeronautical	Non-Aeronautical	0%
47	Buildings & Civil Works	2021	Lounge Expansion in T3	15	2.00	Non-Aeronautical	Non-Aeronautical	0%
48	Buildings & Civil Works	2021	Commercial zone in front of Butterfly Restaurant - Civil	20	1.00	Non-Aeronautical	Non-Aeronautical	0%
49	Buildings & Civil Works	2021	Upgradation of Restaurant and other F&B at CGC - Civil	15	1.00	Non-Aeronautical	Non-Aeronautical	0%
50	Buildings & Civil Works	2021	Building & Parking near Athani - Civil	60	1.00	Non-Aeronautical	Non-Aeronautical	0%

EXHIBIT – 3: CA CERTIFICATE SUBMITTED BY CIAL FOR THE ASSETS COMMISSIONED IN 2ND CONTROL PERIOD

KRISHNAMOORTHY & KRISHNAMOORTHY
CHARTERED ACCOUNTANTS
PAN : AADFK0184C



Fax : 2371845
Phone : { (D) 2371845
(O) 2363676
2374654
(R) 2362744
E-mail: info@kandkca.in

CERTIFICATE

XXXIX/3217
PALIAM ROAD
COCHIN - 682 016

As required by the management of COCHIN INTERNATIONAL AIRPORT LIMITED, having Company Identification No. U63033KL1994PLC007803 with registered office at, Room No. 35, 4th Floor, GCDA Commercial Complex, Marine Drive, Cochin - 31, Ernakulum District, we have checked the books of accounts and other relevant records of the Company, for certifying the capital expenditure incurred by the company, for the purpose of submitting the same to Airports Economic Regulatory Authority of India for tariff fixation .

Based on the information made available, we certify that the company has spent an amount of Rs.1716.00 Crores (Rupees One Thousand Seven Hundred and Sixteen Crores) towards the capital expenditure for various assets during the period from 1st April 2016 to 31st March 2020, as per the details given hereunder:

1 of 2



BRANCHES AT
2B, Aashiyana, Paliyam Road, Thrissur - 680001
105 Sindhu Bairavi, Whitefield Main Road, Bangalore - 560 066

Study on allocation of assets between Aeronautical and Non-Aeronautical assets for CIAL

KRISHNAMOORTHY & KRISHNAMOORTHY
CHARTERED ACCOUNTANTS
PAN : AADFK0184C



Fax : 2371845
Phone : { (D) 2371845
(O) 2363676
2374654
(R) 2362744
E-mail: info@kandkca.in

XXXIX/3217
PALIAM ROAD
COCHIN - 682 016

SL. NO.	NAME OF THE PROJECT	CAPITAL EXPENDITURE INCURRED (Rs. in Crores)
1.	New International Terminal related work (T3)	922.36
2.	Apron Works	172.00
3.	Additional Parking Bays, Code F Upgradation, Approach Road and other road work.	165.81
4.	Ground Handling related	58.73
5.	Other work – Including terminal modification ,new equipment purchases etc.	312.11
6.	Security related assets (PSF-SC)	84.99
	Total	1716.00**

(Rupees one thousand seven hundred and sixteen crores only)

**This excludes the grants reinstated as per INDAS transition requirement.

This certificate is issued at the request of the Company for submission to the Airports Economic Regulatory Authority of India.

Cochin - 16

19-01-2021

UDIN - 21201484AAAAAH5093



2 of 2

For Krishnamoorthy & Krishnamoorthy
Chartered Accountants
Firm Regn. No.001488S

K.T. Mohanan
Partner
Membership No.201484

BRANCHES AT
2B, Aashiyana, Paliyam Road, Thrissur - 680001
105 Sindhu Bairavi, Whitefield Main Road, Bangalore - 560 066

EXHIBIT – 4: TERMINAL AREA ALLOCATION CERTIFICATE SUBMITTED BY CIAL

KITCO Ltd.

(Estd. in 1972 by IDBI & Govt. of Kerala)

Regd. Office: Femith's, P.B. No: 4407, Puthiya Road, NH Bypass
Vennala, Kochi 682 028, Kerala, India

Tel : +91-484-4129000 / 6129000, Fax : +91-484-2805066

E-mail: mail@kitco.in, Web: www.kitco.in

CIN : U74140KL1972GOI002425

15.09.2020

To whomsoever it may concern

We have done an assessment of the built areas of the Passenger Terminal Buildings of Cochin International Airport Limited as on date and would like to certify the following

Area Statement of the Passenger Terminals of Cochin International Airport Limited		
International Passenger Terminal		
Total Terminal Area	146528	sqm
Total Non-Aero Area	9201	sqm
Total Aero Area	137328	sqm
Non-Aero % in International Passenger Terminal	6.28	%
Domestic Passenger Terminal		
Total Terminal area	74123	sqm
Total Non-Aero Area	6671	sqm
Total Aero Area	67452	sqm
Non-Aero % in Domestic Passenger Terminal	9	%
Combined Passenger Terminal Area of Domestic & International		
Combined Non-Aero Area	15872	sqm
Combined Aero area	204780	sqm
Combined Non-Aero % of the Terminals in CIAL	7.19	%



Arul Jyothi Harry
Sr. Consultant

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***STUDY
ON
EFFICIENT OPERATION AND
MAINTENANCE EXPENSES***

for

***COCHIN INTERNATIONAL AIRPORT LIMITED (CIAL)
(Second Control Period: 2017-2021)***

April 2021

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1. OBJECTIVE OF THIS STUDY

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

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

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

Establishing efficient Operation and Maintenance expenses and their reasonableness is pivotal to the effective execution of tariff determination for aeronautical services. Across airports in India, the O&M expenditure has consistently been increasing, driven by investments in expanding, modernizing and improving operational efficiency of the airports.

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

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

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

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

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

- i. The AERA Act, 2008 with its amendment in 2019
- ii. Airports Economic Regulatory Authority of India (Terms and Conditions for Determination of Tariff for Airport Operators) Guidelines, 2011 dated 28 February 2011
- iii. AERA Order No. 14 / 2016-2017 dated 23 January 2017 [In the matter of aligning certain aspects of AERA's Regulatory Approach (Adoption of Regulatory Till) with the provisions of the National Civil Aviation Policy – 2016 (NCAP – 2016) approved by the Government of India]

Study on Efficient Operation & Maintenance Expenses for CIAL

- iv. AERA Order No. 07 / 2017-2018 dated 13 July 2017 [In the matter of Determination of tariffs for Aeronautical Services in respect of Cochin International Airport, Cochin, for the Second Control Period (01.04.2016 to 31.03.2021)]
- v. Previous Tariff Orders of other airports
- vi. Audited Annual Reports, Trial Balances, Clarification and details received from CIAL

2. TERMS OF REFERENCE AND OUR WORK PERFORMED

2.1. Terms of Reference

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

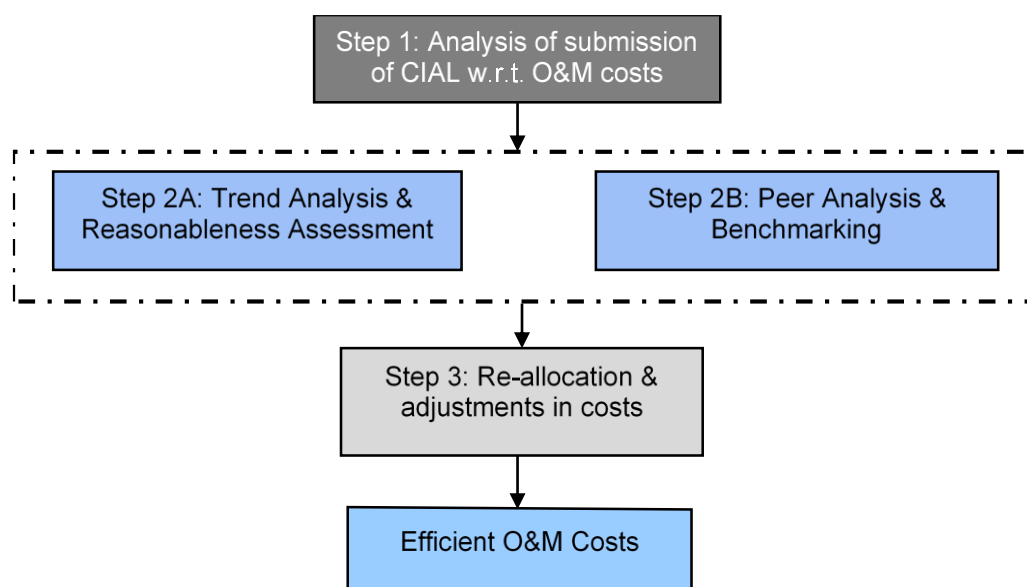
- “3.1 (v) – Asset / OPEX segregation between Aero and Non-Aero”
- “3.1 (vi) – Examine and recommend efficient costs for O&M as part of tariff determination process.”

2.2. Work Performed

Methodology

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

Figure 1: Approach for this study



Step 1: Analysis of submission of CIAL

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

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

- **Repairs and Maintenance (R&M) Expenses** for buildings, Plant & Machinery and Roads, Runways and culverts
- **Other Operating Expenses** such as Utilities, Consumables, Housekeeping, Insurance, Security, Landside expenses etc.

Step 2A: Trend analysis & reasonableness assessment (Internal benchmarking)

In order to understand the change / variation of the various elements of the O&M expenses, a trend analysis has been done for the 1st Control Period as well as the 2nd Control Period for the aeronautical portion of O&M expenses as per airport operator's submission.

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

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

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

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

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

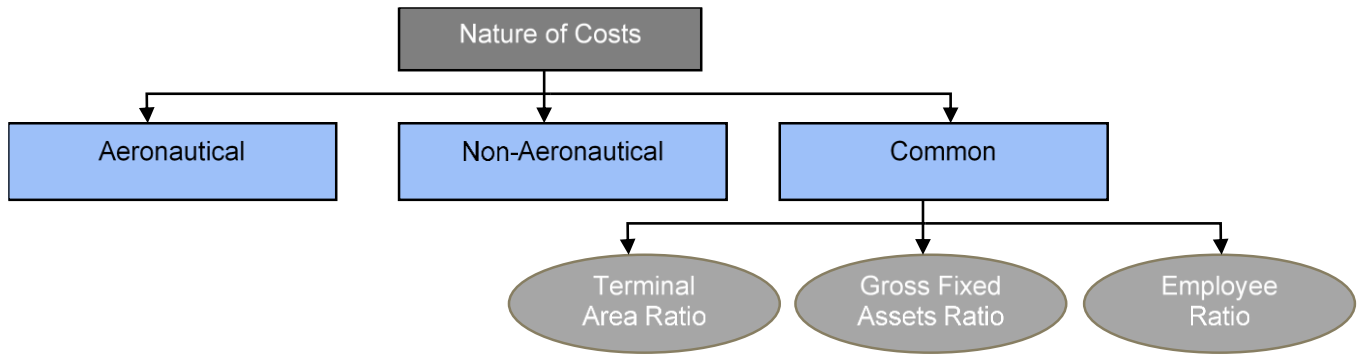
Step 3: Re-allocation and adjustments in proposed expenses

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

- Common expenses have been segregated using an appropriate cost driver as described under the respective sections or as per actual expense incurrence.
- In the absence of a more appropriate cost driver, common expenses related to Terminal Operations have been apportioned among Aeronautical and Non-aeronautical activities based on the terminal allocation ratio.
- Similarly, for common expenses related to Repair & Maintenance of assets, in the absence of a more appropriate cost driver, the same have been apportioned among Aeronautical and Non-aeronautical activities based on the adjusted Gross Fixed Assets (GFA) ratio.
- Common expenses related to employee related expenses have been apportioned among Aeronautical and Non-aeronautical activities based on the employee ratio.

The above have been discussed in detail in this report.

Figure 2: Allocation of O&M expenses



3. EXECUTIVE SUMMARY

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

3.1. Benchmarking of O&M Expenses

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

3.1.1. Internal benchmarking

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

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

- In general, it has been observed that the various heads under O&M expenses have increased at a CAGR higher than that of PAX and ATM in both the 1st and 2nd Control Periods.
- For the following components of O&M expenses the CAGR are lower in 2nd Control Period when compared to the 1st Control Period:
 - Employee related expenses
 - Repair expenses
 - Consumables
 - Other OPEX
 - Housekeeping
- On the other hand, the CAGR growth rates of the following expense elements under O&M expenses are higher in 2nd Control Period vis-à-vis 1st Control Period:
 - Utility expenses
 - Safety and security related expenses
 - Vehicle Running and Maintenance
 - A&G expenses
- The expense heads mentioned above have increased at a higher CAGR primarily due to reasons like commissioning of the new International Terminal in the 2nd Control Period, conversion of T1 terminal into Domestic Terminal and expenses incurred towards flood mitigation.

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

3.1.1.4. O&M Expenses per PAX and per ATM

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

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- The O&M expenses per PAX and per ATM in FY 19 and FY 20 have increased vis-à-vis FY 16 due to increase in O&M expenses coupled with a decrease in traffic. The same shall be attributed to major events like pay revision, terminal expansion, disruptions caused due to floods and COVID-19 pandemic.
- The change in some of the key parameters in FY 20 (considered as the final year of 2nd Control Period for the sake of this study as FY 21 has been impacted significantly due to COVID-19) vis-à-vis FY 16 (final year of 1st Control Period) is summarised below:

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

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

- From the above table, it has been observed that the O&M expenses had grown at a higher rate compared to traffic during the same period. The increase in O&M expenses in FY 2020 vis-à-vis FY 2016 shall be attributed to reasons like expenses towards the flood mitigation and increased expenses in light of employee pay revision and increased expenses due to terminal expansion. Traffic on the other hand had not grown so much due to reasons like COVID-19 pandemic, Middle East economic slowdown and closure of Jet Airways¹.
- Further, considering the impact of inflation into account, the inflation adjusted O&M expenses per PAX and per ATM in FY 2020 and FY 2016 (*i.e. final year of the First Control Period*) have also been compared. Inflation adjustment has been done by assuming an annual inflation of 5% and by considering FY 2016 as the base year. The inflation adjustment has been done by using the following ratio:

$$\text{Inflation adjustment ratio} = (\text{Price in FY 2015-16}) / (\text{Price in FY 2019-20}) = (100.0 / 121.5) = 0.82$$

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

Table 2: Expense comparison between FY 16 and FY 20

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

- From the above table, it can be seen that when adjusted for inflation, the O&M expenses per PAX is marginally higher, whereas, the O&M expenses per ATM have increased by about 9-10%.
- The projections for O&M expenses allowed by the Authority at the time of tariff determination for the Second Control Period and the actuals expenses claimed by CIAL for true-up are given in the table below. The expenses claimed by CIAL are lower than the expense approved by the Authority in the Tariff Order for the 2nd Control Period.

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

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

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

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

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

3.1.1.6. Conclusion:

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

3.1.2. External benchmarking

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

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

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

- It is observed that based on per pax basis benchmarking, CIAL seems to have higher operational expenses with respect to its select comparable peers. However, benchmarking solely based on passenger base may not be appropriate as several expenses such as utility expenses, admin & general expenses, among others are a function of the terminal area of an airport. Hence, when benchmarked on per terminal area basis, it's found that CIAL has lower O&M expenses in comparison to most of the airports. Therefore, it is observed that because CIAL is much larger in terms of terminal area compared to the other airports discussed above, the costs appear to be higher on per pax basis. The new international terminal at CIAL that was commissioned in 2017 was planned to handle the future growth in traffic and is designed to handle the projected traffic till 2028. Therefore, CIAL is yet to achieve significant economies of scale and optimum utilisation levels.
- When compared with the airports (which have the traffic in comparable range) – Ahmedabad, Goa and Pune on per sqm terminal area basis, it is observed that on an overall cost basis only Goa airport has expenses (on terminal area basis) lower than CIAL, whereas, CIAL is performing better than the other two Airports. When compared with all the remaining airports on per sqm terminal area basis, it is observed that CIAL seems to have the lowest expenses for all heads with respect to the expenses of remaining airports. Only Bhubaneswar airport has lower utilities expense per sqm, and Kolkata airport has lower A&G expenses per sqm when compared with Cochin airport. However, on an overall basis CIAL airport is seen to have lowest O&M expenses per sqm of terminal area when compared with remaining airports.

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

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

3.1.3. Summary of internal and external benchmarking

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

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

3.2. Allocation of O&M expenses

3.2.1. Principle for allocation of expenses

- 3.2.1.1. As part of this study, principles for segregation of various expenses have been reviewed and a basis has been developed for the segregation of expenses into aeronautical and non-aeronautical activities.
- 3.2.1.2. The expenses which are incurred for operation and maintenance of aeronautical assets have been categorised as aeronautical expenses.
- 3.2.1.3. While the expenses which are incurred for operation and maintenance of non-aeronautical assets have been categorized as non-aeronautical expenses.
- 3.2.1.4. Expenses for which the benefits or use cannot be exclusively linked to either Aeronautical or Non-Aeronautical have been segregated as Common Expenses.
- Expenses primarily incurred for provision of Aeronautical services but are also used for provision of Non-Aeronautical services are segregated as Common Expenses. Examples are expenses for Civil and Electrical Maintenance for Terminal Building.
 - Expenses which are used for general corporate purposes including legal, administration, and management affairs are treated as Common Expenses. Examples are Transit House and Corporate Headquarters.
 - Common expenses have been apportioned to Aeronautical activity based on an appropriate ratio. This ratio has been determined to ensure that it is fair with respect to the actual nature of the services for which these expenses will be incurred. However, in the absence of any specific information regarding the purpose of incurring the expense, a reasonable ratio is determined based on discussions with management and our review of other records of the Airport

3.2.2. Allocation ratios for allocation of Common expenses

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

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

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

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

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

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

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

3.2.3. Summary of reallocation of Common expenses

3.2.3.1. Safety & Security Expenses

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

3.2.3.2. Housekeeping Expenses

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

3.2.3.3. Consumables

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

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

3.2.3.4. Other Operational Expenses

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

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

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

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

- 3.3.1. While the O&M expenses for FY 2017 to FY 2020 have been vetted with the audited financial statements of the airport operator, the O&M expenses for FY 2021 are based on the projections given by the airport operator.
- 3.3.2. In order to assess the reasonableness of the projections for FY 2021, actual O&M expenses data was obtained from the airport operator for the period from Apr 2020 to Jan 2021. The actual data has been analysed to understand the suitability of O&M expenses projections for FY 2021.
- 3.3.3. As per the assessment (Refer Section 9), it has been found that the actual expenses incurred by the airport operator till a particular month are in line with the projections pro-rated for the same period. Hence, it is believed that the projections still hold true vis-à-vis the manner in which the actual expenses have been incurred by the airport operator.

3.4. Summary

- 3.4.1. Based on the observations from the internal and external benchmarking exercises, it can be concluded that the O&M expenses for CIAL for the Second Control Period seem reasonable. Also, the expenses claimed by CIAL (refer section 4.2) for true-up of the Second Control Period are lower than the expenses approved by the Authority (refer section 4.1) in the Tariff Order for the Second Control Period.
- 3.4.2. Considering the revised basis for segregation of expenses, change in terminal allocation ratio and Gross Fixed Assets ratio, adjustments have been made to the allocation of Common expenses wherever applicable.
- 3.4.3. In view of the above adjustments and reclassification (including the impact of change in terminal allocation ratio, Gross Block, etc.), the study has proposed the revised O&M expenses considered as efficient for Second Control Period as can be seen in the table below:

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

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

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

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

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

*includes flood mitigation expenses undertaken outside the airport premises

** net of revenues from utility service charges

***includes CSR expenses and Duty-Free management fee and discounts

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

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

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

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

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

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

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

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

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

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

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

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

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

*Projected

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

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

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

*includes flood mitigation expenses undertaken outside the airport premises

** net of revenues from utility service charges

***includes CSR expenses and Duty-Free management fee and discounts

4.3. Summary

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

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

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

5.1. Assessment of total O&M expenses for CIAL

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

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

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

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

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

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

6. INTERNAL BENCHMARKING

6.1. Introduction

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

6.2. Trend analysis of O&M expenses

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

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

	1st Control Period							2nd Control Period²					
	FY11 <i>Actua</i> <i>l</i>	FY12 <i>Actua</i> <i>l</i>	FY13 <i>Actua</i> <i>l</i>	FY14 <i>Actua</i> <i>l</i>	FY15 <i>Actua</i> <i>l</i>	FY16 <i>Actua</i> <i>l</i>	CAGR R (5- year) *	FY17 <i>Actua</i> <i>l</i>	FY18 <i>Actua</i> <i>l</i>	FY19 <i>Actua</i> <i>l</i>	FY20 <i>Actua</i> <i>l</i>	CAGR (4- year) **	FY21 <i>Projected</i>
Traffic (MPPA)	4.3	4.7	4.9	5.4	6.4	7.8	13%	8.9	10.1	10.2	9.70	6%	1.9
ATM ('000)	41.1	41.1	41.5	47.2	52.8	57.8	7%	62.8	69.7	71.9	67.7	4%	22.3
	OPEX in INR crore												
Employee expenses	28.4	30.2	38.2	42.1	54.7	53.7	14%	52.9	57.6	80.2	78.3	10%	82.5
Repair expenses	6.0	9.3	9.1	14.3	11.4	19.9	27%	17.8	22.7	24.4	29.5	10%	23.6
Utility expenses	8.8	9.4	10.9	15.4	16.6	18.1	16%	21.8	32.4	33.7	37.8	20%	26.1
Safety & security	3.3	2.4	2.6	2.6	3.0	3.1	<0%	3.9	6.7	8.6	8.8	30%	7.0
Vehicle R&M	0.8	0.7	0.7	0.9	1.3	0.9	1%	0.9	0.9	1.4	1.0	3%	0.6
Housekeeping	2.6	3.0	3.9	4.1	5.2	6.7	20%	7.3	10.0	10.3	11.6	15%	10.4
Consumables	0.5	1.3	1.3	2.4	2.8	1.7	28%	2.0	3.3	3.3	3.8	22%	3.8
CUTE Charges								1.03	2.07	4.48	5.3	73%	6.1
Other Opex***	8.2	8.6	10.2	11.7	15.4	33.8	33%	13.5	14.2	17.4	13.0	<0%	12.5
Admin & General	7.5	8.2	9.1	13.0	8.2	10.6	7%	23.3	15.6	68.0	42.1	41.2%	33.4
Total	66.3	73.1	86.2	106.5	118.6	148.5	18%	144.4	165.5	251.7	231.2	12%	206.1

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

* From FY11 to FY16

** From FY16 to FY20

*** Includes Duty Free shop management fees, CSR expenses and Duty-Free discounts

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

6.2.2.1. Period from FY 11 to FY 16

- In general, the actual operational expenses form FY 11³ to FY 16, as submitted by the airport operator, have been observed to be growing at a higher rate compared to the growth in traffic and ATM.

² FY 2020-21 has not been considered for computing the CAGR on account of the same being a COVID-19 impacted year

³ FY 2011 has been considered as the base year for computation of CAGR for the First Control Period

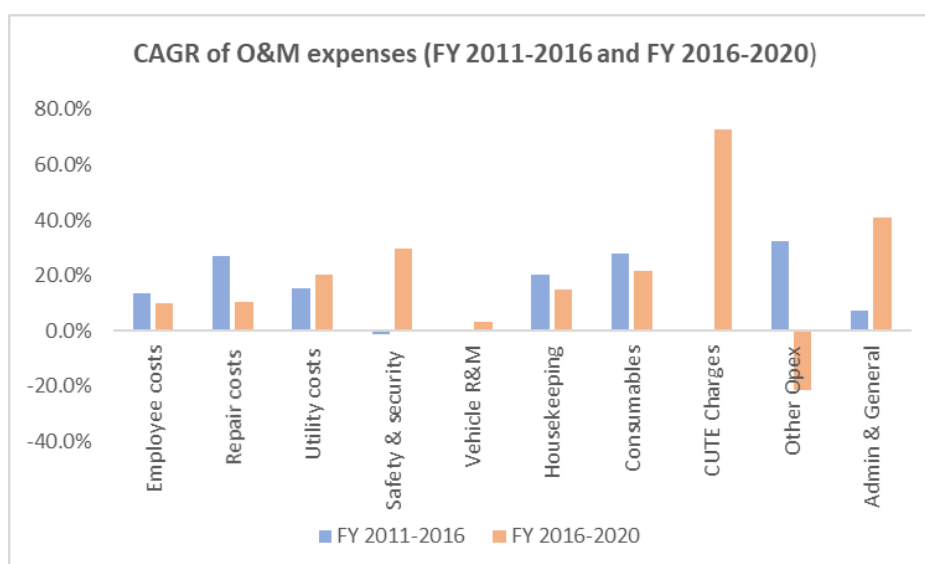
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- Only the expense elements under 'safety & security expenses', 'vehicle running and maintenance' and 'admin and general expenses' have grown at a CAGR lesser than that of ATM and PAX in the First Control Period.
- The total operational expenses grew at a CAGR of about 17.5% from FY 11 to FY 16.

6.2.2.2. Second Control Period

- Some of the heads under O&M expenses have seen a higher growth in the Second Control Period when compared to the First Control Period; which can be attributed to the commissioning of the new International terminal building in the Second Control Period. It is to be noted that in the 2nd Control Period due to an investment in new international terminal T3, there is an increase in terminal size by 3 times for international terminal as well as in conversion of T1 to domestic terminal resulting in increase in domestic terminal size as well.
- In general, the actual operational expenses from FY 17 to FY 20 have been observed to be growing at a higher rate compared to the growth in traffic and ATM. As per CIAL, the above is partly attributable to the following reasons:
 - Pay revision in 2nd Control Period,
 - Commissioning of the new international terminal T3 due to which the size of the terminal increased by 3 times and
 - Increase in domestic terminal size due to conversion of T1 to domestic terminal
 - Flood related expenses
- However, it is to be noted that the total operational expenses during the period FY16⁴ to FY 20 have grown at a lower CAGR (11.7%) as compared to that during the period FY 2011 to 2016 (17.5%)
- It is to be further noted that except for Utility Expenses, Safety and Security, Vehicle running and maintenance expense and Admin and General expenses, all other expenses have grown at a lower rate during FY 2016-2020 vis-à-vis the FY 2011-2016. The following graph illustrates the difference between the CAGR during both these periods across various expense heads;

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



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

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

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

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

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

Figure 4: Trend of O&M Expenses per PAX

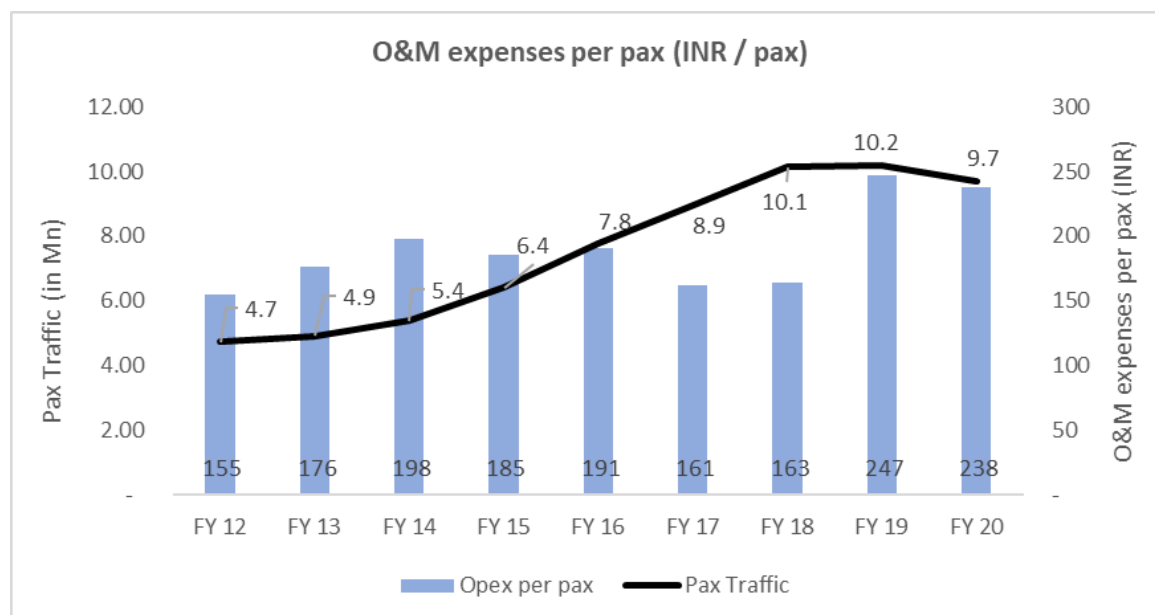
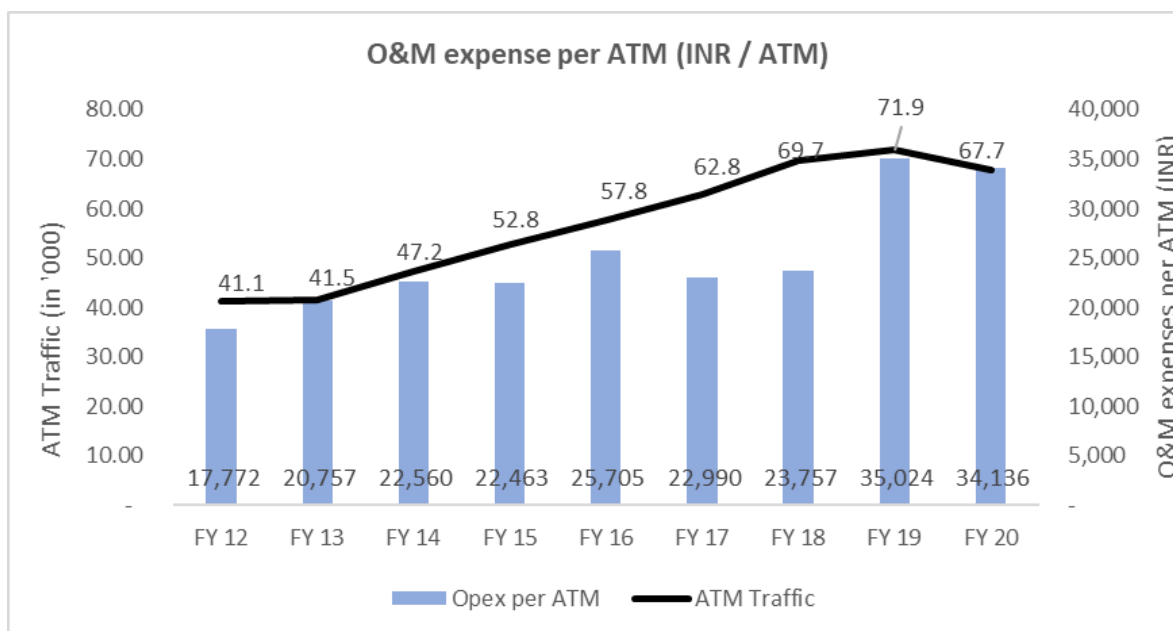


Figure 5: Trend of O&M Expenses per ATM



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

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

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

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

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

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

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

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

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

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

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

$$\text{Inflation adjustment ratio} = (\text{Price in FY 2015-16}) / (\text{Price in FY 2019-20}) = (100.0 / 121.5) = 0.82$$

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

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

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

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

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

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

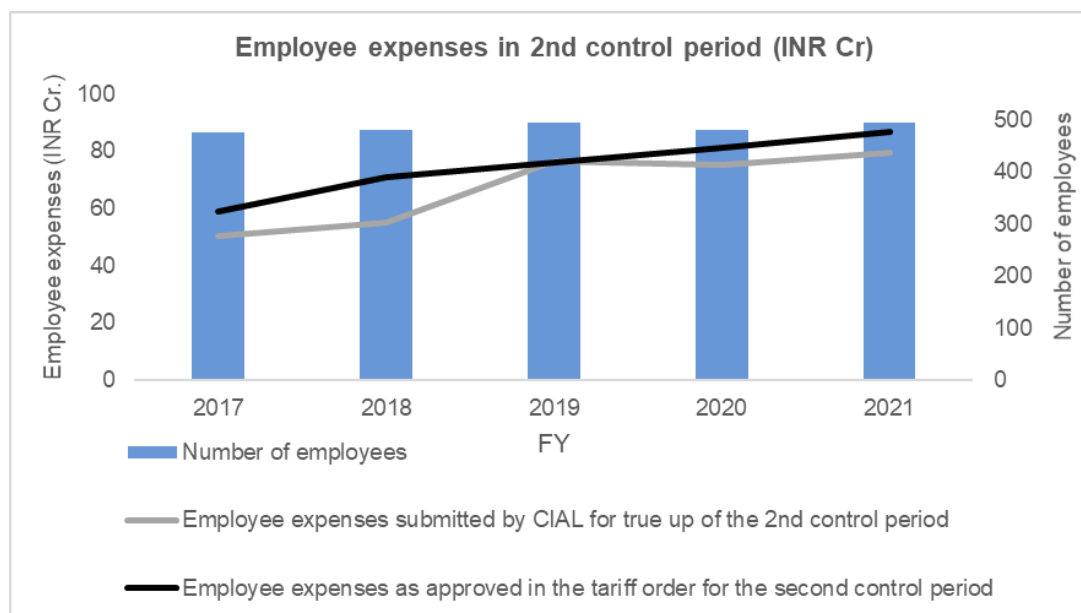
Item	Projections (As per Tariff Order for 2 nd Control Period)	Actuals (As per true-up submission for the 2 nd Control Period)
O&M expense considered Aeronautical (INR Cr) for the 2 nd Control Period	1073.0	844.8

6.3. Assessment of reasonableness of major O&M expenses

Employee expenses

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

Figure 6: Analysis of employee expenses



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

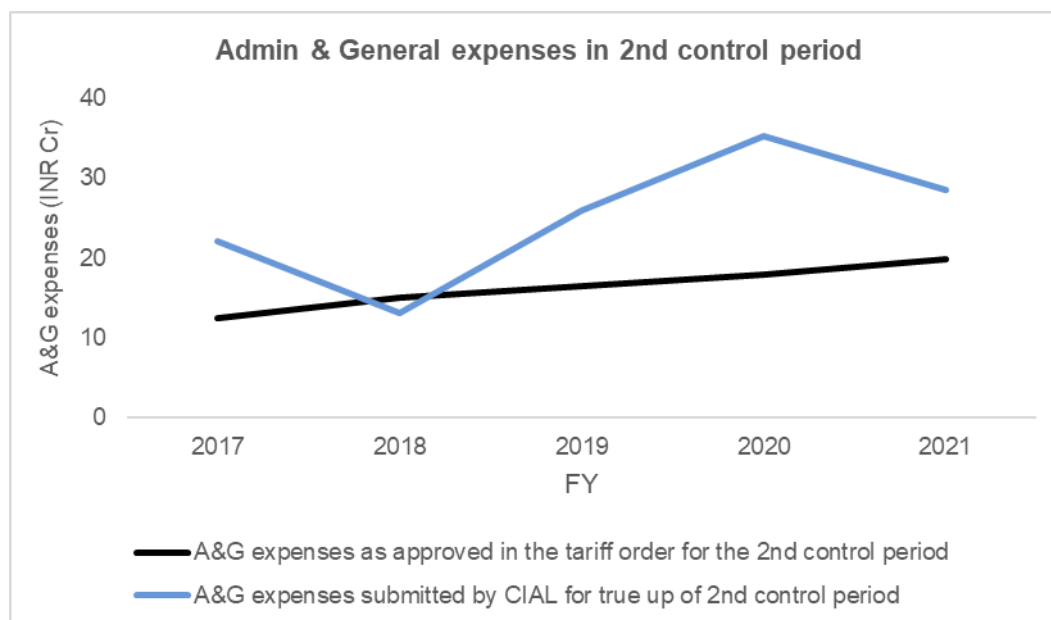
6.3.3. It was observed that the number of employees in FY 21 has increased to 496 from 482 in FY 20 leading to an increase in employee cost in FY 21. CIAL has clarified that the requirement of additional employees was determined before the spread of COVID-19 and that the recruitment process had commenced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

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

Admin and General Expenses

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

Figure 7: Analysis of A&G expenses

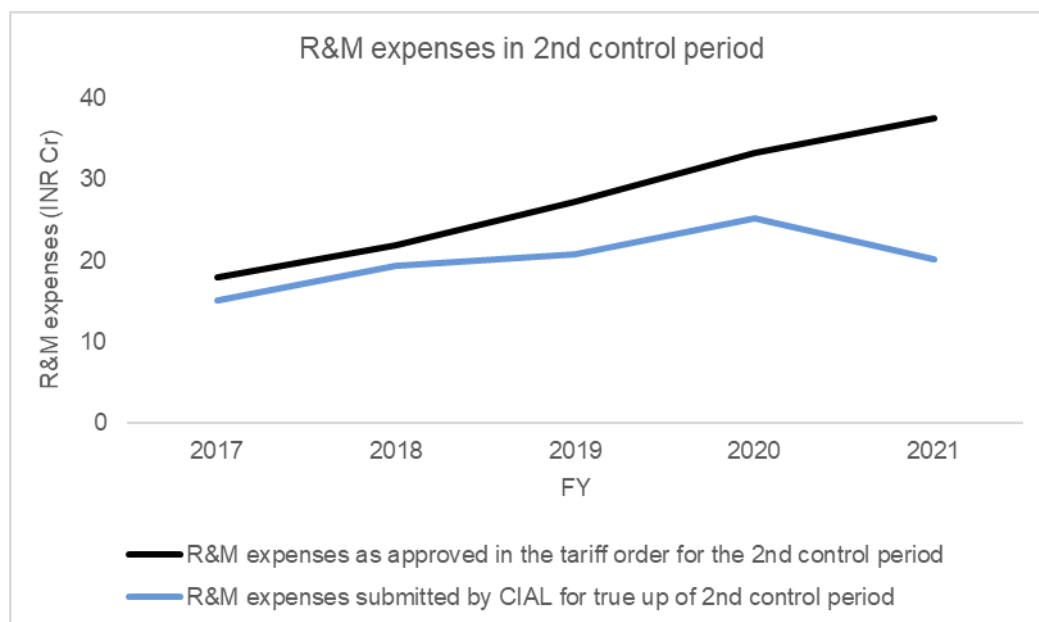


- 6.3.6. The A&G expenses submitted by CIAL for true up are higher than the figures approved by the Authority in the tariff order for the Second Control Period except in FY 18. The components of A&G expenses were studied to understand the reason for the increase in expenses.
- 6.3.7. It was observed that in FY 17 bad debts written off worth 10.1 Cr were included in the submission of A&G expenses. During FY 19 to FY 21, flood related losses & flood mitigation expenses worth ~INR 29 Cr (after netting of insurance claim recovery) were included in the A&G expense submitted by CIAL. Therefore, the deviation in A&G expenses from figures projected by the Authority in the previous order were primarily because of these two factors, which are uncontrollable costs for an airport operator.
- 6.3.8. Hence, the A&G expenses submitted by CIAL appear to be reasonable, however, the allocation of various expenses included under Admin and General expenses needs to be examined, which is covered in Section 8 of this study.

Repair costs

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

Figure 8: Analysis of Repairs and Maintenance expenses



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

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

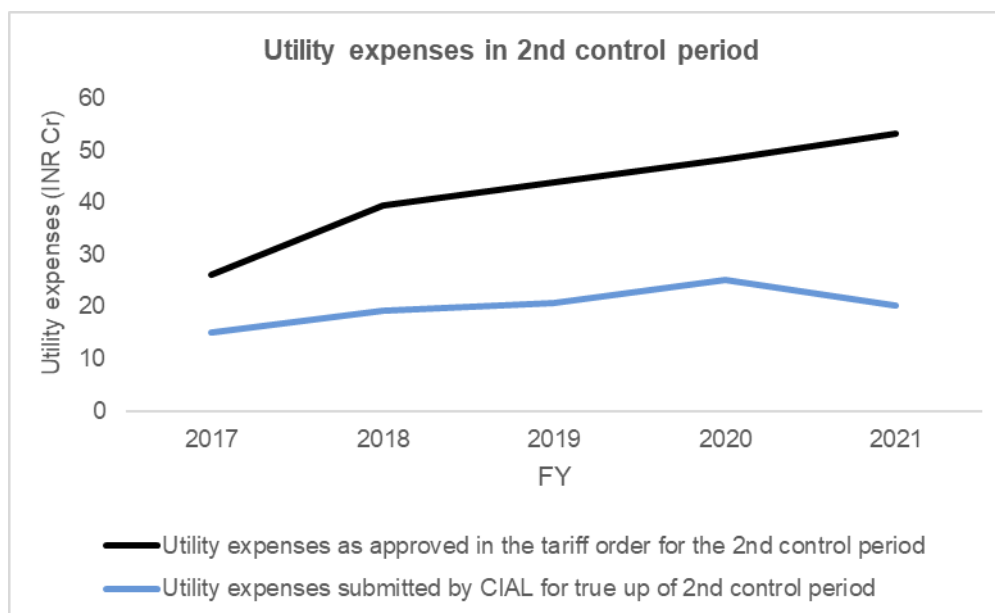
Utility expenses

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

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

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

Figure 9: Analysis of Utility expenses



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

Conclusion:

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

6.4. Summary of internal benchmarking

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

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

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

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

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

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

6.5. Conclusion

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

7. EXTERNAL BENCHMARKING

7.1. Background

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

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

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

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

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

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

7.2. Analysis

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

Table 15: Average traffic across select domestic airports

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7.3. Summary of External Benchmarking

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

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

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

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

7.4. Conclusion

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

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

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

8.1. Introduction to segregation of expenses

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

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

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

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

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

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

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

8.1.2. The classification followed by the airport operator with respect to expenses was found to be in line with the general principles discussed above. However, the basis for allocation of certain Common costs needs to be analysed. The principles of classification followed by the airport operator are provided in the table below.

Table 19: General Principles for Expense Classification

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

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

* as per the classification provided by the airport operator

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

Table 20: Allocation basis considered by the Airport Operator

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

8.2. Assessment of allocation ratios for common expenses

8.2.1. Terminal Allocation Ratio

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

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

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

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

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

8.2.2. Gross Block Ratio

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

Table 22: Allocation of Gross Block

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

*Aeronautical Gross Block for FY 21 includes Financing Allowance

8.2.3. Employee Ratio

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

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

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

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

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

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

8.3. Reallocation of Common expenses

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

8.3.1. Safety & Security Expenses

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

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

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

Table 24: Impact on Safety & Security Expenses

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

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8.3.2. Housekeeping Expenses

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

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

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

Table 25: Impact on Housekeeping Expenses

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

8.3.3. Consumables

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

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

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

Table 26: Impact on Consumables

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

8.3.4. Other Operational Expenses

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

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

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

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

Table 27: Impact on Other Operational Expenses

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

8.3.5. Administrative & General Expenses

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

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

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

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

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

Table 28: Impact on Admin & General Expenses

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

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8.3.6. Repair & Maintenance Expenses

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

Table 29: Impact on Repair & Maintenance Expenses

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

8.3.7. Summary of segregation of expenses proposed by the Authority

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

Table 30: Proposed allocation based on this study

Expense Category	Expense Sub-Category / Description	Expense Classification	Revised Allocation Basis
Manpower expenses	Salary, wages & bonus; Contribution to provident fund; Staff welfare expenses; New employee expenses	Common	Number of Employees
A&G Expenses	Flood related expenses; Flood mitigation expenses	Aeronautical	
	Rent; Rates and Taxes; Communication Expense; Travelling and Conveyance; Advertisement; Office Maintenance; Printing and Stationary	Common	Gross Block / Number of Employees/ Terminal Usage Ratio
	Auditor's Fees; Professional Charges		
	Insurance Costs; Bank Charges; Miscellaneous Expenses Scrap of assets; Foreign exchange loss; General charges Directors Sitting Fees; Rights Issue Expenses		
R&M Expenses	R&M costs for buildings, Plant & Machinery and Roads, Runways and culverts	Common	Gross Block
Other Expenses	Safety & Security expenses	Common	Terminal Usage Ratio
	Vehicle Running & Maintenance expenses		Number of Employees
	House Keeping expenses		Terminal Usage Ratio
	Consumables		
	Other operational expenses	Aeronautical	
	Power Charges (Net of concessionaires)		
	Water Charges (Net of concessionaires)		
	Fuel Generator Sets (Net of concessionaires)		
CUTE operational expenditure		Aeronautical	

8.4. Impact of reallocation of Common expenses

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

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

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

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

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

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

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

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

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

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

*includes flood mitigation expenses undertaken outside the airport premises

** net of revenues from utility service charges

***includes CSR expenses and Duty-Free management fee and discounts

9. ASSESSMENT OF O&M EXPENSES FOR FY 21

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

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

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

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

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

~ connotes Approximately

* excluding CUTE expenses

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

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

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

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

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

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

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

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

10. OVERALL SUMMARY OF THE STUDY

10.1. Internal benchmarking for Second Control Period

- 10.1.1. It was observed that the total operational expenses during the period FY16 to FY 20 have grown at a lower CAGR (~12%) as compared to that during the period FY 2011 to 2016 (~18%). On the contrary, some of the expense items like Utilities, Safety and Security and Admin and General have grown at a higher CAGR during FY 16 to FY 20 vis-à-vis FY 11 to FY 16. This is due to expenses incurred for flood mitigation and increased terminal area in the 2nd Control Period.
- 10.1.2. The O&M expenses per PAX and per ATM in FY 2020 have increased vis-à-vis FY 2016 i.e. last year of the First Control Period. The increase in O&M expenses per PAX and ATM shall be attributed to increased O&M expenses (due to pay revision, terminal expansion and floods) coupled with decrease in traffic (due to COVID-19 pandemic). On adjusting the impact of these events, the growth in O&M expenses has been found to be justifiable.
- 10.1.3. The inflation adjusted O&M expenses per PAX in FY 20 is observed to be only marginally higher than that in FY 16.
- 10.1.4. In the assessment of major expenses viz., employee expenses, R&M expenses, A&G expenses and utility expenses, it was observed that only the A&G expenses were higher than the expenses approved by the Authority in the previous order. However, this is due to the consideration of certain non-recurring and uncontrollable expenses namely, bad debt written off, flood related losses and flood mitigation expenses.
- 10.1.5. The remaining expenses submitted by the airport operator were found to be within the figures approved by the Authority in the tariff order for the Second Control Period, except in the case of Vehicle Running & Maintenance, Safety & Security and CUTE expenses. However, the deviation is immaterial. Hence, as per the assessment of major expenses it seems that the O&M expenses claimed by CIAL are acceptable.
- 10.1.6. Also, CIAL's claim based on actual O&M expenses is lower than that approved by the Authority in its last order for CIAL i.e. the Second Control Period.
- 10.1.7. Therefore, based on the internal benchmarking, the O&M expenses of CIAL are found to be reasonable.

10.2. External benchmarking for Second Control Period

- 10.2.1. It is observed that based on per pax basis benchmarking, CIAL seems to have higher operational expenses with respect to its select comparable peers. However, on a per terminal area basis CIAL is found to have lower O&M expenses in comparison to most of the other Airports.
- 10.2.2. The Airports that are comparable with CIAL in terms of traffic are, Ahmedabad, Goa and Pune. It is observed that on an overall basis only Goa airport has expenses (on terminal area basis) lower than CIAL, whereas, CIAL is performing better than the other two airports.
- 10.2.3. Comparison of various O&M heads of CIAL (on per sqm terminal area basis) with the remaining Airports suggests that except for Bhubaneswar airport in terms of utilities expense per sqm, and Kolkata airport in terms of A&G expenses per sqm CIAL has lower value per sqm in all other expense heads. Also, on an overall basis CIAL airport is seen to have lowest O&M expenses per sqm of terminal area when compared with remaining airports.
- 10.2.4. Hence, benchmarking the expenses of CIAL with expenses of above airports suggests that the operational expenses for CIAL are reasonable.
- 10.2.5. Nonetheless, It is important to note that there is a huge variability in the expense numbers for each airport which signals that all these operational expenses at the airport are a function of various factors such as the size of the airport infrastructure, profile of passengers, existing capacity and traffic, weather conditions,

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

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

10.3. Efficient expense allocation for Second Control Period

- 10.3.1. Based on the principles laid out in the initial sections and the information collected from the airport operator during the site visit and other discussions, reclassifications and necessary adjustments are made to determine the efficient O&M expenses.
- 10.3.2. The airport operator had proposed 6.28% and 9.00% of terminal area for the provision of Non-Aeronautical services / activities in International and Domestic terminals respectively. However, based on the Study on allocation of assets into Aeronautical and Non-Aeronautical assets, the actual allocation of area (in %) towards Non-Aeronautical activities, viz. 8.47% and 9.88% for the International and Domestic terminals respectively, has been proposed for the purposes of the tariff determination. This changes the percentage of area allocated for Non-Aeronautical activities to 8.94% from 7.19% for the entire terminal area.
- 10.3.3. The employee ratio as considered by the airport operator for allocation of O&M expenses was found to be appropriate.
- 10.3.4. The R&M expenses has been adjusted to the extent of change in the aeronautical portion of the gross block as suggested in the separate study conducted for allocation of assets (Study on allocation of assets into Aeronautical and Non-Aeronautical assets).
- 10.3.5. The flood mitigation expenses have been excluded from the Administrative & General expenses as it was observed during the site visit that these expenses pertains to the activities carried outside the Airport premises. Further, the correction was made in the numbers of Provision for Doubtful Debts/Advances, while computing the aeronautical component of Administrative & General expenses.
- 10.3.6. The allocation basis for safety & security expenses, housekeeping expenses, consumables, other operational expenses, administrative & general expenses and power charges have been revised with the appropriate allocation ratio.

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

- 10.4.1. The reasonableness of the projections for FY21 was studied by comparing the actual O&M expenses data was obtained from the airport operator for the period from Apr 2020 to Jan 2021. Since the audited statements for this period are not yet available, the accuracy of the same could not be validated.
- 10.4.2. It has been found that the actual expenses incurred by the airport operator till a particular month are in line with the projections pro-rated for the same period. Hence, it is believed that the that the projections still hold true vis-à-vis the manner in which the actual expenses have been incurred by the airport operator.

10.5. Conclusion

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

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

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

Study on Efficient Operation & Maintenance Expenses for CIAL

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

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

11. GLOSSARY

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

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Mar 2021



भारतीय प्रबंध संस्थान बेंगलूर
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Executive Summary

This report provides an estimate of the Cost of Equity (CoE) for Cochin International Airport Ltd (CIAL). A benchmark set of “comparable” international airports are used to estimate the systematic risk exposure of CIAL aero assets under a target gearing ratio, as described in the Capital Asset Pricing Model (CAPM). The Cost of Equity computation also accounts for CIAL specific attributes such as revenue till structure, ownership structure and scale of operations by using a proximity score weighted approach, which factors the closeness of CIAL to the set of “comparable” airports. Based on a reasonable set of assumptions, the report provides the following estimates of Cost of Equity:

Variable (Col 1)	CIAL (Col 2)
Asset Beta based on Proximity Score Weights of comparable set	0.572651
Target gearing ratio (Debt/Debt + Equity)	48%
Target gearing ratio (Debt/Equity)	0.9231
Equity Betas	0.9427
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.16%

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Chapter 1 – Introduction

Cochin International Airport Limited (CIAL) was the first airport in India to be built under Public Private Partnership (PPP), with equity participation from the Government of Kerala, financial institutions, and more than 16,000 individual investors who are mostly non-resident Keralites (NRKs). CIAL as it exists today, was an alternative to the then civil enclave in the Naval Airport at Cochin. CIAL was incorporated on 30th March 1994 as a public limited company, with an authorized share capital of INR 90 crores. The construction work commenced in August 1994. The airport was inaugurated by the President of India on 25th May 1999 with Air India operating the first flight to the gulf.

The Airports Economic Regulatory Authority (AERA) was established in 2008 for fixing aero tariffs and User Development Fee (UDF) at different airports.¹ AERA uses the Capital Asset Pricing Model (CAPM) to determine the Cost of Equity (CoE) and hence the FRoR. As mandated by the Act, the tariffs are determined at a periodicity of 5 years. This report computes the CoE (and illustrates the process to compute FRoR) for the Cochin International Airport Ltd. (CIAL).

1.1. Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) has evolved and has been used effectively for some time now across industries the world over. Equation 1.1 depicts the CAPM²

$$R_E = R_f + \beta_E (R_M - R_f),$$

Equation 1.1 – CAPM

where

R_E = Expected return (and the company's cost of equity capital)

R_f = Risk-free rate.

$R_M - R_f$ = Equity Risk Premium (ERP).

¹ <http://aera.gov.in> as viewed on 28th Feb 2021.

² While in our study here, we have used the CAPM model, there are also other models available for exploration. Some of these being, the Arbitrage Pricing Theory and other variants of the CAPM (e.g., Breeden's Consumption CAPM and Merton's ICAPM) are theoretically sophisticated models that are more general than the CAPM. However, for all practical purposes, the plain CAPM is by far the most widely accepted model used to estimate the cost of capital.

β_E = Equity beta.

Various methods are employed for determining R_f , R_M and β_E . **We use this CAPM equation (Equation 1.1) throughout this report for the computation of Cost of Equity.**

The NIPFP study³ commissioned by AERA around 2011 had argued and proposed a rate between 11.64% and 13.84% as the Cost of Equity. However, the NIPFP study is dated in the sense that Equity Risk Premiums are time varying and the information set as of 2011 (the time-period of the NIPFP study) differs from the current information set (as of 2018). As is evident from Eq. (1), the rate of return or CAPM rate depends on 3 inherent factors.

- a. Risk-free rate, R_f
- b. Equity Risk Premium (ERP), $R_M - R_f$
- c. Equity β_E

While it is relatively easy to determine R_f , the other two factors are difficult to estimate in the case of India. Some estimates of the long-term Equity Risk Premium (ERP), and hence, long-term expected returns (R_M) by Damodaran⁴ and others^{5,6} are available in literature. The equity β_E estimation can also yield a range of values depending on the assumptions employed.

Fair Rate of Return (FRoR)

The Fair Rate of Return (FRoR) is essentially the weighted average cost of capital evaluated at a normative debt to equity ratio. It reflects the cost of equity and the cost of debt and can be thought of as the return demanded by the providers of capital (debt and equity holders). Using an illustrative cost of debt (since cost of debt must be estimated annually using the latest information), we illustrate the computation of FRoR in Chapter 3 (section 3.3.5 and Equation 3.4).

³ "Estimating Cost of Capital for Private Airports in India", NIPFP, Dec 2011

⁴ <http://pages.stern.nyu.edu/~adamodar/> as seen on 10 Sep 2018

⁵ Dimson, Marsh and Staunton (DMS); Triumph of the Optimists: 101 Years of Global Investment Returns (Princeton University Press, 2002)

⁶ The Global Finance Data (GFD) from www.globalfinancialdata.com as viewed on 28 Feb 2020

1.2. Overview of Airport Sector

Traditionally, airports have been managed by governments the world-over with private participation limited to fuel farms, cargo handling, etc. However, more recently, with demanding passengers (looking for better quality infrastructure with contemporary amenities), private participation has become imperative. It has been observed from experience in other sectors (e.g., ports, roads, etc.) that this mode of operation maximizes efficiency. Also, the government gains monetarily by selling its stake. The British Airports Authority or BAA was the first airport to be publicly listed and traded in 1987.⁷ However, owing to high losses triggered by expansions and high operating costs, it finally delisted in 2006. However, other airports like Auckland, Sydney, Thailand (AoT), Malaysia (MAHB), etc. have consistently been successful.

While privatization brings in efficiency and a level of comfort and luxury to the end user, it also imposes a cost on them. The cost is mostly levied in the form of tariffs and fees by the private operator to recoup the CAPEX and OPEX incurred. In order to protect the interests of the end user, regulatory authorities all over the world cap the tariffs that can be levied. For this purpose, airports are classified as based on a “Till Model” as follows:⁸

- Single Till – All airport revenues (including aero and non-aero) are taken into consideration when determining the level of airport usage charges.
- Dual Till – Only aero revenues are taken into consideration when setting airport usage charges.
- Hybrid Till – Aero revenues along with a percentage of non-aero revenues are considered for setting airport usage charges.

Typically, aero revenues include landing and parking charges, aerobridge usage charges, UDF, fuel supply, and cute counter charges. Non-aero revenues would be car park charges at airport premises, hotels and other business establishments, duty free shops, etc. Cargo and ground handling may be aero or non-aero depending on the regulatory concessions.

⁷ <https://www.forbes.com/global/2003/0609/043.html#46dc54645c4b> as viewed on 28 Feb 2021

⁸ *Mark Smith, Brian Pearce; IATA Economics Briefing N°6: Economic Regulation

The breakeven revenue for a sustainable airport operation is estimated using Equation 1.2.

$$ARR = PV(ARR_t) = \sum_{t=1}^n (ARR_t), \text{ where}$$
$$ARR_t = (FRoR \times RAB_t) + D_t + O_t + T_t - (f \times NAR_t),$$

Equation 1.2 – Breakeven Returns

where

ARR = Aggregate **Aero** Revenue Requirement for a given time period

PV = Present Value

t = Estimation Time period

n = Max(t) in the current control period

FRoR = Fair Rate of Return

RAB = Regulatory Asset Base for a given Till

D = Depreciation

O = Operations' Cost

T = Tax Liability

NAR = Non-Aero Revenues

f = fraction of Non-Aero Revenue subsidising aero revenue

= 0 for dual till;

= 1 for single till;

= fraction (0, 1) for hybrid till.

CIAL uses a hybrid till structure with 30% of non-aero revenues (*f*, in Equation 1.2) subsidizing Aggregate Revenue Requirement (ARR).

1.3. Project Scope and Overview

This study proposes to build on the previous experiences of AERA to determine an appropriate CAPM rate for the Cost of Equity (CoE) for Cochin International Airport Ltd. (CIAL) for the third control period (FY2021-22 to FY2025-26). It proposes to construct a series of scenarios for varying ERP and β_E . The scope of work involves:⁹

- a) Study of relevant environment, trends in airport capitalization

⁹ Ref Letter: AERA/20010/RFP Study/COE/ 2018-19/Vol-III/17797 dated 09.03.2021.

- b) Study airport-specific determinants of Cost of Capital with specific focus on the Cost of Equity
- c) Recommendations on Cost of Equity
- d) Follow-on activities

The detailed “Terms of Reference”⁹ is provided in Appendix 1.

The next chapter (chapter 2) of this report starts with a study of airports’ regulatory practices all over the world. The emphasis here is on the regulatory bodies’ stance on the methodology for determining CoE for their jurisdictional airports. This is followed by a section on shortlisting airports that are similar in structure and operation vis-à-vis CIAL. **This “comparables” set is used to estimate the underlying beta risk and leverage – crucial inputs for determining CoE.** We analyze recent trends in the capitalization structure and funding mechanisms of these comparable firms and examine their performance in the recent past. This is followed by how CoE is determined in these airports and the takeaways for CIAL therein. In the next section, we provide details of unique features of the Indian market (e.g., demand outstripping supply, external shocks, etc.) that influence the CoE. Finally, we wind up this chapter with a discussion on the trends prevalent generally in other infrastructure space, e.g., Investment Infrastructure Trusts (InVITs).

Chapter 3 is devoted to estimating CoE. We first start by highlighting the methodology followed by data availability and collection. Next, the analyses of the said data with its assumptions and caveats are provided. Finally, we conclude this chapter with all the results. The key recommendations at the end of each discussion are given under the title of “Recommendations”, wherever applicable. A final summary of all recommendations made throughout this study is presented at the end of Chapter 3.

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Chapter 2 – Current Environment and Trends in Airports Capitalization

Airports were traditionally managed by their respective governments the world over. However, this trend has changed considerably in the past two decades. Demanding passengers and competition have forced privatization. A variety of uncertain factors, such as accurate demand estimation, regulatory environment, macro-economic environment, etc., play a major role in determining the economic viability of running an airport. Hence, private players demand some level of guaranteed returns on the equity they invest.

This chapter begins with an overview of the regulatory practices followed for various international airports, with emphasis on the regulatory bodies' stance on the methodology for determining CoE for their jurisdictional airports. Worldwide, the capital asset pricing model (CAPM) is used by regulators for determining the cost of equity for airports (as can be seen in Table R1, which provides information on the methodology used by various regulatory authorities for estimating the cost of equity). The key factor that drives the CAPM-based CoE estimate is the estimate of (beta) risk in an airport. We rely on a standard procedure of identifying comparable airports that will be used to estimate the (beta) risk of Cochin airport. We measure the “comparability” of an international airport to Cochin airport in terms of a proximity score that accounts for differences in three key dimensions that characterize the functioning of airports:

- (i) Revenue till mechanism
- (ii) Ownership structure
- (iii) Operations scale.

This analysis allows us to shortlist the most proximate airports into a set of comparable airports. Further downstream in chapter 3, we use this set of “comparables” to estimate the underlying beta risk and leverage – crucial inputs for determining CoE.

We analyze recent trends in the capitalization structure and funding mechanisms of these comparable airports and examine their performance in the recent past. We document these trends vis-à-vis the corresponding trends in CIAL. This analysis helps us understand how other factors that are not explicitly accounted for in the CAPM methodology may provide guidance on the procedure of estimating the cost of equity of CIAL. While a few interesting trends emerge from our analysis, we conclude that there are no systematic conclusions that

one can make regarding their impact on the cost of equity. More importantly, it is likely the case that (beta) risk factor in the CAPM methodology implicitly accounts for these trends.

In additional analysis, the following associated issues are also considered:

- (i) Internal rate of return based on book values.
- (ii) Evaluate the return implicit in a divestment transaction involving BIAL.
- (iii) Discuss trends in other infrastructure projects, for e.g., highway monetization using InVITs.

2.1. Airports' Economic Regulatory Framework Worldwide

In order to understand the regulatory framework across the world, we studied 12 countries' Regulatory Authorities regulating more than 25 airports. We documented the following:

- Till structure
- Methodology used to compute CoE
- Prescribed leverage
- Capitalization guidelines for airports

A detailed consolidation of the study is presented in Table R1. The following are the key takeaways:

- **Cost of Capital Methodology:**
 - None of the regulators mandate the use of CAPM as a method to estimate CoE but most airports use it as a standard.
 - Dublin (Ireland) uses a WACC methodology that incorporates additional factors, like passenger pass-through time, baggage handling time, etc.
- **Extent of Private Participation:** Except for the United Kingdom and Australia in the sample, governments hold more than 10% equity in their airports.
- **Till Structure:** Most airports apart from Singapore and Brazil follow a single or a dual till mechanism. Singapore and Brazil follow a hybrid till.
- **Leverage (D/E ratio):** The regulators do not mandate or limit the operators to follow a specific leverage. The 5-year actual leverage based on shareholders' fund (SF) and paid-up equity (PE) is discussed in Table R1.

- Changi Airport, wholly owned by the government, has the lowest leverage using both SF and PE, i.e., 6.80% and 13.62%, respectively, across all the international airports discussed here.
- Heathrow Airport has the highest leverage using both SF and PE, i.e., 83.41% and 99.79%. This situation arose because nominal share capital was reduced by a factor of 10 and transferred to distributable reserves, which were paid to equity holders. This action resulted in lowering of equity and thereby abnormally high leverages.
- Malaysia Airport Holdings Berhad (Holding Company) and Airports of Thailand (Holding Company) use a debt and equity mix (SF 43.75% and PE 66.15%) that matches the average leverage across all the international airports discussed here.
- **Dividend Distribution:** There is no mandate by any of the regulators to pay out dividends.
 - Malaysia Airport Holdings (MAHB) has made it a policy as a company to declare 50% of its profits as dividends.
 - Airports of Thailand have a policy of paying at least 25% of its profits as dividends.

Given this understanding of the international regulatory scenario and capitalization structure, we next move on to understand various international airports' operation in terms of their funding mechanism and returns they make for their private investors. For this purpose, we first shortlist a set of international airports based on their proximity to CIAL in these features. Next, we document the methodology used for shortlisting these airports.

Table R1: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds (Book Debt to Paid-Up Equity Capital) 5-Year Avg. Col(5)	Norm for Share Ownership Structure Col(6)
1	Australia ¹⁰	Australian Competition and Consumer Commission (ACCC)	Dual Till	Not mandated, but uses CAPM, by way of Building Block Methodology.	<ul style="list-style-type: none"> • Sydney – 72.00% (49.48%) • Melbourne – 75.78% (95.96%) 	<ul style="list-style-type: none"> • ACCC does not mandate. • The top 21 holders (~91.20% holding) in Sydney do not include any of the government authorities.
2	New Zealand ¹¹	Commerce Commission (CC)	Dual Till	<ul style="list-style-type: none"> • Not Mandated • The CC takes an expert opinion from NERA Economic Consulting (which uses CAPM) • CC computes WACC as per best available estimates, defining a range. • The commission then compares it with post-tax IRR, a combination of target returns for Aeronautical Pricing Activities and the forecast revenue of other regulated activities. • CC checks whether the IRR falls within WACC range as computed earlier and makes a decision on WACC with the help of substantial supportive information. 	<ul style="list-style-type: none"> • Auckland – 28.61% (81.33%) 	<ul style="list-style-type: none"> • CC does not mandate. • But in Auckland, ~81.9% of the total shares are publicly held and traded. • Again ~18.1% of the shares are held by Auckland Municipal council
3	United Kingdom ¹²	Civil Aviation Authority (CAA)	Single Till	<ul style="list-style-type: none"> • Not Mandated • However, CAA uses CAPM 	<ul style="list-style-type: none"> • Heathrow – 83.41% (99.79%) • Gatwick – 80.14% (82.79%) 	<ul style="list-style-type: none"> • CAA does not mandate

¹⁰ <https://www.accc.gov.au/>

¹¹ <https://comcom.govt.nz/>

¹² <https://www.caa.co.uk/home/>

Table R1 continued: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds (Book Debt to Paid-Up Equity Capital) 5-Year Avg. Col(5)	Norm for Share Ownership Structure Col(6)
4	South Africa ¹³	No information available publicly	Single Till	<ul style="list-style-type: none"> Airport charges are regulated through the use of a price cap formula¹³ CPI-X, which limits the increase in a basket of revenue weighted tariffs to a rate of inflation (efficiency factor – X) The X-factor is determined by applying the building blocks methodology whereby each block of activities is identified, namely operating costs, depreciation, return on capital and taxation. 	Data Not Available	No mandated norm but South African government owns 74.6%
5	South Korea	No information available publicly.				
6	Malaysia ¹⁴	Malaysian Aviation Commission (MAVCOM - Primary Economic Regulator)	Single Till	<ul style="list-style-type: none"> Not Mandated MAVCOM uses CAPM to estimate cost of equity. 	Malaysia Airport Holdings Berhad (MAHB) – 43.75% (74.46%)	Malaysia Airports owns several airports across Malaysia. Retail shareholders hold~53.7% in MAHB.
7	Ireland ¹⁵	Commission for Aviation Regulation (CAR)	Single Till	<ul style="list-style-type: none"> Not mandated Uses CAPM to compute WACC with additional factors like load, baggage handling time, etc.¹⁵ 	Dublin Airport Authority PLC – 48.26% (84.75%)	State ownership
8	Indonesia	No information available publicly.				

¹³ <http://www.airports.co.za/business/investor-relations/economic-regulation>

¹⁴ <https://www.mavcom.my/en/home/>

¹⁵ <http://www.aviationreg.ie/fileupload/2014final/2014%20Final%20Determination.pdf>

Table R1 continued: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds (Book Debt to Paid- Up Equity Capital) 5-Year Avg. Col(5)	Norm for Share Ownership Structure Col(6)
9	Singapore ¹⁶	Civil Aviation Authority of Singapore	Hybrid Till (70– 80%) ¹⁶	CoE is computed as a sum of: <ul style="list-style-type: none"> • Computed pre-tax weighted average cost of capital (WACC) on the average regulated asset base. • Computed pre-tax WACC on the average security asset base not recovered 	Changi Airport Group – 6.80% (13.62%)	Fully government owned
10	Netherland ¹⁷	Human Environment and Transport Inspectorate	Dual Till	Mandates use of WACC based on CAPM	Schipol Group – 34.52% (95.98%)	PPP
12	Thailand ¹⁸	Civil Aviation Authority of Thailand	Dual Till	Not mandated but uses CAPM	Airports of Thailand – 20.90% (66.15%)	70% mandatorily government owned
13	Brazil ¹⁹	National Civil Aviation Agency (ANAC)	Hybrid Till	<ul style="list-style-type: none"> • Not Mandated • ANAC uses CAPM to estimate cost of equity. 	Data Not Available	PPP up to 60% observed

¹⁶ <https://www.caas.gov.sg/>

¹⁷ <https://english.ilent.nl/>

¹⁸ <https://www.caat.or.th/en/>

¹⁹ <http://www.anac.gov.br/en>

2.2. Comparable Airports (Comparable to CIAL)

The above table (Table R1) provides information on airports in different jurisdictions and assesses the existence of airport data). Europe, South Africa, South East Asia, and Australasian regions were deemed to be relevant for the study. Middle East (hub airports) and China (lack of credible data), the Americas (different environment) were excluded. Next, within the four regions, the study narrowed down on 12 airports: Sydney, Melbourne, Auckland, MAHB, AoT, Changi, Incheon, Heathrow, Gatwick, Dublin, Amsterdam, and Johannesburg. Although Table R1 provides information on Brazil, we excluded it because it lies in the Americas (different environment). Then, we assessed the (proximity score) of each international airport to CIAL based on the following parameters.

- Revenue till structure:
 - 1 – Single Till or where information is not available
 - 2 – Dual Till
 - 3 – Hybrid Till
- Ownership structure:
 - 1 – if 100% Government Owned/Funded
 - 2 – if Government / private owned/funded, not being Public Private Partnership
 - 3 – if Public Private Partnership Funded
- Operations Scale (OpS): For each comparable airport, k , we computed the ratios of passenger, cargo, and aircraft movement of these airports to that of CIAL in each of the years from FY 2015 to FY2017. Note that all comparable airports are international airports. These ratios are based on past 3 years' data as available from the respective airports' websites/annual reports. Next, an equal weighted sum for these airports is computed using average of the ratios under each category (passenger, cargo and air traffic) as per Equation 2.1²⁰:

²⁰ By construction, the *OpS* score for CIAL with respect to CIAL (itself) would be 3. To see this, note that each of the ratios (R_{pi} , R_{ci} , R_{Ai} , for passenger, cargo and air traffic, respectively) for a given year would be equal to 1 by definition, and therefore an equally weighted average of these ratios must be equal to 1. Then, cumulating these numbers over the 3 years (2015 to 2017) would yield an *OpS* score of 3. If the *OpS* score for an international

$$OpS_k = \sum_{i=2015}^{i=2017} \left(\frac{1}{3}\right) * R_{Pi} + \left(\frac{1}{3}\right) * R_{Ci} + \left(\frac{1}{3}\right) * R_{Ai}$$

Equation 2.1 – Operations Scale

where

OpS_k = Operations scale for comparable airport k

i = Year 2015, 2016 and 2017

R_{Pi} = Ratio of passengers of the comparable airport to that of CIAL,

Equation 2.2,

$$R_{Pi} = \frac{P_i}{P_C}$$

Equation 2.2 – Passenger Ratio

P_i = No. of passengers for the comparable international airport in year i

P_C = No. of passengers for CIAL in year i

R_{Ai} = Ratio of aircraft movements of the comparable airport to that of CIAL, Equation 2.3 – Air Traffic Ratio,

$$R_{Ai} = \frac{A_i}{A_C}$$

Equation 2.3 – Air Traffic Ratio

A_i = No. of aircraft movements for a comparable international airport in year i

A_C = No. of aircraft movements for CIAL in year i

R_{Ci} = Ratio of cargo of the comparable airport to that of Cochin airport, Equation 2.4,

$$R_{Ci} = \frac{C_i}{C_C}$$

Equation 2.4 – Cargo Ratio

airport from the comparable set with respect to CIAL is 6, then we can conclude that the international airport's scale of operation is about twice (score of 6 divided by 3) of that of CIAL.

C_i = Total cargo movement in metric tonne for a comparable international airport in year i

C_C = Total cargo movement in metric tonne for CIAL in year i

- Finally, the proximity score for comparable airport, k , with respect to Cochin airport (B) is denoted by $PS_{k,B}$. It is the net Euclidean Distance from each of the parameters w.r.t. CIAL (Equation 2.5)

$$PS_{k,C} = \sqrt{(RT_C - RT_k)^2 + (OS_C - OS_k)^2 + (OpS_C - OpS_k)^2}$$

Equation 2.5 – Proximity Score w.r.t. CIAL

RT_C = Revenue Till Score of CIAL

RT_k = Revenue Till Score of comparable airport, k

OS_C = Ownership structure Score of CIAL

OS_k = Ownership structure Score of comparable airport, k

OpS_C = Equal Weighted Operations Scale of CIAL

OpS_k = Equal Weighted Operations Scale of comparable airport, k

Table 2.1 reports the scores of all airports considered with their weights w.r.t. CIAL.

The Proximity Score

The Proximity Score provides a Euclidean distance measure of a benchmark airport (from the comparable set) relative to the airport under consideration (CIAL, in this case). The proximity score considers three dimensions of comparison: (i) till mechanism, (ii) ownership structure, and (iii) operational scale. By construction, the proximity score for CIAL would be 0, but the proximity score of the benchmark international airport in the comparable set would depend on how different it is with respect to CIAL, with a high score indicating a dissimilar airport and a low score indicating a more similar airport.

Table 2.1: Proximity scores of different airports w.r.t CIAL

The table represents the difference between the scores for CIAL and the respective airport. The proximity score is defined as $PS_{k,C} = \sqrt{(RT_C - RT_k)^2 + (OS_C - OS_k)^2 + (OpS_C - OpS_k)^2}$, where RT stands for revenue till, OS is Ownership and Funding Mechanism, and OpS is Operations. The subscripts C and k represent Cochin and the comparable airport, respectively. MAHB is the holding company of Kuala Lumpur Airport. AoT is the holding company of Bangkok Airport.

S. No.	Airport (Col 1)	Revenue Till ($RT_C - RT_k$) (Col 2)	Ownership Structure ($OS_C - OS_k$) (Col 3)	Operations ($OpS_C - OpS_k$) (Col 4)	Proximity Scores ($PS_{k,C}$) (Col 5)
	Cochin	0.00	0.00	0.00	0.0000
1	Auckland	1.00	1.00	-4.20	4.4327
2	Dublin	2.00	2.00	-5.11	5.8415
3	Johannesburg	2.00	1.00	-6.51	6.8793
4	Gatwick	2.00	1.00	-7.95	8.2589
5	Melbourne	1.00	1.00	-8.69	8.8047
6	Sydney	1.00	1.00	-13.37	13.4477
7	Amsterdam	1.00	1.00	-34.60	34.6272
8	Heathrow	2.00	1.00	-35.42	35.4896
9	Changi	0.00	2.00	-35.64	35.6955
10	MAHB	2.00	1.00	-36.13	36.2019
11	AoT	1.00	1.00	-42.95	42.9706
12	Incheon	2.00	2.00	-44.06	44.1513

We have excluded the US and Canadian airports as their administrative, operations and governance structure are significantly different from this set. Also, there is negligible government participation in these airports. The Brazilian airports are relatively new to the concept of privatization (~2011). Hence, we did not include airports from Brazil also.

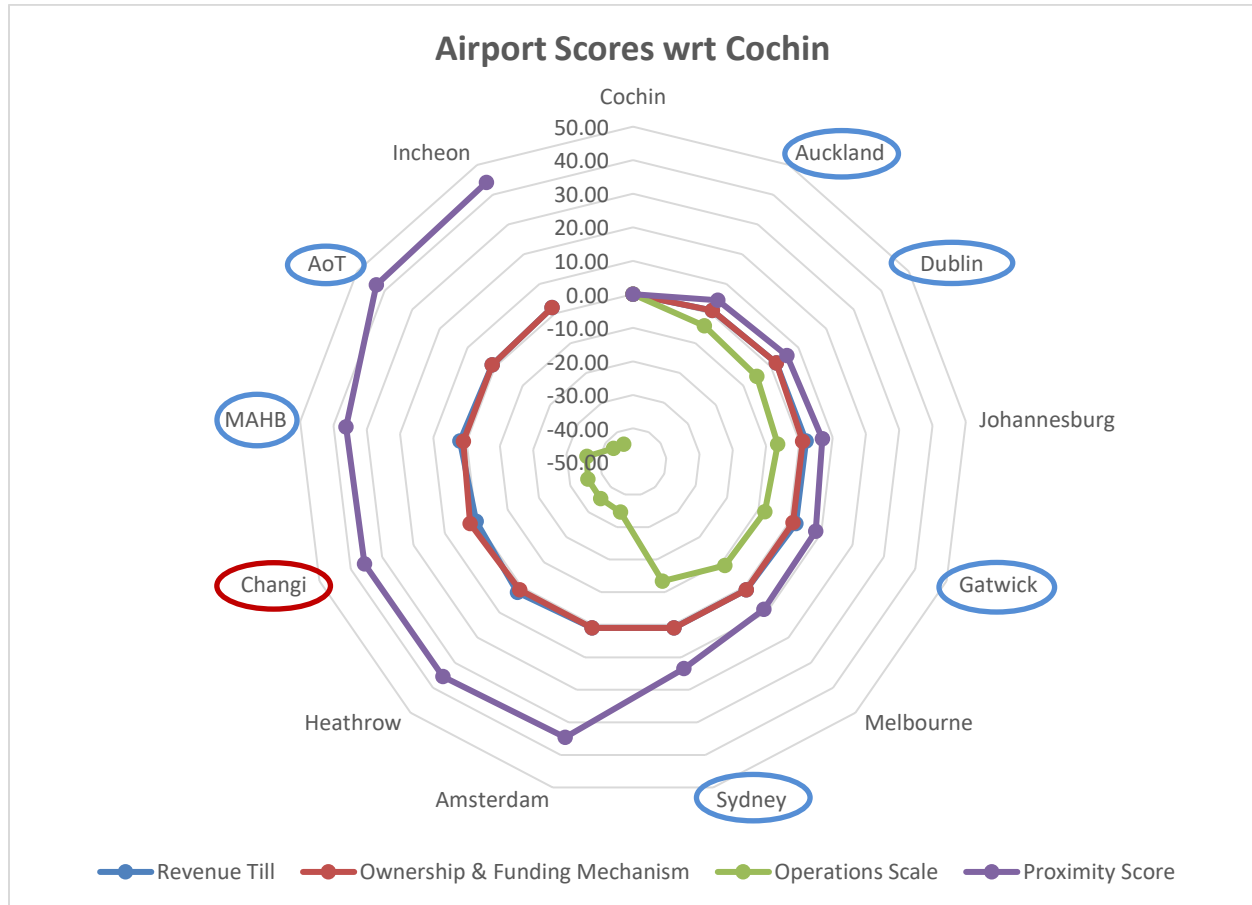
We shortlisted 7 airports for a detailed study based on the overall proximity scores of these airports. The criterion for the shortlist was governed by the proximity score and the availability of data. *Fig 2.1* map these airports w.r.t. CIAL on a radar chart based on their proximity scores. The radar chart sweeps in the clockwise direction, with the proximity score spiraling outwards. The scores range from ~4.4327 for Auckland to ~44.1513 for Incheon. The lower the score, the nearer the airport is w.r.t. CIAL.

We adhered to three principles in determining the comparison set of international airports: (i) listed airports that provided market-based price data are preferred to unlisted airports, (ii) if an airport is unlisted, we seek credible beta information from regulatory authority, if available in public domain, and (iii) among comparison airports in the same geography/jurisdiction, we give preference to the listed airports, and among the listed airports, the one with more proximity.

Heathrow was excluded from the list to avoid geographical clustering (giving preference to Gatwick because of its proximity to CIAL). In the case of Australia, regulators do not provide any information on asset beta. The only recourse to a good estimate of beta is to rely on market information. Since Sydney is a listed airport, we can estimate Sydney airport's beta using market data. Melbourne airport is unlisted, and the regulatory authority also does not provide any estimate of beta. Thus, we prefer to include Sydney airport in our comparison set despite Melbourne airport being more proximate to CIAL because Sydney airport's beta estimates can be reliably computed using market price data. Also, lack of comprehensive data made us exclude Amsterdam airport, Incheon airport, and Johannesburg airport.

Fig 2.1: Airport Proximity Scores w.r.t. Cochin

The chart depicts the scores of various parameters (Revenue Till, Ownership Structure, Operations and the Overall Proximity Score) of various international airports w.r.t. CIAL. All scores originate at CIAL (all scores are 0 here). As one sweeps clockwise, the Proximity Score moves away from Cochin, thus making Auckland the nearest airport to Cochin and Incheon the farthest. Negative scores are possible only for Operations score. Heathrow airport was excluded to avoid geographical clustering (giving preference to Gatwick). The 6 airports (Sydney, Gatwick, Auckland, MAHB, AoT and Dublin) encircled in **blue** and 1 airport (Changi) encircled in **red** are used for comparative study vis-à-vis CIAL (sec 2.2). The airports encircled in **blue** (Sydney, Gatwick, Auckland, MAHB, AoT and Dublin) are used for asset beta computation of CIAL as discussed in chapter 3 (sec 3.2.1). MAHB is the holding company of Kuala Lumpur Airport. AoT is the holding company of Bangkok Airport.



Data Sources: Individual airports' website; balance sheets and regulators' website.

Recommendations (Comparable Set of International Airports for CIAL)

- *The study considered different jurisdictions and assessed the existence of airport data and the relevance of the airport (See Table R1 of the study). Europe, South Africa, South East Asia, and Australasian regions were deemed to be relevant for the study. Middle East (hub airports) and China (lack of credible data), the Americas (different environment) were excluded. Next, within the four regions, the study narrowed down on 12 airports: Sydney, Melbourne, Auckland, MAHB, AoT, Changi, Incheon, Heathrow, Gatwick, Dublin, Amsterdam, and Johannesburg. These airports were considered for determining the proximity score because traffic density data was available.*
- *For estimating the asset beta (Chapter 3), we adhered to three principles in determining the comparison set of international airports: (i) listed airports were preferred to unlisted airports, (ii) if the airport is unlisted, we sought credible beta information from the regulatory authority, if available in public domain, and (iii) among comparison airports in the same geography/jurisdiction, we gave preference to the listed airports, and within the listed airports, the one with more proximity.*
- *The final comparison set for estimating asset beta consists of 6 airports (2 from Australasia – Sydney and Auckland, 2 from South East Asia – MAHB and AoT, and 2 from Europe - Gatwick, and Dublin). These airports were finally considered based on availability of market price data and the experience of the regulatory authority in assessing airport beta. The geographic spread of comparison set airports gives us confidence that the estimation of asset beta is robust.*
- *In the set of 6 airports considered for estimating asset beta, 4 airports are from developed countries and 2 airports from developing countries. Note that Indian airports face less demand risk because of generous true-ups offered in the PPP agreement. Thus, Indian airports are unlikely to face more systematic risk than developed country airports and can be benchmarked against comparable developed country airports in the comparison set.*
- *In the case of Australia, regulators do not provide any information on asset beta. Therefore, including a listed airport (Sydney) is preferable to including Melbourne because beta estimates can be reliably computed using market price data.*

We next analyze these airports vis-à-vis CIAL for its capitalization structure, funding mechanism and investors' returns.

2.2.1. Capitalization and Ownership Structure

Heathrow is 100% privately owned by Heathrow Airport Holdings Limited with no government stake. The erstwhile government entity of British Airports Authority (BAA) was privatized in 1987 and raised capital through the open market. It also constituted a part of FTSE 100 with peak operating profits of GBP 11 million in the mid-1990s. It was delisted in

2006 following a takeover by a consortium of operators led by Spanish MNC, Ferrovial, S.A. This consortium currently operates Heathrow. Its current ownership structure is shown Table 2.2.²¹

The Gatwick airport was also originally part of BAA and then Ferrovial, S.A. However, subsequent stake sales have altered the ownership structure. Table 2.3 shows the current pattern.

Table 2.2: Ownership structure of Heathrow Airport

Shareholders (Col 1)	Share (Col 2)
Ferrovial	25.00%
Qatar Holding	20.00%
Caisse de dépôt et placement du Québec	12.62%
Government of Singapore Investment Corporation	11.20%
Alinda Capital	11.18%
China Investment Corporation	10.00%
Universities Superannuation Scheme	10.00%
Total	100.00%

Source: <https://www.heathrow.com/company/investor-centre/investor-presentations>

Table 2.3: Ownership structure of Gatwick Airport

Shareholders (Col 1)	Share (Col 2)
VINCI SA	50.01%
Other Shareholders (undisclosed)	49.99%
Total	100.00%

Source: <https://www.gatwickairport.com/globalassets/business--community/investors/april-2020/ivy-holdco-limited-consolidated-financial-statements-31-december-2019.pdf>

²¹ <https://www.heathrow.com/company/investor-centre/investor-presentations> as viewed on 12 Dec 2020

Sydney and Auckland are publicly listed companies with the ownership structure as depicted in Table 2.4 and Table 2.5, respectively.

Table 2.4: Ownership structure of Sydney Airport

Shareholders (Col 1)	Share (Col 2)
HSBC Custody Nominees (Australia) Limited	26.9%
BNP Paribas Nominees Pty Ltd	18.4%
J P Morgan Nominees Australia Limited	12.8%
Citicorp Nominees Pty Limited	6.6%
Balance Retail Holdings	35.3%
Total	100.00%

Source:

https://assets.ctfassets.net/v228i5y5k0x4/4VyuoCbo3sqHVBggCxV7h3/5ad8f884f3ac89516391d8ea459d50ff/SYD_Annual_Report_2019_FINAL.pdf

Table 2.5: Ownership structure of Auckland Airport

Shareholders (Col 1)	Share (Col 2)
Auckland Council Investments Limited	18.09%
Balance Retail Holdings	81.91%
Total	100.00%

Source:

<https://corporate.aucklandairport.co.nz/investors/results-and-reports>

The two major international airports at Bangkok (Suvarnabhumi Airport and Don Mueang) are owned and operated by a holding company, Airports of Thailand Public Company Limited (AoT). This holding company is a government-owned publicly listed company.²² Totally, 70% of the ownership is held by the state's Finance Ministry with foreign ownership capped

²² www.airportthai.co.th as viewed on 28 Feb 2020

at 30%, other major shareholders include Thai NVDR Company Limited (4.49%), South East Asia UK (Type C) Nominees Limited (2.76%) and State Street Europe Limited (1.67%).

The Kuala Lumpur airport manages on very similar lines of Bangkok by Malaysia Airport Holdings Berhad (MAHB), a holding company, in Table 2.6.

Table 2.6: Ownership structure of Malaysia Airport Holdings Berhad (MAHB)

Shareholders (Col 1)	Share (Col 2)
Khazanah Nasional Berhad	33.21%
Citigroup Nominees (Tempatan) Son Berhad (Employees Provident Fund Board)	13.06%
Balance Retail Holdings	53.73%
Total	100.00%

Source: https://mahb.listedcompany.com/misc/ar/mahb_ar2019.pdf

The Changi airport and Dublin airport are fully state-owned airports, through subsidiary companies.

Majority stake in CIAL is held by a consortium led by the State Govt. of Kerala. The shareholding patterns of CIAL and the other four (4) major Indian private airports (Bangalore, Delhi, Mumbai, and Hyderabad) are provided in Table 2.7 through Table 2.11.

Table 2.7: Ownership structure of Cochin International Airport Ltd. (CIAL)

Shareholders (Col 1)	Share (Col 2)
State Government of Kerala	32.42%
Mr. Yusuffali M. A.	9.88%
Mr. N. V. George	8.82%
Synthite Industries Pvt. Ltd.	6.53%
Others (institutions / individuals) owning less than 5%	42.35%
Total	100.00%

Source: Annual Report of CIAL for FY2019²³

Table 2.8: Ownership structure of Bangalore International Airport Ltd. (BIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	13.00%
Karnataka State Industrial and Infrastructure Development Corporation Limited (KSIIDC)	13.00%
Siemens Project Ventures GmbH	20.00%
FIH Mauritius Investments Limited	54.00%
Total	100.00%

Source: Website of BIAL²⁴

²³ <https://cial.aero/contents/viewcorporatecontent.aspx?linkId=71> as viewed on 28 Feb 2021

²⁴ <https://www.bengaluruairport.com/corporate/about-bial.html> as viewed on 28 Feb 2021.

Table 2.9: Ownership structure of Delhi International Airport Ltd. (DIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	26.00%
GMR Airports Limited	64.00%
Fraport AG Frankfurt Airport Services Worldwide	10.00%
Total	100.00%

Source: Annual Report of DIAL 2019-20

Table 2.10: Ownership structure of Mumbai International Airport Ltd. (MIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	26.00%
Adani Group	74.00%
Total	100.00%

Source: Business Standard, 1 Sep 2020²⁵

Table 2.11: Ownership structure of Hyderabad International Airport Ltd. (HIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	13.00%
Government of Telangana	13.00%
MAHB (Mauritius) Private Limited	11.00%
GMR Airports Limited	63.00%
Total	100.00%

Source: Website of HIAL²⁶

²⁵ https://www.business-standard.com/article/companies/adani-group-acquires-74-per-cent-stake-in-mumbai-international-airport-120083100215_1.html as viewed on 28 Feb 2021.

²⁶ <https://www.hyderabad.aero/our-company.aspx> as viewed on 28 Feb 2021.

2.2.2. Funding Mechanism

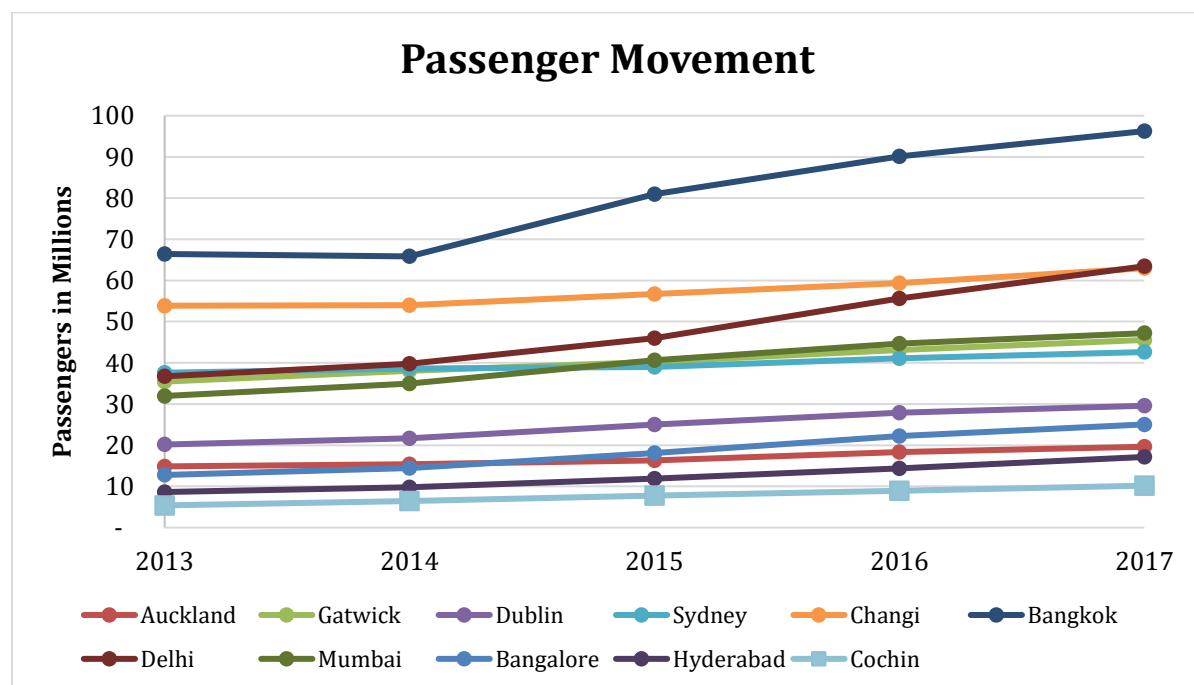
As highlighted in Table 2.4 and Table 2.5, the Asset Management Companies (AMCs) and pension funds are a major shareholder in Australia and New Zealand. In the case of Malaysia and Thailand, the holding company is listed.

2.2.3. Trends in Airports Operations'

Fig 2.3 – Fig. 2.6 show the recent trends of passenger movement, total revenue, revenue/passenger and Earnings After Tax (EAT) for all airports. As seen from these charts, all parameters indicate a healthy state, with the following key takeaways:

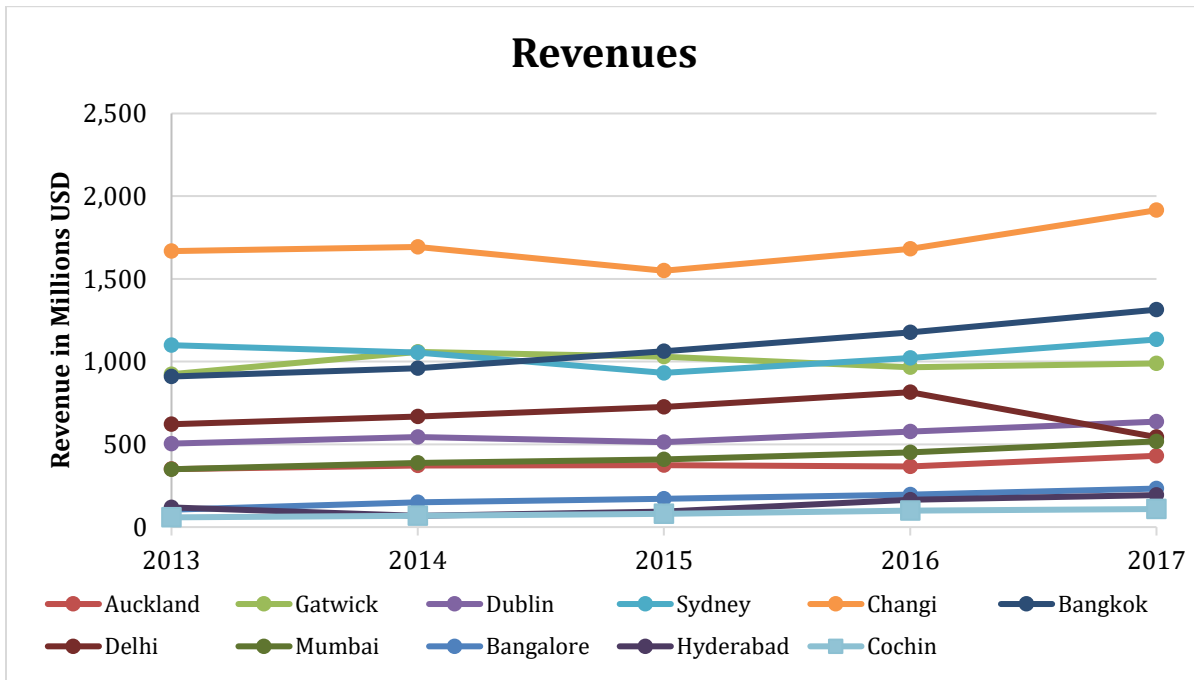
- All airports have experienced a steady growth in passenger volumes (Fig 2.3) over the period of 5 years.
- Revenue trends are also in sync with passenger trends (Fig 2.4) except for Delhi (2017) and Hyderabad (2013).
- Earnings After Taxes (EAT) have also been rising except for Changi airport – Fig 2.6.

Fig 2.2: Passenger Movement Trends



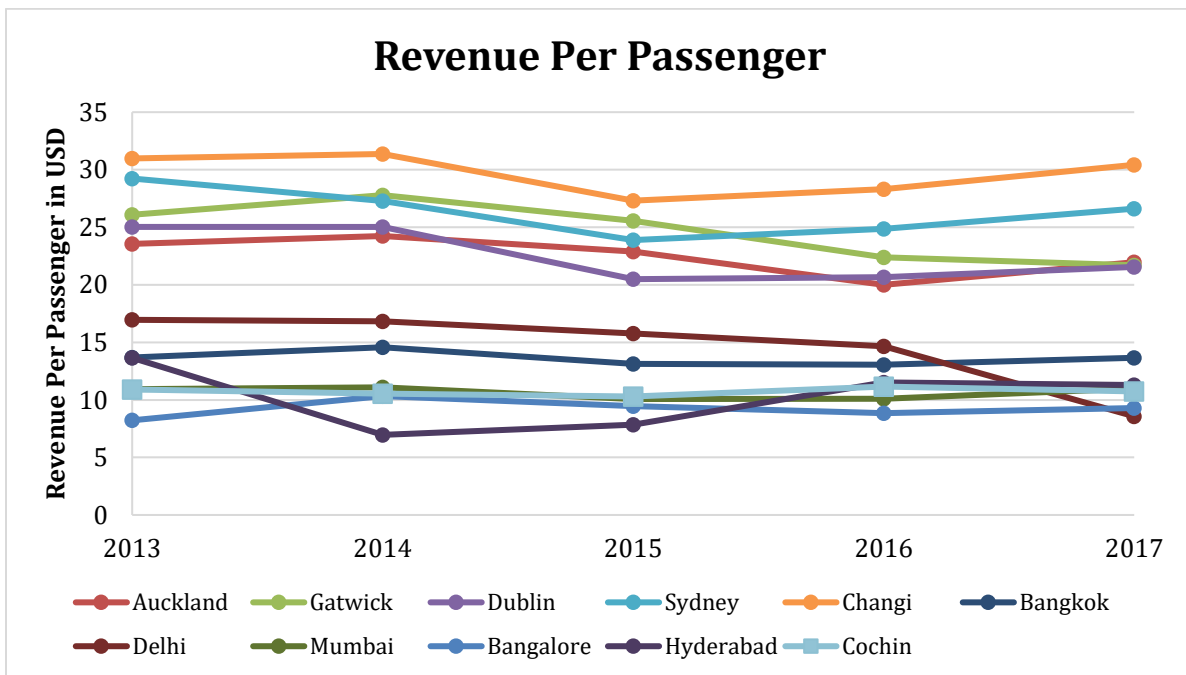
Data Source: Passenger and traffic statistics published by the respective airports' official website for international airports and the Airports' Authority of India's website for Indian airports.

Fig 2.3: Revenue Trends



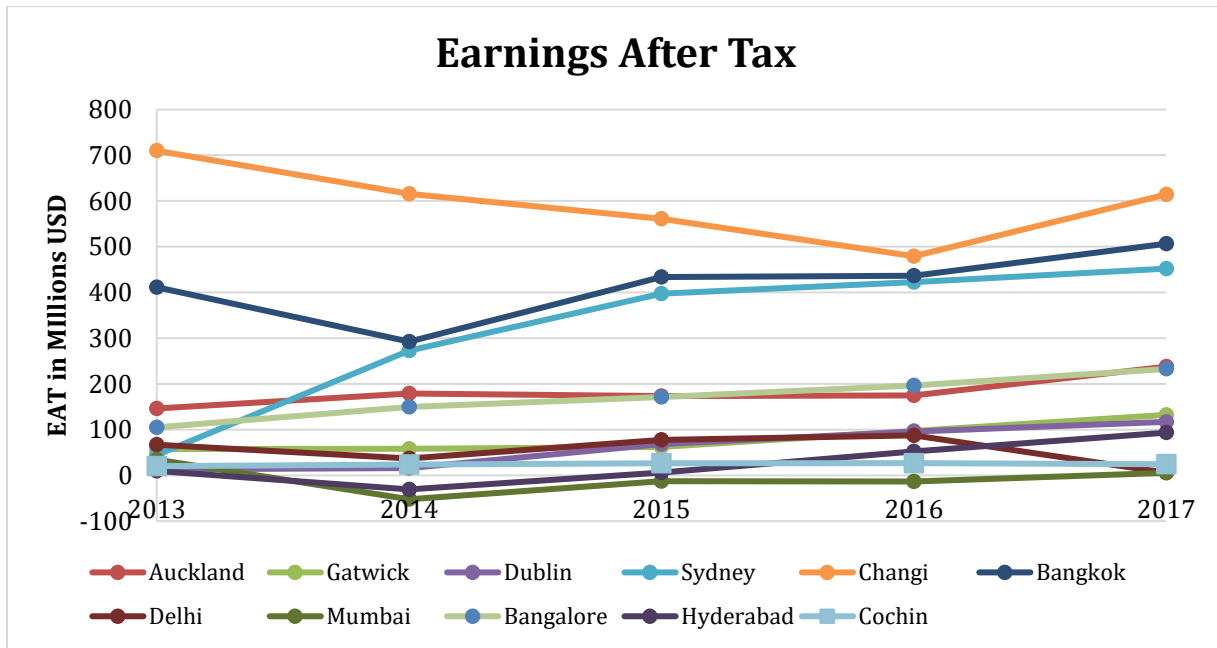
Data Source: Annual reports of the respective airports

Fig 2.4: Revenue Per Passenger Trends



Data Source: Annual reports and passenger movement data from official websites

Fig 2.5: Earnings after Tax Trends



Data Source: Annual reports of the respective airports

Given these insights, we now try to draw some lessons for the Indian airports. We tried to establish a correlation between EAT vs. revenue per passenger. The hypothesis is, with an increase in passenger movement and EAT, revenue per passenger should be fairly stable or decrease. In other words, if traffic as well as EAT is healthy, the total airport charges per passenger should be constant or decrease because being public services there is pressure on airports to reduce tariffs whenever possible. Table 2.12 presents this scenario for our comparable set of airports and Table 2.13 presents this scenario for Indian airports.

Table 2.12 : Relationship between Revenue Per Passenger vs. EAT (Comparable Set)

[In this table, we try to test the following hypothesis: Does increase in passenger movement and EAT stabilize the Revenue per Passenger? This seems to be true for the comparables' set.]

Airport (Col 1)	EAT Trend (Col 2)	Passenger Movement Trend (Col 3)	Revenue Per Passenger Trend (Col 4)	Correlation Coeff. (Col 5)
Auckland	↑	↑	↔	0.9908
Sydney	↑	↑	↔	0.7234
AoT*	↑	↑	↔	0.1352
Singapore	↓	↑	↔	0.3149
Gatwick	↑	↑	↔	0.6333
Dublin	↑	↑	↔	0.0857

Data Source: Balance sheets and official website of individual websites

*Includes only passenger data, revenue data and earnings after tax data, for Bangkok and Don Mueang Airports only, not the holding company, Airports of Thailand as a whole.

Table 2.13: Relationship between Revenue per passenger vs. EAT (Indian Airports)

[In this table, we try to test the following hypothesis: Does increase in passenger movement and EAT stabilize the Revenue per Passenger? This seems to be true for the set of comparable airports (Table 2.12). It is not so for Indian airports.]

Airport (Col 1)	EAT Trend (Col 2)	Passenger Movement Trend (Col 3)	Revenue Per Passenger Trend (Col 4)	Correlation Coeff. (Col 5)
Mumbai	↑	↑	↑	0.1122
Delhi	↑	↑	↓	0.7528
Hyderabad	↑	↑	↑	0.6237
Bangalore	↑	↑	↑	0.3218
Cochin	↑	↑	↑	0.6449

Data Source: Balance sheets and AAI's official website

As can be seen from Table 2.12, while EAT and revenues have been on an increasing trajectory for Indian airports, revenue per passenger, on average, is marginally increasing

with positive and negative growths in individual years (except in the case of Delhi where it has been decreasing consistently).

2.3. Associated Issues

2.3.1. Internal Rate of Return to Equity Investors

We study the returns that investors in airports in the comparable set have earned over the past 5 years (2013–17). For this, we take the approach of computing the Internal Rate of Return (IRR) for all the airports. Internal Rate of Return (IRR) is the compounded annual rate of return that the investor earns annually for his investment over a given period.²⁷ Fig 2.6 shows the results. The key takeaways are as follows:

1. Auckland and Sydney being listed companies with pension and long-term mutual funds, show the way forward for good airport funding and management. The healthy IRR suggests access to long-term funds can ease pressure on OPEX. Furthermore, any plans for expansion can be envisaged with lower rates for CAPEX and lower Cost of Debt (CoD).
2. Airports of Thailand: The Regulator does not mandate any dividend distribution. However, AoT as a company has a policy to pay out at least 25% of total profits as dividend.²⁸ On average, they have paid USD 197.26 million in the past 5 years and have the highest IRR in the group.
3. In case of Dublin, as per National Aviation Policy 2015, it is stated that profitable commercial state companies should pay financial dividend to the state; the guideline figure is 30% of profit after tax. Dublin has been gradually earning profits and dividend has been paid from the year 2015 onwards. However, a low IRR of 4% is due to losses incurred before 2015.
4. Even in the Indian airports, AERA does not mandate dividend payments; however, airports have recently started paying out dividends to their investors. Apart from MIAL, all others (BIAL, HIAL and DIAL) have been consistently profitable over the 5

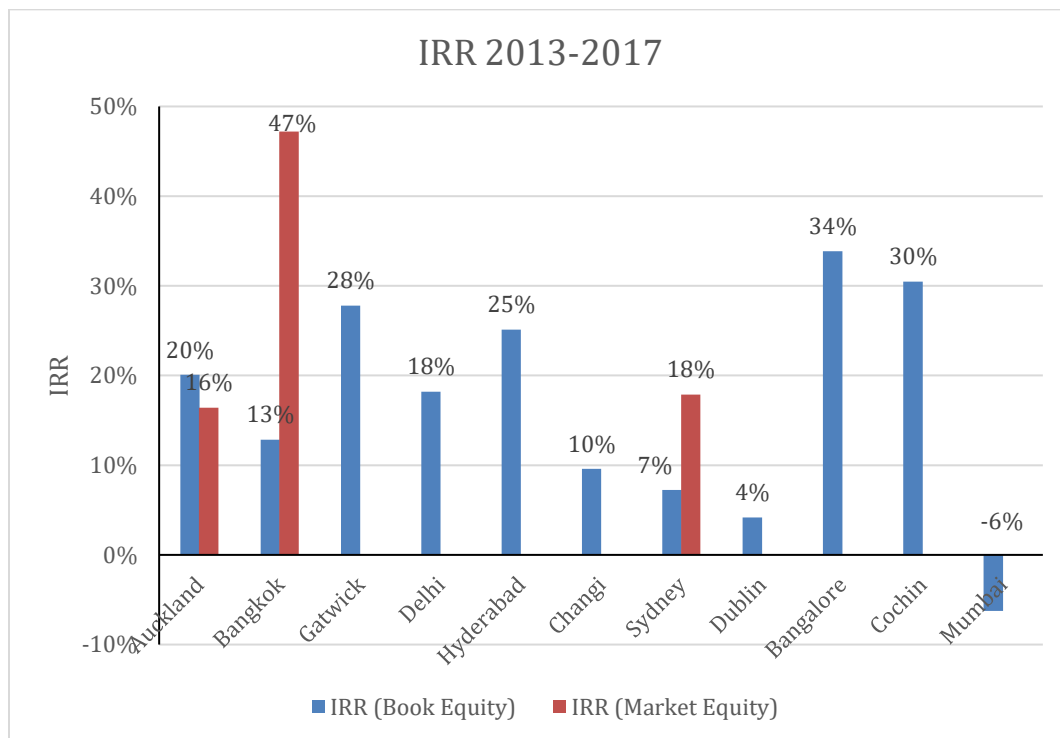
²⁷ <https://corporatefinanceinstitute.com/resources/knowledge/finance/internal-rate-return-irr/> as viewed on 12 Dec 2020.

²⁸ <http://investor.airportthai.co.th/dividend.html> as seen on 12 Dec 2020.

years. However, BIAL and HIAL have recently started paying dividends, while DIAL has paid dividends only once in 2017-18. MIAL is yet to declare dividends. CIAL has been consistently paying dividends since 2003-04.

Fig 2.6: Past 5 years' IRR based on Book and Equity Returns

Internal Rate of Return (IRR) is the compounded annual rate of return that the investor earns annually for his investment over a given period of time²⁷. We computed the IRR based on book equity and their market capitalization (wherever applicable). The book equity method considers beginning equity, all dividends accrued (2013–2017) and ending equity (including retained earnings). The IRR based on market equity is the annualized market return based on market prices (including dividends for 2013–2017).



Data Source: Respective balance sheets of individual airports and Bloomberg for market data

2.3.2. Operators' Returns: A Case of BIAL Divestment

In the FY 2009-2010, Bangalore Airport & Infrastructure Developers Private Limited (BIADPL), a fully owned subsidiary of GVK Power & Infrastructure Limited, purchased a stake of 43% from Flughafen Zurich AG, Switzerland and L&T Infrastructure Development Projects Limited at a cost of INR 1,173.107 Crores. Again, during FY 2011-2012 BIADPL infused a further capital of INR 613.820 Crores. However, for strategic reasons, they offloaded 33% of their stake for a consideration of 2,202 Crores to Fairfax India Holdings

Corporation (FHC). Then, in FY 2017-18, they completed the exit by selling off their remaining stake of 10% at 1,290 Crore. During their holding period, they also received a dividend of INR 16.54 Crores in the year 2016-2017. The net profit turns out to be ~95% or INR 1,783 Crores over 9 years. We performed an annual Internal Rate of Return (IRR)²⁷ analysis to understand the real returns accrued to BIADPL. Table 2.14 details the working of the same.

Table 2.14: IRR computation for BIAL divestment (All amounts in INR Crore)

	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Investments	(1,173)		(614)	0	0	0	0	0	0
Dividend	0	0	0	0	0	0	0	166	0
Sale proceeds	0	0	0	0	0	0	0	2,2017	1,290
Cash flows for IRR	(1,173)	0	(614)	0	0	0	0	2,2183	1,290
IRR									10.57%

Data Source: Balance Sheets of BIAL and GVK from 2009 – 2018

As observed from Table 2.14, the net IRR is 10.57% per annum for the given holding period of 9 years from 2009–'18. This appears to be quite close to the AERA recommended return for the second control period (FY2016-17 to FY2020-21), viz. ~11.33%, but lower than BIAL's submission of 17%.²⁹

2.3.3. Prevalent Trends in other Infrastructure Space

Securities and Exchange Board of India (SEBI) framed guidelines to set up the Infrastructure Investment Trust or InVITs like REITs. The structure of the same is showcased in Fig 2.7. Essentially, these InVITs function as a mutual fund, enabling individual/institutional investors to gain an exposure to the stable cash flows from an infrastructure asset without being exposed to the risks involved in setting them up. As per the regulations, completed and

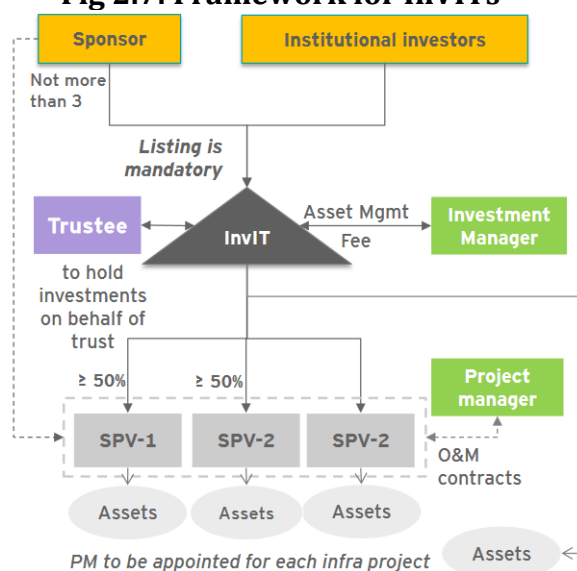
²⁹ AERA Consultation Paper No. 05/ 2018-19 from file: AERA/20010/MYTP/BIAL/CP-II/2016-17/Vol-III

revenue generating projects in PPP mode are eligible to be securitized through this procedure. Several projects in the roads and power sector are part of InVITs.

As of 2018, a prominent InVITs in the road space was IRB InVIT Fund sponsored and managed by IDBI. This had an income of 5,157 Cr. with 13 road projects. Another prominent InVIT in the power sector was IndiGrid sponsored and managed by the Sterlite group. This had an income of 406 Cr with 6 project SPVs.

The InVIT structure could be considered as one of the options while privatizing other airports owned by the Government of India.

Fig 2.7: Framework for InVITs.³⁰



Source: Ernst & Young Report on Infrastructure Investment Trusts

2.4. Determinants of CoE used in the Set of Comparable Airports

As we saw in section 2.1, although none of the regulators mandate the CAPM methodology, all the airport operators use the CAPM to determine the Cost of Equity. We know that the risk-free rate and ERPs in the CAPM equation (Equation 1.1) are macro-economic in nature, but the key in CoE determination is the equity beta. Regulators of Auckland airport, Heathrow airport, Gatwick airport and Dublin airport state the betas that they use in their

³⁰ PM in figure refers to Project manager.

CoE computations. Table 2.15 – Table 2.18 show the asset and equity betas for different control periods used in Heathrow, Gatwick, Dublin and Auckland across control periods.

Table 2.15: Auckland Regulator Betas

Auckland					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
Commerce Commission	July 2008 - June 2012	0.68	1.08	0.50	0.70
Commerce Commission	July 2013 - June 2017	0.89		0.60	
Commerce Commission	July 2017 - June 2022	0.74		0.60	

Data Source: Final Report - Auckland International Airport's Pricing Decisions (July 2017 – June 2022), dated 01 November 2018, ISBN No. 978-1-869456-65-8

<https://comcom.govt.nz/regulated-industries/airports/projects/review-of-price-setting-event-3#projecttab>

Table 2.16: Heathrow Regulator Betas

Heathrow					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
Civil Aviation Authority	April 2008 - March 2013	0.90	1.15	0.56	
Civil Aviation Authority	April 2014 - December 2019	1.10		0.50	
NERA Estimated	January 2020 - December 2024	1.30	1.40	0.55	0.60

Data Source: Economic Regulation of Heathrow and Gatwick Airports (2014-2019), February 2014

<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=6074>

Table 2.17: Gatwick Regulator Betas

Gatwick					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
Civil Aviation Authority	April 2008 - March 2013	1.00	1.30	0.80	
Civil Aviation Authority	April 2014 - December 2019	1.13		0.56	

Data Source: Economic Regulation of Heathrow and Gatwick Airports (2014-2019), February 2014
<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=6074>

Table 2.18: Dublin Regulator Betas

Dublin					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity (Col 3)		Asset (Col 4)	
		Low	High	Low	High
NERA Estimated	2006 - 2009	1.40		0.70	
NERA Estimated	2010 - 2014	1.20	1.40	0.60	0.70
Commission of Aviation Regulation	2015 - 2019	-	-	0.50	0.60

Data Source: Maximum Level of Airport Charges at Dublin Airport, dated 07 October 2014.
<https://www.aviationreg.ie/fileupload/2014final/2014%20Final%20Determination.pdf>

2.5. Sensitivity of Betas – Indian Scenario

What are the real risks? From a CAPM perspective, the only real risk is demand risk, i.e., the airport's exposure to the macroeconomic conditions. Beta measures this exposure. The absence of listed airport assets in the Indian market prevents us from assessing this exposure in a direct manner. However, given passenger volumes are key drivers of revenue for airports, an indirect approach is to measure the sensitivity of growth in passenger volumes to market returns. In order to understand this, we regressed the monthly growth

rate in passenger volumes for CIAL on the monthly returns for the Indian stock market. The passenger growth rate can be viewed as a proxy for the demand driver for CIAL. The stock market return captures the fluctuations in macroeconomic conditions. A high value of the slope from this regression would indicate high exposure of CIAL to demand risk and vice-versa. We found a negative, but not significant, regression coefficient (~ -0.2), thus indicating that the demand for CIAL is relatively inelastic and highly constrained by supply under normal circumstances. Appendix 3 details the methodology and results of this analysis.

2.6. Conclusion

In this chapter, we saw the regulatory framework of various airport regulators across the world with a focus on CoE. The key takeaways are as follows:

- All of them use CAPM as a method to estimate CoE but none mandate it.
 - Only Dublin uses a complicated model based on operational metrics/ad hoc assumptions.
- D/E ratios are not mandated, however, the actual D/E ratios using shareholders' fund and paid-up equity range from 43.75% to 81.33%.

Next, we identified airports that were closest to CIAL w.r.t. operations, ownership structure and till. Then, we studied these comparable airports for any lessons for Indian airports in general, and CIAL. A valuable lesson to be drawn is that CAPEX requirements can be addressed through the open market route. Also, we concluded that while other airports are in a mature or saturated phase, Indian airports are still in a growth phase with high potential. Furthermore, this argument is strengthened by the demand analyses of Indian airports. Also, we looked at other sectors like road and power and how InVITs is helping cash flows.

Given we have now identified our comparables' set, we are all set to go ahead with CoE estimation for CIAL. As we have established the distance of these airports, we evolve methodologies to impute the betas for CIAL. The next chapter is devoted to establishing these estimates and determining CoE and providing an illustrative example for FRoR computation.

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Chapter 3 – Determination of Cost of Equity and Fair Rate of Return

Airport regulators world over use the Capital Asset Pricing Model (CAPM) to estimate the Cost of Equity (CoE) for their private operators. Further, these costs are estimated in blocks of time period keeping in mind the current macro-economic realities as well as operational requirements. This is true of AERA as well. It is done for 5 years “Control Periods”. The current control period for CIAL ends on 31.03.2021 and the next 5 years’ control period is from FY2021-22 to FY2025-26. In this chapter, we estimate the CoE and provide an illustrative example of FRoR computation for CIAL. As highlighted in chapter 2, we identified 6 international airports that were very similar to CIAL in terms of their operations, funding mechanism and till structures, and studied them in detail. Further, we also highlighted the pertinent lessons for Indian airport operators and regulators therein.

First, we revisit the CAPM methodology and state the assumptions and the relevance therein. Next, we elaborate on the process of obtaining the individual components of CoE, viz., betas (assets as well as equity), risk-free rate and the Equity Risk Premium (ERP). Finally, we provide an illustrative example of the CoD and FRoR computation.

3.1. Capital Asset Pricing Model

The Capital Asset Pricing Model was developed in the 1960s by Sharpe³¹ (1964) and Lintner (1965).³² It can be used to estimate a project’s cost of capital, which is the expected rate demanded by potential investors. The cost of capital is used to assess the value of risky cash flows from investment projects made by businesses. According to the CAPM, the project’s cost of capital is linearly related to a measure of project risk (known as beta), which essentially captures the sensitivity of the project’s cash flows to the state of the economy. The greater is the sensitivity, the greater is the risk faced by potential investors and the greater is the expected return of these investors, or the cost of capital. Thus, estimating the

³¹ Sharpe, William F. 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance* 19 (September): 425–42.

³² Lintner, John. 1965. The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics* 47 (February): 13–37.

beta of the project is required to estimate the cost of equity. Equation 1.1 (**highlighted below**) is used to compute the Cost of Equity (CoE).

$$CoE = R_f + \beta_E (R_M - R_f),$$

where

CoE = Cost of Equity

R_f = Risk-free rate.

$R_M - R_f$ = Equity Risk Premium (ERP).

β_E = Equity beta.

Assumptions

- Homogeneous expectations (distinguishes from portfolio theory)
- Quadratic utility or multivariate normality of returns
- Rational, risk-averse investors
- Perfect capital markets
- Unrestricted short selling
- Borrowing and lending at the riskless rate

Relevance of CAPM

The empirical validity of the CAPM has been debated by academics and researchers.^{33,34} However, it is by far the most widely accepted by business practitioners to determine the cost of capital.

³³ Fama, Eugene F., and French, Kenneth R.; 1992. The cross-section of expected stock returns. *Journal of Finance* 47 (June): 427–65.

³⁴ Jagannathan, Ravi, and Wang, Zhenyu. 1993. The CAPM is alive and well. Research Department Staff Report 165. Federal Reserve Bank of Minneapolis

Discussion Summary on Estimation Approach

- *While the CAPM is a theoretical model based on assumptions that do not necessarily hold in the real world, its simplicity and intuitive appeal have made it the on-going favorite model for determining cost of equity in any market-based economy. Our procedures for determining Cost of Equity using the Capital Asset Pricing Model are consistent with the best practices adopted by international airport regulatory authorities and by regulatory authorities across the world for a wide range of utilities (Table R1, Ch. 2).*
- *In particular, the CAPM says that the cost of equity should be related to demand (or business) risk, as measured by correlation of a firm's stock returns with the returns on the market portfolio. More importantly, the CAPM points out that idiosyncratic difference in firms should NOT affect the cost of equity because investors in a market-based economy hold portfolios rather than individual assets and thus are able to diversify away the idiosyncratic risk exposure. In short, idiosyncratic factors (e.g., airport specific factors) do not affect the estimation of cost of equity when using the CAPM methodology.*
- *Furthermore, it is important to note that "true-up" of costs afforded to Indian airports shields them from demand risk; this is a feature that indicates that Indian airport operators (under the PPP arrangement) face low systematic risks and in that sense, developed country airports can also be used as benchmarks while estimating asset beta.*
- *Given the conceptual underpinnings of CAPM (as pointed out above), the standard approach is to find a comparable set of airports and impute a cost of equity based on the betas for a comparable set of firms. Our approach accounts for ownership structure, operational scale, revenue till arrangement while identifying the "optimal" mix of comparable airports. Thus, comparable airports that are more proximate to CIAL are given more weightage when averaging the asset betas of comparable airports to estimate the asset beta of CIAL. This procedure essentially implies that the proximity-score weighted average asset beta of comparable firms mimics a tracking portfolio of firms that provides the best proxy for the systematic risk inherent in CIAL.*
- *In summary, we use a procedure that is consistent with the application of the CAPM and which accounts for key differences in ownership, funding, and operation scale. Our approach is also unique in that it is driven by actual data considerations rather than plausible motivations for drivers of cost of equity.*

3.2. Methodology for CoE Estimation

As seen in section 3.1, we need three components to estimate the CoE using CAPM. These components are the risk-free rate (R_f), equity beta and the equity risk premium (ERP). R_f and ERP are mostly macro-economic in nature and thus one can rely on time-series data to estimate these variables. However, determining the equity beta is more challenging, especially for unlisted companies such as CIAL. As will be discussed in section 3.2.1, we overcome this issue by using a set of comparable airports. We use the R_f that is available from public sources. For determining ERP , we combine our own estimates for ERP (study by Anshuman, Biswas, Jain and Sharma, 2019) with the ERP estimates from Grant Thornton and Damodaran.³⁵ For the purpose of illustration, we estimate the cost of Debt (CoD) of CIAL by determining the cost of debt for infrastructure firms that have issued debt with a similar credit rating as CIAL.

The control periods for DIAL and MIAL are slightly staggered from that of CIAL, BIAL and HIAL. To maintain consistency in the cost of equity estimates across these five PPP airports, we have used the same time-period to estimate ERP and risk-free rate for CIAL as used for BIAL, HIAL, DIAL and MIAL. This consistency in approach for the five PPP based airports is advisable given that there is transient variation in equity risk premium which can differentially impact the cost of equity of these airports.³⁶

3.2.1. Methodology Summary

Now that we have the set of comparable airports and computed their respective Proximity Distance Scores w.r.t. CIAL (sec 2.2), we can now move on to estimating the Cost of Equity (CoE) and providing an illustrative example of Fair Rate of Return (FRoR) computation. Here are the steps involved in the process:

1. Unlever the betas of listed Comparable Airports (secs 3.2.32 and 3.3.2)

³⁵ Anshuman, Biswas, Jain, and Sharma (2019); Predictability of Equity Risk Premium in India.

³⁶ For instance, the market fell by around 30% in the first three months and then recovered the entire loss by the end of the year. These large fluctuations are unprecedented and related to the Covid crisis. ERP estimates fluctuate between 5.2% to 7.2% over 2020 depending on time at which it is estimated.

2. Next, we estimate Asset Betas for CIAL (secs 3.2.3 and 3.3.3) with Proximity Distance Scores (sec 2.2) as inputs
3. Then, we re-lever Asset Betas to get Equity Betas for CIAL (secs 3.2.4, 3.3.4 and 3.3.4) with Target Gearing Ratios (sec 3.3.4) as inputs
4. Next, we obtain the **CoE (sec 3.3.9)** using Equity Risk Premium or ERP (sec 3.3.6) and Risk Free Rate (sec 3.3.9) as inputs
5. Finally, we illustrate the computation of the **FROr (sec 3.3.9)** with Cost of Debt (CoD) as an input (sec 3.3.7). Please note that this computation is for illustrative purpose only as CoD is time sensitive. The CoD must be estimated based on information available at that point in time in future. The entire process is summarized as a flowsheet in [Appendix 4](#).

3.2.2. Un-levering the Betas of the Listed firms in the Comparable Airports' Set

The comparable set consists of 6 airports – viz. Auckland, Airports of Thailand (AoT), Dublin, Gatwick, Malaysia Airports Holdings Berhad (MAHB) and Sydney. For AoT, MAHB and Sydney, which are listed airports, we can compute equity betas based on market data. We use the following methodology to estimate the asset betas from the equity betas:

- Estimate the equity betas for listed airports from our comparables' set through a regression of returns of these stocks on the returns of the relevant market index using data from Bloomberg.
- Un-lever these equity betas to find the corresponding asset betas using Equation 3.1.

$$\beta_A = \frac{\beta_E}{[1 + (1 - T_C) * \frac{D}{E}]}$$

Equation 3.1 – Unlevering Betas

where

β_A = Asset Beta,

β_E = Equity Beta,

T_C = Marginal Tax Rate,

D/E = **Actual** Market Debt to Equity Ratio

Dublin and Gatwick airports are unlisted but have estimates for asset betas from their respective regulators. Auckland airport is a listed airport, and its beta can be estimated from market data, but the New Zealand regulatory authority has assigned a specific value for the Auckland Airport asset beta after extensively analyzing market data and other airport-specific information. In this case, we give preference to the regulator assigned asset beta because it is based on a comprehensive study.

3.2.3. Estimating Asset Betas for CIAL

Next, we estimate the asset betas for CIAL by two (2) different methods, viz.:

1. Equal weighted average of these 6 airports' asset betas
2. Weighted average of these 6 airports' asset betas. The weights are the inverse proximity score from CIAL using Equation 3.2.

$$\beta_A = \frac{\sum_{k=1}^6 \left(\frac{\beta_k}{PS_{k,C}} \right)}{\sum_{k=1}^6 \left(\frac{1}{PS_{k,C}} \right)}$$

Equation 3.2 – Weighted Avg. Betas

where

β_A = Unlevered Asset betas for CIAL

β_k = Unlevered asset betas for comparable airports, k , viz. MAHB, Sydney, AoT and Regulator estimated Asset Betas, for Auckland, Gatwick, and Dublin airports.

$PS_{k,C}$ is the proximity score of the comparable airport, k , with respect to CIAL.

The proximity score weighted (PSW) betas represents a more refined estimate of the true asset betas in contrast to the equally weighted counterpart as it incorporates the degree of similarity between CIAL and the airports in the comparable set.

3.2.4. Re-levering the CIAL's Asset Beta to get Equity Beta

We estimate equity beta for CIAL by re-levering the asset beta assuming a **Target** market Debt to Equity (D/E) ratios using Equation 3.3.

$$\beta_E = \beta_A * [1 + (1 - T_C) * \frac{D}{E}]$$

Equation 3.3 – Re-levering Betas

where

β_A = Asset Beta,

β_E = Equity Beta,

T_C = Marginal Tax Rate,

D/E = **Target** Market Debt to Equity Ratio

3.2.5. Cost of Equity and FRoR

With all components of CoE now available, we can compute the CoE using the CAPM equation. Once we have CoE, we can also compute FRoR using the Equation 3.4.

$$FRoR = (R_D * g) + R_E * (1 - g)$$

Equation 3.4 – Fair Rate of Return

where

g = Target Debt to (Debt + Equity) Ratio

R_D = **Cost of Debt**

R_E = **Post-Tax Cost of Equity**

Apart from CoE, the Cost of Debt (CoD) is the key components of Equation 3.4. The Cost of Debt (CoD) is estimated as the coupon rate for bonds issued with similar credit ratings as CIAL.

The entire process flow with relevant sections numbers is showcased in [Appendix 4](#).

3.3. Results and Discussion

Below, we present all the relevant results leading up to the computation of CoE and FRoR. We start with shortlisting of airports for beta computations followed by asset and equity betas for them. This is followed by a section on Cost of Debt and finally the CoE and FRoR.

3.3.1. Shortlisting Relevant Airports for Asset Betas for CIAL

The comparable set consists of six international airports. Of these, three airports, Sydney, MAHB and AoT are listed companies with traded stocks. Listed airports are chosen to ensure that their equity betas are readily available for computation using price data from a commercial source like Bloomberg. The asset betas for these airports are computed from the estimated equity betas. For the other three airports, Auckland, Gatwick and Dublin, the country regulatory authorities have provided direct estimates of asset betas for the forthcoming control periods.

3.3.2. Results Related to Estimating Asset Betas of Airports in the Comparable Set

We estimate the asset betas for 6 airports (AoT, Auckland, Dublin, Gatwick, MAHB and Sydney) from the comparable set. For three of these airports (AoT, MAHB and Sydney), we use price data to estimate their equity betas and adjust for leverage to calculate their asset betas. For the other three airports (Auckland, Dublin, and Gatwick), we rely on the estimates of asset beta provided by the relevant regulatory authorities. Table 3.1 shows the equity and asset betas of AoT, MAHB and Sydney. The equity betas are obtained from Bloomberg and corresponding asset betas are estimated by un-levering using Equation 3.1. As highlighted, the asset betas range from 0.40 for Sydney to 0.86 for AoT. Table 3.1 shows the regulator estimated asset betas of Auckland, Dublin, and Gatwick. As highlighted, the asset betas range from 0.55 for Dublin to 0.60 for Auckland.

Table 3.1: Asset and Equity Betas for 3 Comparable International Airports

Note: The equity betas are directly sourced from Bloomberg. The asset betas are computed as $\beta_A = \beta_E / [1 + (1 - T_c) * D/E]$ (Equation 3.1). *** Indicates a 99% statistical significance level of beta estimate.

Airport (Col 1)	Equity Beta ³⁷ (Col 2)	Marginal Tax Rates ³⁸ (Col 3)	3-Year Avg. Market Debt Equity (Col 4)	Asset Beta ³⁹ (Col 5)
Sydney	0.5641***	30.00%	0.5859	0.4000
MAHB	1.0573***	24.00%	0.4927	0.7693
AoT	0.8895***	20.00%	0.0456	0.8582

Data Sources: Bloomberg for Equity Betas; Deloitte Inc. for marginal tax rates

Table 3.2: Regulator Estimated Asset Betas for 3 Comparable International Airports

Regulator		
Airport (Col 1)	Asset Beta (Col 2)	Reference (Col 3)
Auckland	0.60	Table 2.15
Dublin	0.55*	Table 2.18
Gatwick	0.56	Table 2.17

*The regulatory authority has provided two estimates: a low asset beta and a high asset beta. We use the simple average of the low asset beta (0.50) and the high asset betas (0.60), i.e., 0.55.

3.3.3. Results Related to Estimation of Asset Betas for CIAL

Using the methodology described in section 3.2.1, we first computed the asset betas for CIAL using two different techniques, viz. equally weighted and proximity score weighted (Equation 3.2). As discussed earlier as well, the proximity score weighted (PSW) beta better represents the true asset beta as compared to the equally weighted counterpart as they account for the similarity between the Indian airport and the airport in the comparables' set.

³⁷ Source: Bloomberg data from 2016 – 2018 weekly returns

³⁸ <https://www2.deloitte.com/global/en/pages/tax/articles/global-tax-rates.html>, as viewed on 28 Feb 2020

³⁹ $\beta_A = \beta_E / [1 + (1 - T_c) * D/E]$ – Equation 3.1

Table 3.3: Asset Betas for CIAL.

Equally weighted is simple average of comparables' asset betas. PSW is the weighted average of the asset betas with the weights being the (inverse) Proximity Score of the airport (Equation 3.2).⁴⁰ The proximity score weighted (PSW) beta is a more refined estimate that accounts for airport-specific information.

	Equally Weighted Average Asset Beta	Proximity Score Weighted Average Asset Beta
CIAL	0.6229	0.572651

Recommendation (Proxy for Asset Beta of CIAL)

- *We discussed the two different ways to compute proxies for assets betas of CIAL. Our recommendation based on the proximity score weighted beta estimate is more reliable. The equally weighted approach is useful only when the comparable set of airports is picked from the same environment.*
- *Statistically speaking, if the sample consists of observations from different distributions with different population means, taking a simple statistic like the sample average will be biased. In such cases, a weighted average rather than a simple average in which the weights recognize the degree of difference between the sample observation and the relevant population distribution is considered. Our proximity score weighted beta approach accounts for the “closeness” of the comparable airports to CIAL.*
- *The recommended asset betas for CIAL is **0.572651***

3.3.4. Re-levering Asset Betas of CIAL

Re-levering the asset betas to estimate the equity betas for CIAL is done by assuming a target gearing ratio using Equation 3.3. In Table 3.4, one can see the gearing ratios employed by different international airports for computing the weighted average cost of capital (WACC) in column (2). The column (3) shows the average 5-year book debt to equity ratio (based on paid-up equity capital, as has been done in the case of CIAL). It is evident that the gearing

⁴⁰ $\beta_A = \frac{\sum_{k=1}^6 \left(\frac{\beta_k}{PS_{k,C}} \right)}{\sum_{k=1}^6 \left(\frac{1}{PS_{k,C}} \right)}$ (Equation 3.2 – Weighted Avg. Betas)

ratio is significantly lower than the book debt to equity ratio for all international airports.⁴¹ The average gearing ratio is 48% but the 5-year average of the book debt to equity ratio is 83%. Further, we plotted the best-fit linear trend between these two variables, as shown in the chart below. We can see that R-square is virtually 0 suggesting that the two variables are unrelated. Furthermore, both the economic and statistical relation between the two variables is negligible. The coefficient is virtually 0 and the t-stats are also insignificant.

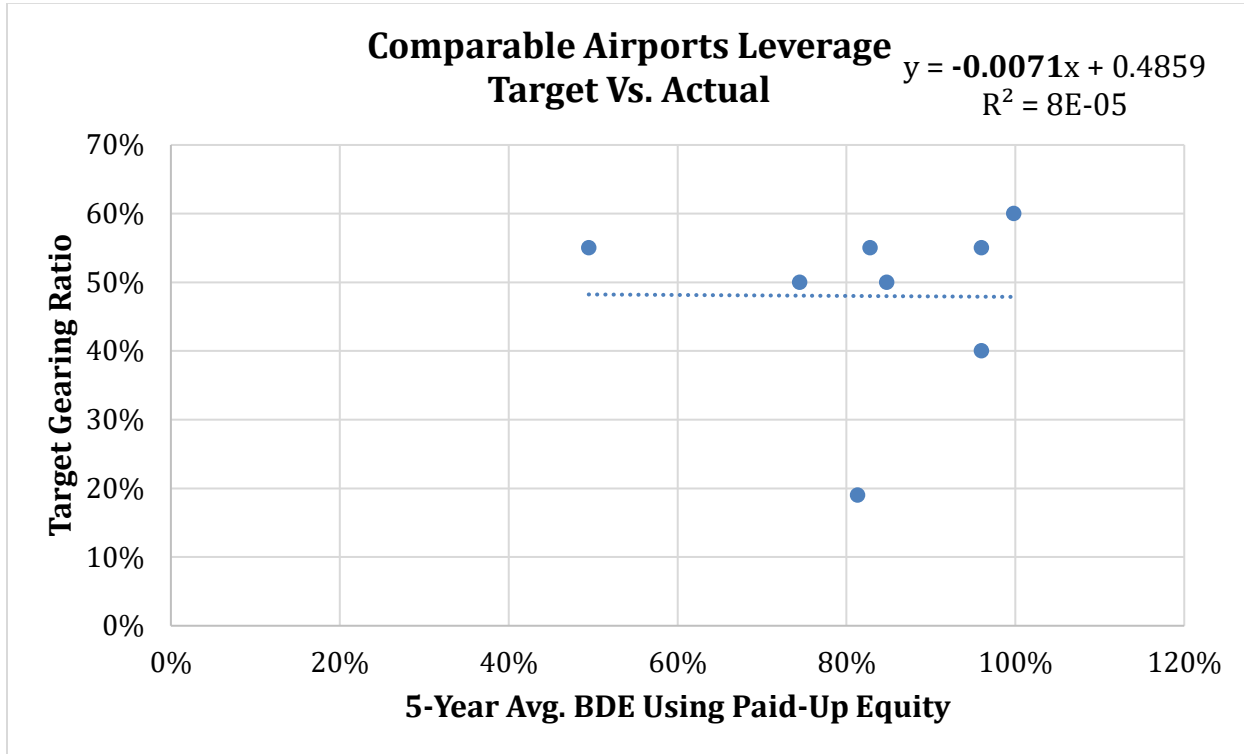
⁴¹ We were able to use a larger comparable set of international airports – this gives us more confidence in the estimates.

Table 3.4: Target Gearing Ratios

Airport	Target Gearing Ratio	5-Year Avg. BDE based on Paid-Up Equity (based on Share Holder Fund)	Citation	Source
(Col 1)	(Col 2)	(Col 3)	(Col 4)	(Col 5)
Auckland	19.00%	81.33% (28.61%)	Review of Auckland International Airport's pricing decisions and expected performance (July 2017 – June 2022), November 2018, Pg. 97, Table A1.	https://comcom.govt.nz/regulated-industries/airports/projects/review-of-price-setting-event-3#projecttab
Heathrow	60.00%	99.79% (83.41%)	UKRN, Cost of Capital – Annual Update Report, June 2018, Pg. 11, Table	https://www.ukrn.org.uk/wp-content/uploads/2018/11/2018-UKRN-Annual-WACC-Summary-Update-v2.pdf
Gatwick	55.00%	82.79% (80.14%)	UKRN, Cost of Capital – Annual Update Report, June 2018, Pg. 11, Table	https://www.ukrn.org.uk/wp-content/uploads/2018/11/2018-UKRN-Annual-WACC-Summary-Update-v2.pdf
Sydney	55.00%	49.48% (72.00%)	Pricing Proposal 2016-2021, Pg. 16, Table 9	http://www.airservicesaustralia.com
Melbourne	55.00%	95.96% (75.78%)	Pricing Proposal 2016-2021, Pg. 16, Table 9	http://www.airservicesaustralia.com
Dublin	50.00%	84.75% (48.26%)	Commission for Aviation Regulation, Maximum Level of Airport Charges at Dublin Airport 2014 Determination, Pg. 90, Para 7.118.	https://www.aviationreg.ie/regulation-of-airport-charges-dublin-airport/2019-determination.841.html
MAHB	50.00%	74.46% (43.75%)	MAVCOM Aeronautical Charges Framework, October 2018, Pg. 26, Table 9. (Is 40-60%, but a mid-point average of the two taken)	https://www.mavcom.my/wp-content/uploads/2018/10/181019_Aeronautical-Charges-Framework-Consultation-Paper-Final-1.pdf
Amsterdam	40.00%	95.98% (34.52%)	Amsterdam Airport Schiphol Operation Decree, 2017, WACC - Part C of Appendix to Article 32, Pg. 19.	https://www.schiphol.nl/en/download/b2b/.../1T8kLVjBBmOiaKqOO4WC0K.pdf
Average	48.00%	83.07% (58.31%)		

Fig 3.1: Regression Results for Market D/E (MDE) vs. Book D/E (BDE) for Listed International Airports

From the data in Table 3.4, we regress the Target Gearing Ratio for the comparable set as a function of their Actual 5-Year Average Book D/E (2013 – 17) period.



There is a good reason to use a lower target gearing ratio rather than the gearing ratio suggested by the debt to book-equity values. First, the WACC should reflect a long-term steady state gearing ratio which may not be reflected in the current gearing ratio. Second, the WACC is supposed to be determined using market value weights for debt and equity. Since equity values tend to rise over time, it is typically the case that market value based debt to equity ratios will be much lower than book debt to equity measures. While the airports do not explicitly mention this factor as a reason for using lower target gearing ratios than that suggested by book ratios, we believe that this factor could be a significant reason.

To get additional confirmation, we consider the four airports for which we have listed equity securities and estimate the 5-year average of the market debt to equity ratio. The 5-year average leverage using market capitalization (MDE) for the comparable set of listed airports (AoT, Auckland, MAHB and Sydney) is equal to 0.3503 (D/E) or 25.94% (D/D+E). These

figures are also much lower than book debt to equity ratios. Given these findings, we can be reasonably assured that the low gearing ratio of the international airports is consistent with the idea that market-based debt to equity ratios should be used in computing the cost of capital.

As an additional benchmarking exercise, we also estimated the relation between the market debt to equity and the book debt to equity ratio of a typical infrastructure firm in India. To estimate the relation between market debt to equity ratio and book debt to equity ratio, we first regressed MDE on BDE for various infrastructure companies, using price data for 37 listed infrastructure companies over the recent 5 years. In other words, we estimated the following empirical relation between the two variables, under the restriction that the intercept is 0.

$$MDE = f * BDE$$

Equation 3.5 – BDE/ MDE Relation

where f is the regression coefficient.

The total valid data points in the clean sample were 121. The filters used to remove outliers in the data were an upper cap of 5 for BDE (equivalent of BDE 83:17) and a lower bound of 0 (no debt). Table 3.5 shows details of data for a total of 37 infrastructure companies, which have 121 market debt equity data points for 5 financial year end (2014-2018) that are regressed against the book debt equity (since these 37 companies were not traded over the entire 5-year period, the number of data points does not exactly match that from a 5-year period). A detailed table of such companies can be found in Appendix 2.

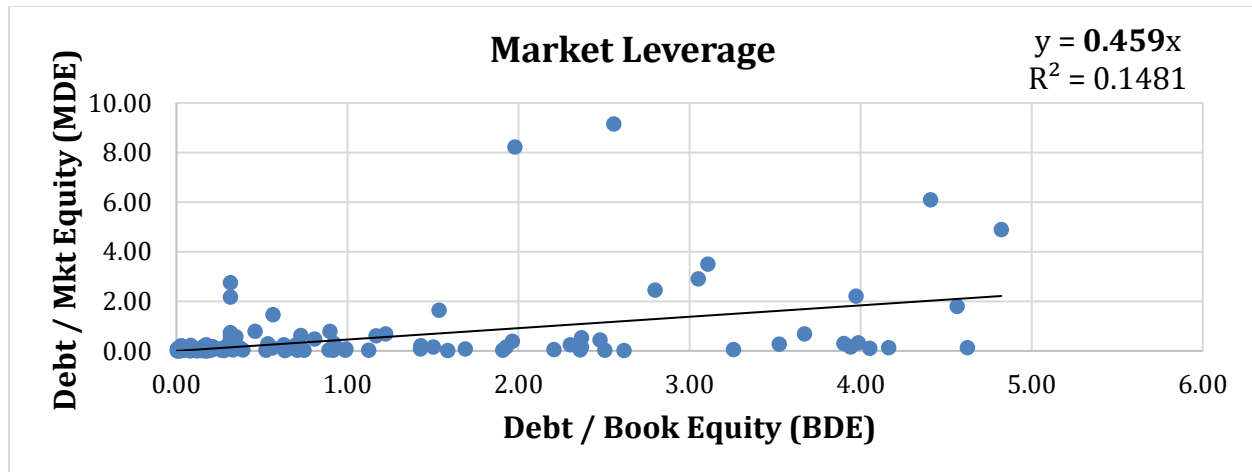
Table 3.5: Number of Infra Companies for MDE to BDE Relation

Availability of Leverage Data (No. of Years) (Col 1)	No. of Companies (Col 2)	Data Points (Col 3)
5	13	65
4	4	16
3	7	21
2	6	12
1	7	7
Total	37	121

We use this regression coefficient to impute the MDE for CIAL by using the BDE of CIAL. Fig 3.2 and Table 3.6 highlight the results.

Fig 3.2: Regression Results for Market D/E (MDE) vs. Book D/E (BDE) for listed Indian Infrastructure Firms

We regress Market D/E (MDE) for 37 listed Indian infrastructure stocks as a function of their Book D/E over the 5-year (2013–17) period, forcing intercept to 0. The slope gives the typical multiple for converting a given BDE to the corresponding MDE. Hence, $MDE = f \cdot BDE$; where m is the slope. It turns out to be 0.459 in this case.



Data Source: CMIE Prowess Equity Database

Table 3.6: BDE vs. MDE regression results for listed Indian Infrastructure Firms.

We regress Market D/E (MDE) for 37 listed Indian infrastructure stocks as a function of their Book D/E over the 5-year (2014–18) period, forcing intercept to 0. The slope gives the typical multiple for converting a given BDE to the corresponding MDE. As seen from the table, the slope is significant at 99% CI.

	Coeff.	Std Error	t Stat	p-value	Lower 99.0%	Upper 99.0%
	(Col 1)	(Col 2)	(Col 3)	(Col 4)	(Col 5)	(Col 6)
Intercept	0	N/A	N/A	N/A	N/A	N/A
MDE/ BDE (slope)	0.459	0.072	6.382	4.17E-09	0.271	0.648

The MDE/BDE ratio is the slope and conversion multiplier. As observed from Fig 3.2 and Table 3.6, the relationship turns out to be given by:

$$MDE = 0.459 * BDE$$

Equation 3.6 – MDE/BDE (Actual)

Now, assuming a BDE of 2:1, we can infer that the market debt to equity ratio can be estimated as $0.459 * 2 = 0.918$ for a typical infrastructure company in India. This number translates into a gearing ratio of 47.86%, a number that is reasonably close to the average gearing ratio of the set of comparable international airports.

The two independent approaches to assessing the gearing ratio based on market price data provide confidence to us that setting the gearing ratio for CIAL on the basis of the average gearing ratio of a set of comparable international airports will be a procedure consistent with global best practices.

Discussion/Recommendation for Gearing Ratio

- *The target gearing reflects a long-term steady state gearing ratio that is lower (and unrelated) to the current debt to equity ratio.*
- *As per valuation concepts, the gearing ratio used in calculating cost of equity should be based on market value estimates of debt and equity. The fact that the target gearing ratio is typically lower than the actual debt equity ratio is consistent with an approach that uses market value based debt to equity ratio.*
- *As a benchmark, we examined the Indian infrastructure space and found that infrastructure firms employ, on average, a market debt to (debt + equity) ratio of 47.86%. The estimate from this analysis is reasonably close to the 48% gearing ratio used on average by international airports.*
- *Firms often employ high gearing ratio in the hope of reducing the cost of capital. This perception is based on a fallacious argument. While it may seem that a higher percentage of cheaper debt capital would reduce the cost of capital, what is ignored is that the risk of residual equity in highly levered firms increases, thereby offsetting the benefits of sourcing more debt capital (in addition, the cost of incremental debt capital increases as the amount of debt increases). A target gearing ratio lower than the typical debt to equity ratio in a regulated public service discourages firms from employing excessive gearing in the hope of reducing their cost of capital. Thus, regulators often rely on a target gearing ratio to help maintain financial resilience of regulated firms in the long term – a social obligation that is critical for delivery of critical public services.*
- *We recommend that the average gearing ratio (D/D+E) of 48% can be used to a proxy for the gearing ratio of CIAL to estimate their Cost of Equity and Fair Rate of Return.*

3.3.5. Results Related to Estimation of Equity Betas for CIAL

We set the target gearing ratio for CIAL using the average gearing ratio of international airports (48%), We then re-lever the asset betas proxies of CIAL using Equation 3.3 to get the equivalent equity betas.

$$\begin{aligned}\beta_E (CIAL) &= \beta_A * \left[1 + (1 - T_C) * \frac{D}{E} \right] \\ &= 0.572651 * [1 + (1 - 0.3) * 0.9231] \\ \beta_E (CIAL) &= 0.9427\end{aligned}$$

Equation 3.7 – Equity Beta for CIAL

Discussion Summary (Equity Beta)

*With the target gearing ratio of 48%, we re-levered the proximity score weighted (PSW) asset betas using Equation 3.3 and arrived at the optimal equity beta as: **CIAL: 0.9427**.*

3.3.6. Equity Risk Premium

The ERP is an essential input in the implementation of the Capital Asset Pricing Model. It captures the additional return demanded by investors for holding equity shares in contrast to holding risk-free deposits (say in a bank in which the deposit is insured against default). It reflects the investing population's compensation for taking up equity risk.

There are various estimates of equity risk premium, depending on the methodology used and the time period considered.⁴² The most popular method is to use the historical risk premium as a proxy for the equity risk premium (ERP) going forward. This estimate has been found to be the best predictor of future ERP.⁴³ In general, the other predictors (e.g., dividend yield, earnings to price ratio, default spread, etc.) fare worse than the historical average as a predictor of ERP. To broad base the estimation of ERP, we also consider a second methodology, namely, the implicit forward-looking ERP (also referred to as the Implied ERP) based on the current value of the stock market index. Using a simple Gordon Growth model based on dividend growth estimates, one can impute the ERP that is consistent with current valuations of the stock market. Finally, one can also rely on a survey methodology to infer

⁴² For instance, a recent study by Manish Saxena (*Valuation Insights: Equity Risk Premium (ERP) for Indian Market*, Grant Thornton, October 2015) has quoted ERP's ranging from 4.0% - 12.50% from various studies such as Jayant Varma & Samir Barua (2006), JM Morgan Stanley (2006), Rajneesh Mehra (2006), Banco de Portugal (2008), Morgan Stanley (2010), VC Circle (2010), ISES Survey (2011) and Goldman Sachs (2011-12). However, the studies are outdated, and their ERP estimates cannot be used for estimating Cost of Equity for Cochin Airport for the third control period (FY2021-22 to FY2025-26). The paper can be found at, as viewed on 28 Feb 2020:

https://www.grantthornton.in/globalassets/1.-member-firms/india/assets/pdfs/grant_thornton-valuation_insights-october_2015.pdf

⁴³ Ivo Welch and Amit Goyal; A Comprehensive Look at The Empirical Performance of Equity Premium Prediction; The Review of Financial Studies / v 21 n 4 2008.

the consensus view of ERP. A third methodology is based on Damodaran's model of emerging market equity risk premium based on country risk premium.

In the first approach, we estimate ERP using the historical average of ERP over the 2000-2018 period. Asset pricing studies are typically dependent on a much longer time series to infer meaningful estimates. However, India underwent significant structural changes over time (the pre-liberalization period prior to 1990s and the advent of market liberalization during the 1990s), thus rendering prior data questionable and of lower reliability due to various exogenous reasons. Consistent with these arguments, Anshuman et al (2019) rely on data from the post-2000 period. They report a geometric mean of 7.78% as the estimate of ERP.⁴⁴

The choice of a geometric mean as a proxy for the ERP for long-term projects follows from the arguments stated by Damodaran.⁴⁵ The CAPM is a one-period model and arithmetic means works well only if the annual returns in the stock and bond markets are serially uncorrelated. However, stock and bond returns are serially correlated in actual data. This serial correlation is particularly important when we estimate ERP for longer horizons (say, 10 years). In summary:

- Arithmetic mean is more appropriate to use if the returns are uncorrelated.
- Geometric mean is more appropriate for longer horizons in which returns are found to be serially correlated.

Second, we rely on a study by Grant Thornton that estimates a forward-looking ERP for India. This ERP estimated is an imputed measure based on the Gordon Growth model. The inputs are market index data and estimates of dividend growth rates of stocks in the market index. The study uses Nifty market index as a proxy for the market index. The NIFTY market index consists of 50 leading Indian companies that fairly represent all the leading industry sectors in India. To estimate the forward-looking ERP, the study uses a 3-stage Gordon's Growth

⁴⁴ Anshuman, Biswas, Jain and Sharma, "Predictability of Equity Risk Premium in Indian Equity Markets", IIM Bangalore working paper (2019), <https://www.iimb.ac.in/node/6984>

⁴⁵ http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html Country Default Spreads and Risk Premiums as of 1 July 2020, viewed on 12 Dec 2020.

Model. In their study, for Financial Year (FY) 2018-20, the study uses a growth rate of 13% during 2021-25 based on the nominal GDP for India as calculated by IMF, a growth rate of 10% for the period from 2026 onwards, and a perpetual growth rate of 7.50% henceforth. Under these assumptions, the study estimates a forward ERP estimate of 8.00%.⁴²

In the third approach, we try out Damodaran's methodology computing the Indian equity risk premium based on the U.S implied equity risk premium and the country default spread. The advantage of this approach is that the mature market risk premium has been derived from a much longer historical time series (1960-2018). Damodaran derives the Indian ERP by *adding* an adjustment factor that reflects the sovereign risk estimate of the Indian equity markets. To derive this adjustment factor, Damodaran employs two proxies, one based on rating of sovereign bonds and the other based on CDS spreads, and, in both cases, modifies this adjustment factor by the average ratio of equity volatility and bond volatility across emerging markets (= 1.23). For instance, Damodaran's estimate of ERP for India based on bond ratings is given by the following: 5.96% (mature market implied risk premium) + $1.23 \times 2.15\% = 8.60\%$. Damodaran's CDS based Indian ERP is given by $5.96\% + 1.23 \times (1.85\% - 0.30\%) = 7.87\%$.⁴⁶

Given these four estimates, we define the proxy for ERP in our study as the simple average of these estimates, i.e., our proxy for ERP is $(7.78\% + 8.00\% + 8.60\% + 7.87\%) / 4 = 8.06\%$. This averaging procedure helps eliminate the effect of biases implicit in each of the three studies.⁴⁷

⁴⁶ The CDS for US of 30 bp has been subtracted from the Indian CDS of 185 bp to get an estimate of the adjusted CDS for India.

⁴⁷ Note that Damodaran's approach is ad-hoc and has no theoretical basis. Under a proper application of the CAPM model to a two-country setting, equity risk premium and beta should reflect expected foreign exchange appreciation (see Equation (10) in Kruschwitz, Mandi and Löffler, Business Valuation Review, March 2012 DOI: 10.5791/11-00017.1). Given these confounding issues, we rely on an averaging procedure to estimate the Equity Risk Premium.

Discussion Summary (Equity Risk Premium)

We focused on three recent studies that document the equity risk premium for India. Our primary criterion is that the estimates should be based on market data.

(i) Anshuman et al. (2019) give an estimate of 7.78% based on the historical mean, which is known to be best predictor of ERP across the world (Welch and Goyal (2008), Anshuman et al (2019)). However, the accuracy of ERP estimates also depends on the length of the sample period. The greater the duration, lower are the standard errors. Anshuman (2019) is based on a relatively shorter period (2001-2018).

(ii) Damodaran recommends two estimates: 7.87% based on CDS spreads and 8.60% based on bond ratings, which are known to be sluggish. Damodaran's estimates are based on adjusting the mature country's ERP and therefore is an indirect measure of Indian ERP that only partially reflects the Indian market price data.

(iii) The Grant Thornton report (2017) gives a forward-looking estimate of 8%. It is based on market data but is based on subjective estimates of dividend growth rates given by analysts.

Given these four estimates, each of which is subject to biases, we define the proxy for ERP in our study as the simple average of the four estimates, i.e., our proxy for ERP is $(7.78\% + 7.87\% + 8.60\% + 8\%)/4 = 8.06\%$. This averaging procedure helps eliminate the effect of biases implicit in each of the three studies.

3.3.7. Risk Free Rate

The Risk-Free Rate for a market is the yield on the safest security in that market, typically the debt issued by the Government. In this case we consider four securities issued by the Government of India. Firstly, we obtain the average yield of the 10-year Government of India (GOI) bonds during the period from 2001 to 2018). The average value is 7.56%. Next, we look at the current yield (as on 2018) on three GOI bonds – the 1-year Treasury Bill yielding 6.81%, the 3-year GOI bond yielding 7.15% and the 10-year GOI bond yielding 7.60%. Given the long-term nature of infrastructure cash flows, we use the average yield on the 10-year GOI bond (instead of the current risk-free rate) to estimate the relevant Risk-Free Rate. In

asset pricing studies, it is useful to look at as a long historical time series as possible. Given the series of significant reforms during the 90s, we considered the period 2000-2018 for both ERP and Risk-Free rate for maintaining consistency.⁴⁸

3.3.8. Cost of Debt – Illustrative Purpose only

The following section provides an estimate of the cost of debt of CIAL as an illustrative exercise. In general, cost of debt (CoD) must be estimated annually based on the latest information as of that date. The estimates developed for cost of debt in this section have no purpose other than to illustrate the computation of the Fair Rate of Return (FRoR), as discussed further down. Both the CoD and FRoR estimates in this report have no bearing on future annual CoD and FRoR estimates, which would have to be estimated based on information available at that point in time in future.

To estimate the Cost of Debt (CoD) of comparable debt instruments in India, we considered a total of 17,665 debt instruments (Debt Instruments, Commercial Papers and Certificate of Deposit) as per NSDL.⁴⁹ Of these, 709 are rated ‘AA Negative’ as per CARE, CRISIL, ICRA, Brick Work Ratings, India Ratings & Research, SME Ratings and Acuite Ratings. CIAL is rated “AA Negative” by ICRA, as of 27 Feb 2020. The number of debt instruments issued, from 01/01/2018 till 31/12/2020, of the said rating is 264. Of these, 11 were by infrastructure companies. Table 3.7 gives the average coupon rate of these 11 instruments.

⁴⁸ The Risk Free used in this study reflects default risk and is consistent with the historical average estimate and the implied forward-looking estimates of equity risk premium but inconsistent with the estimates of Damodaran (because Damodaran’s estimates already include a default spread). However, given that under the CAPM, Damodaran’s methodology is questionable (see Kruschwitz, Mandi and Löffler, Business Valuation Review, 2012, DOI: 10.5791/11-00017.1), we use the Risk-Free Rate that is consistent with the historical average estimate and the implied forward-looking estimates of equity risk.

⁴⁹ <https://nsdl.co.in/downloadables/list-debt.php>

Discussion Summary (Cost of Debt – Illustrative Purpose Only)

- *We estimated the average yields of bonds of comparable infrastructure companies (AA bonds). The estimate was 10.05%.*
- *For illustrative FRoR calculations, we use the CoD of 10.05% for CIAL.*
- *Going forward, AERA should seek inputs from the airport operator and accordingly estimate the Cost of Debt as market conditions evolve.*

Table 3.7: Estimation of Cost of Debt (CoD) – For Illustrative Purpose only

Debt Instrument Issuer	Issue Date	Maturity Date	Coupon Rate
AP CR Development Authority	Aug-18	Aug-24	10.32%
AP CR Development Authority	Aug-18	Aug-25	10.32%
AP CR Development Authority	Aug-18	Aug-26	10.32%
AP CR Development Authority	Aug-18	Aug-27	10.32%
AP CR Development Authority	Aug-18	Aug-28	10.32%
G R Infraprojects Ltd.	Nov-18	May-22	9.68%
G R Infraprojects Ltd.	Nov-18	Sep-21	9.69%
Torrent Power Ltd.	May-19	May-24	10.25%
Torrent Power Ltd.	May-19	May-23	10.25%
Torrent Power Ltd.	May-19	May-22	10.25%
Pune Solapur Expressways Pvt. Ltd.	Sep-20	Mar-29	8.80%
Overall Cost of Debt (Average)			10.05%

Source: <https://nsdl.co.in/downloadables/list-debt.php>

3.3.9. Cost of Equity (CoE) and Fair Rate of Return (FRoR)

Using the equity betas shown in Equation 3.7, we compute the CoE using the CAPM. Here, we discuss the recommended CoE and FRoR estimates for CIAL. For the third control period

(FY2021-22 to FY2025-26), Table 3.8 shows these results. The entire process flow with relevant sections numbers is showcased in [Appendix 4](#).

Table 3.8: Variables Used to Estimate CoE and FRoR

The re-levering is based on the following equation $\beta_E = \beta_A [1 + (1 - T_C) * D/E]$ – (Equation 3.3 – Re-levering Betas). Also, the asset betas (β_A) used are the Equally Weighted betas (**0.6229**) for CIAL. Also, the asset betas (β_A) used are the Proximity Score Weighted (PSW) betas, **0.562659** for CIAL. The Cost of Debt (R_D) is for illustrative purpose only.

1. Asset Beta (Proximity Score Weighted) (β_A)	
CIAL	0.572651
2. Risk Free Rate (R_f)	
10-Year GOI Bonds, 18-Year Daily Avg.	7.56%
3. Equity Risk Premium (ERP)	
Simple Average of estimates from four studies	8.06%
4. Cost of Debt* (R_D)	
Estimated using 'AA -' rated Debt Instruments from NSDL	
	10.05%

*Illustrative Purpose only. Refer section 3.3.7 for details.

Table 3.9: Estimation of Cost of Equity (CoE) for CIAL

This table summarizes the results for CIAL and highlights the 2 important variants of D/E ratios. Of these, we recommend target gearing ratio of 0.9231 or 48:52. The asset betas are the Proximity Score Weighted (PSW)

weighted betas, given by $\beta_A = \frac{\sum_{k=1}^6 \left(\frac{\beta_k}{PS_{k,C}} \right)}{\sum_{k=1}^6 \left(\frac{1}{PS_{k,C}} \right)}$ (Equation 3.2). Further, these are converted to equity betas by re-leveraging using the equation $\beta_E = \beta_A [1 + (1 - T_c) * (D/E)]$ – (Equation 3.3 – Re-levering Betas). The CoE is computed using the CAPM equation, $R_E = R_f + \beta_E (R_M - R_f)$, Equation 1.1. FRoR is computed as $FRoR = (R_M * \frac{D}{D+E}) + [R_E * (1 - \frac{D}{D+E})]$, Equation 3.4.#

Airport: CIAL	Gearing Based on Target Gearing Ratio	Gearing based on MDE-Equity of BDE 2:1
(Col 1)	(Col 2)	(Col 3)
Asset Beta	0.572651	0.572651
Gearing Ratio (D/E)	0.9231**	0.9180***
Gearing Ratio (D/D+E)	48.00%	47.86%
Equity Beta	0.9427	0.9406
Risk Free Rate	7.56%	7.56%
Equity Risk Premium	8.06%	8.06%
Cost of Equity	15.16%	15.14%
Cost of Debt\$	10.05%	10.05%
Fair Rate of Return##	12.71%	12.71%

The tariff computation reflects a pass through of the annual taxes payable, thus the Cost of Equity (R_E) used in the FRoR formula is a post-tax cost of equity. Since taxes are covered by tariffs, tax deductibility of interest is irrelevant for the airport operator and the cost of debt should not reflect any interest tax shield benefits.

**Target Gearing Ratio – calculated using average suggested gearing by the regulators of 8 comparable international airports.

***Market Debt Equity equivalent of BDE using the factor 0.459.

\$Illustrative purpose only. This varies significantly depending on market conditions.

FRoR is an illustrative computation only.

Recommendations for Cost of Equity

Our final recommendation for CoE is based on the following parameters:

- *Gearing Ratio: Target gearing ratio of 48%.*
- *Risk-Free Rate of 7.56% based on the average 10-year GOI yield over 2001-2019. It is good practice to use as much historical information as possible. Prior to 2000, there were significant structural changes that were triggered by 1991 reforms, so we used the period 2001-2019 given that some degree of stability would have been obtained since 1991 reforms.*
- *ERP of 8.06% is based on an average of estimates from three studies.*
- *Proximity Score Weighted (PSW) Asset Beta for CIAL: 0.572651.*
- **CoE estimate of CIAL is 15.16%**
 - *This estimate is consistent with the findings of survey-based estimates of CoE across sectors in the Indian economy. Fig 3.3 gives the sectoral CoEs for India.*

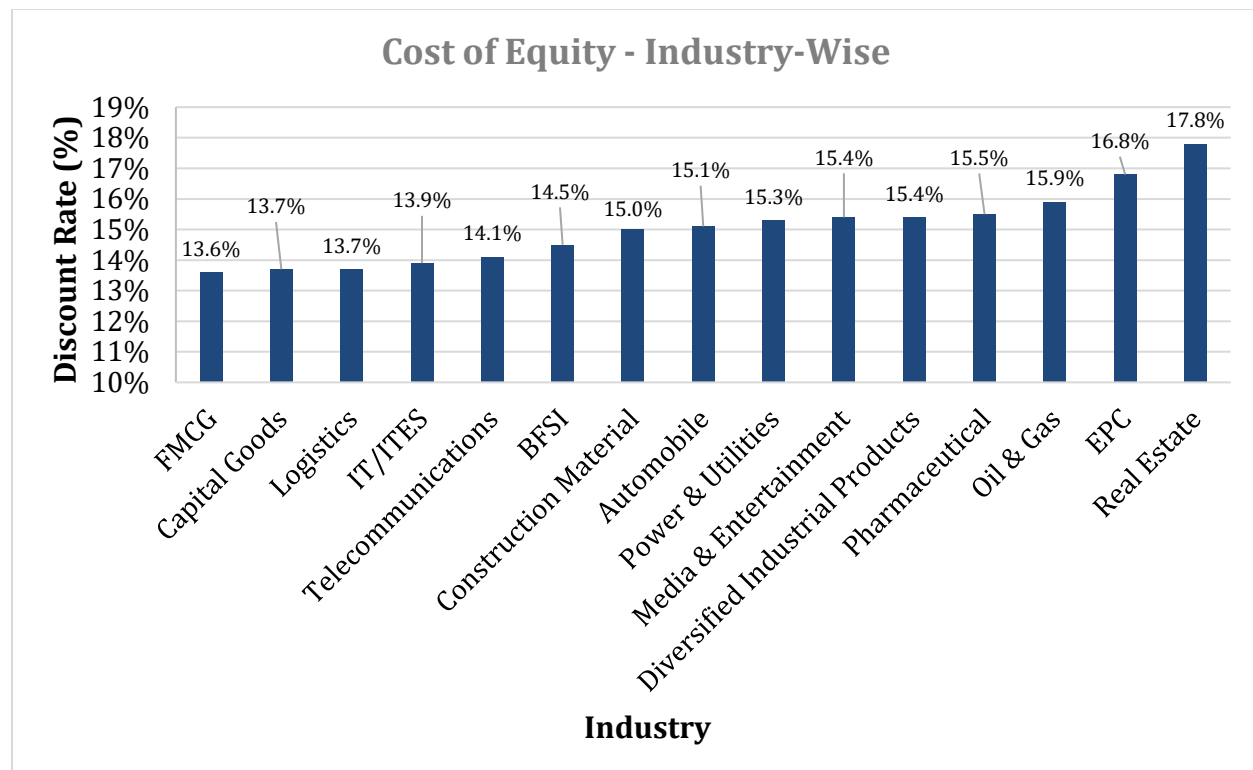
*Illustrative **FRoR** estimate is based on an illustrative cost of debt of 10.05% (note that this is not a recommendation): FRoR of CIAL: **12.71%**.*

3.3.10. Survey Estimates of Cost of Equity

The chart below presents the findings from an Ernst & Young survey on the variation of cost of equity across different sectors in India. Cost of equity varies from a low of 13.6% for the FMCG sector to 17.8% for the real estate sector.

Fig 3.3: CoE by Sector

The chart shows the sector-wise breakup of CoE in India.



Source: Navin Vohra, Cost of Capital – India Survey, 2017, Ernst & Young

3.4. Conclusion and Final Recommendation

In this section, we estimated the Cost of Equity (CoE) and provided an illustrative example of Cost of Debt (CoD) and Fair Rate of Return (FRoR) computations. First, we computed a proximity score weighted average beta of a comparable set of international airports as a proxy for the asset beta of CIAL. Next, we re-levered this asset beta into an equity beta using the recommended target gearing ratio, as determined by the average suggested gearing ratio of a comparable set of international airports. The equity beta was then used to compute the

Cost of Equity as per the CAPM. . We discussed the Cost of Debt (CoD) and FRoR using an illustrative example. The final recommendations are shown in Table 3.10.

Table 3.10: Final Recommendations

Variable (Col 1)	CIAL (Col 2)
Asset Beta based on Proximity Score	0.572651
Weights of comparable set	
Target gearing ratio (D/D+E)	48%
Target gearing ratio (D/E)	0.9231
Equity Beta	0.9427
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.16%
Cost of Debt (CRISIL Rating) ^{\$}	10.05%
Fair Rate of Return[#]	12.71%

^{\$}Illustrative purpose only. This varies significantly depending on market conditions.

[#]FRoR is an illustrative computation.

3.4.1. Utility for Estimating CoE (and FRoR Computations)

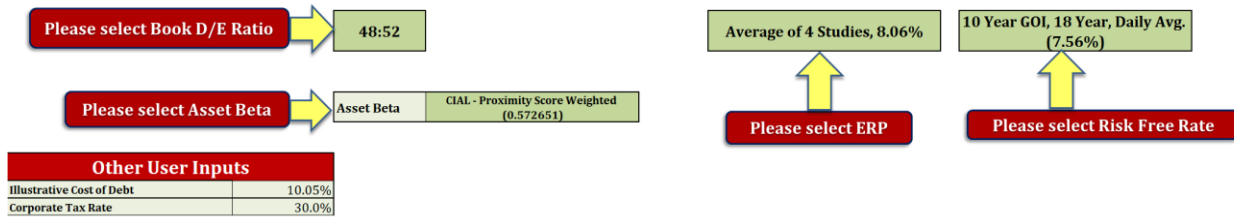
Based on varying set of assumptions, multiple other variants of CoE and FRoR are possible with varying estimates of betas, ERP, Risk-Free Rate, etc. The MS-Excel utility (AERAExcelUtility.xlsm) supplied along with this report gives all possible variants discussed in this study. It gives the CoE and FRoR based on user inputs for different variables. This section discussed the said Excel Utility. The Utility opens to the screenshot provided in Fig 3.4. As can be observed, the user has a choice of 5 variables' input, viz.

1. Target capital structure based on book D/E Ratio (BDE): This ranges from 35:65 to 85:15 with step increment of 5%.
2. Equity Risk Premium (ERP): four different choices of ERP are available:
 - a. Damodaran, 2019, (Scaled CDS) – 8.60%

- b. Damodaran, 2019, (Scaled DS) – 7.87%
- c. Anshuman et al. – 7.78%
- d. Grant Thornton, Forward Estimate – 8.00%

We employ a simple average of these 4 estimates (a-d) – 8.06%

Fig 3.4: Screenshot of User Inputs in Excel Utility



Note: **Cost of Debt** (CoD) in this fig. is illustrative only considering 2019 debts. This varies significantly depending on market conditions as discussed in section 3.3.7

Ref: AERAExcelUtility.xlsm

3. Risk-Free Rate: 4 different values of Risk-Free Rates are available:
 - a. 10-Year GOI bonds daily averaged over 18 years – 7.56%
 - b. 1-Year T-Bill – 6.81%
 - c. 3-Year GOI Bonds – 7.15%
 - d. 10-Year GOI Bonds, current (Jan 2019) – 7.6%
4. Asset Beta: As discussed, the proximity score weighted as well as the equal weighted betas is available as user input options.

Once these choices are made, the Utility automatically takes the corresponding values and displays the same.

Fig 3.5 shows the same. The results are displayed as highlighted in Fig 3.6.

Fig 3.5: Values corresponding to the variables based on user input

Values Derived from User Choices	
Target Gearing Ratio	48.00%
Equity Risk Premium	8.06%
Risk Free Rate	7.56%
Asset Beta	0.572651

Fig 3.6: Final Output in the Excel Utility

Output	
Equity Beta	0.9427
Cost of Equity	15.16%
Illustrative Fair Rate of Return	12.71%

Note: **Fair Rate of Return** (FRoR) is an illustrative computation only and varies significantly depending on CoD as discussed in section 3.3.7

Appendix 1: Summary of ToR Relevant for CIAL Cost of Capital

1. Background⁵⁰

The Authority had determined 'Cost of Equity' for private sector in the year 2011. Now 7 years have been lapsed, hence the Authority intends to conduct the study afresh in the current scenario to perform its statutory regulatory functions.

The Cost of Capital of FRoR (Fair rate of Return) is a significant influencer when Rate of Return Regulation is the opted method of Economic Oversight. The intent of such rate of return is to embody the reasonable return expectation of ALL investors in the project. Regulatory precedents at the time of choosing such Economic Oversight in India favored the use of WACC in which the COE would be determined with the help of the CAPM model.

While other determinants such as debt and capital structure, cost of debt, leverage levels etc., are explicit or evident, it is Cost of Equity in the FRoR formula (that determines WACC), which remains the challenge.

2. Scope of Work

- a) Study of relevant environment, trends in airport capitalization
- b) Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity
- c) Recommendations on Cost of Equity
- d) Follow-on activities

3. Study of the current environment and trends in airport capitalization

Assist the Authority in:

- a) Study of capitalization structure, funding mechanisms, divestment deals reported in recent projects in Asia/Europe, investor returns and co-relation to their return models in these cases.

⁵⁰ Ref: Annexure 1 of agreement signed between IIMB and AERA on 9 Mar 2021.

- b) Study recent airport asset divestment cases witnessed in PPP/Other projects in India and/or region. Understand implication of such deals on stakeholder behavior, impact on return models, passenger tariff & capital gains realized & their co-relation to FRoR & Cost of Equity & reason for absence of co-relation.
- c) Prepare an observation summary stating how and why cases from a) and b) have impacted and influenced the determinants of FRoR, in particular Cost of Equity, CAPM model and its underlying premises.
- d) Trace developments in both Business and Regulatory environment from 2009 (beginning of Airport regulation) to evaluate the impact of change in underlying assumptions for CAPM model.
- e) Study to also cover prevalent trends and developments in other regulated infrastructure intensive industries like Power, Roads, etc.

4. Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity

In the background of study detailed above, an airport-specific study should be undertaken according importance to all determinants of Cost of Capital, but specifically focusing on Cost of Equity including:

- a) **Capital Employed Structure:** Study the components of the capital employed, suitability to the airport project, its feasibility and sustainability.
- b) **Share-holding pattern:** Study the composition of shareholders, their holding period, their prevalent divestment scenario and opportunities and possible impact on Cost of Equity.
- c) **Cost of Equity:** Study the impact of the cost of equity determined for the previous control periods, suggestions for improvement, impact on the passenger fee/ aeronautical charges. Study of the scenario must also cover expectations on return or cost of equity, risk-free return, equity market risk premium, equity beta, asset beta, taxation, etc.

- d) **Dividend distribution policy:** Study the specific airport's dividend distribution policy, and application of Dividend relevance theory in determination of Cost of capital.

Other Determinants

- a) **Cost of debt:** Impact of actual cost of debt for previous control periods, variance to projections, suggestions for improvement, impact on passenger fee/aero charges.
- b) **Debt Structure, Leverage level:** Assessment of the efforts of the Airport in raising Debt via different avenues, Debt service cost reduction & negotiation efforts.
- c) **Debt standing & Market perception of the Airport/Major shareholder:** Risk profile of the Airport operator and/or its largest shareholder and consequent impact on cost of debt.

5. Recommendations on Cost of Equity

Recommendations to include:

- a) Cost of Equity – Risk-free return, risk premium and beta levels.
- b) Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing
- c) Alternative models for determination of cost of equity

6. Follow-on Activities

- a) Assist in drafting of consultation paper for determination of cost of equity and undertaking stakeholder consultations and consolidating comments received from various stakeholders, preparing clarifications on comments thereof.
- b) Assist in drafting the Order on determination of cost of equity.

Appendix 2: Set of Indian Infrastructure Companies

A data set of 37 Indian Infrastructure companies for 5 Years (2014-18) was used to establish the relationship between Market and Book Debt Equity of a company in Equation 3.6. However, not all 37 companies traded in those 5 years. The following table clearly shows which company was traded in the financial year out of such 5 years:

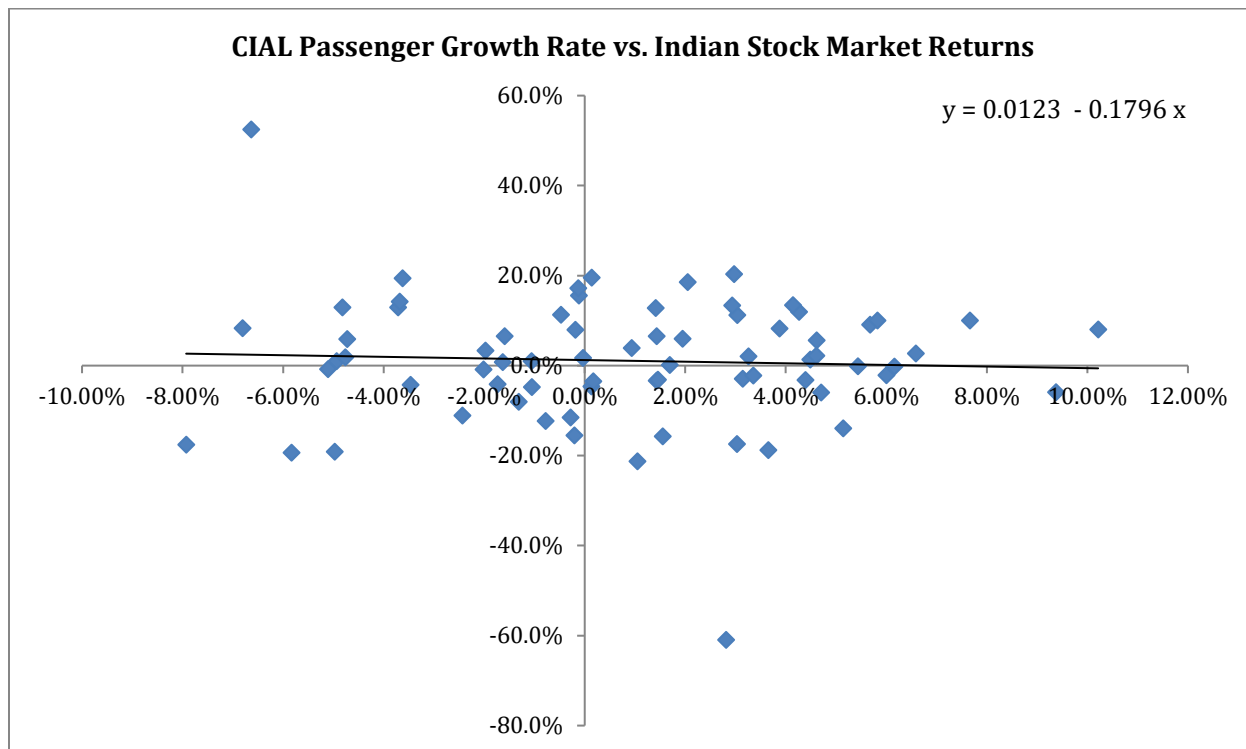
S. No.	Company Name (Col 1)	Traded in Financial Year (Col 2)	Number of years (Col 3)
1	B S Ltd.	2014 - 2018	5
2	C C L International Ltd.	2014 - 2018	5
3	G P T Infraprojects Ltd.	2014 - 2018	5
4	G T L Ltd.	2014 - 2018	5
5	I T D Cementation India Ltd.	2014 - 2018	5
6	Jyothi Infraventures Ltd.	2014 - 2018	5
7	N C C Ltd.	2014 - 2018	5
8	Nu Tek India Ltd.	2014 - 2018	5
9	P N C Infratech Ltd.	2014 - 2018	5
10	Precision Electronics Ltd.	2014 - 2018	5
11	R P P Infra Projects Ltd.	2014 - 2018	5
12	Shriram E P C Ltd.	2014 - 2018	5
13	Vishvas Projects Ltd.	2014 - 2018	5
14	Indo-Asian Foods & Commodities Ltd.	2014 - 2017	4
15	Navkar Builders Ltd.	2014 - 2017	4
16	Sadbhav Infrastructure Project Ltd.	2015 - 2018	4
17	Simplex Projects Ltd.	2015 - 2018	4
18	Excel Realty N Infra Ltd.	2014 - 2016	3
19	Gammon Infrastructure Projects Ltd.	2015 - 2017	3
20	K E C International Ltd.	2014 - 2016	3
21	M B L Infrastructures Ltd.	2014, 2016 - 2017	3
22	Marg Ltd.	2015 - 2017	3
23	Maruti Infrastructure Ltd.	2016 - 2018	3
24	Ruchi Infrastructure Ltd.	2014 - 2016	3

25	Capacit'e Infraprojects Ltd.	2017 - 2018	2
26	Essar Ports Ltd.	2014 - 2015	2
27	G M R Infrastructure Ltd.	2014 - 2015	2
28	P V V Infra Ltd.	2016 - 2017	2
29	Pratibha Industries Ltd.	2017 - 2018	2
30	Suvidha Infraestate Corpn. Ltd.	2014 - 2015	2
31	Atlanta Devcon Ltd.	2016	1
32	Dilip Buildcon Ltd.	2017	1
33	I L & F S Engg. & Construction Co. Ltd.	2014	1
34	Kalpataru Power Transmission Ltd.	2014	1
35	Prime Focus Ltd.	2018	1
36	Valecha Engineering Ltd.	2017	1
37	Yuranus Infrastructure Ltd.	2015	1

Appendix 3: Demand Function in the Indian Context

Charts 1 shows the results for CIAL. The regression comprises month-on-month stock returns from 2013–2018 to the month-on-month passenger growth rate in the same period for CIAL.

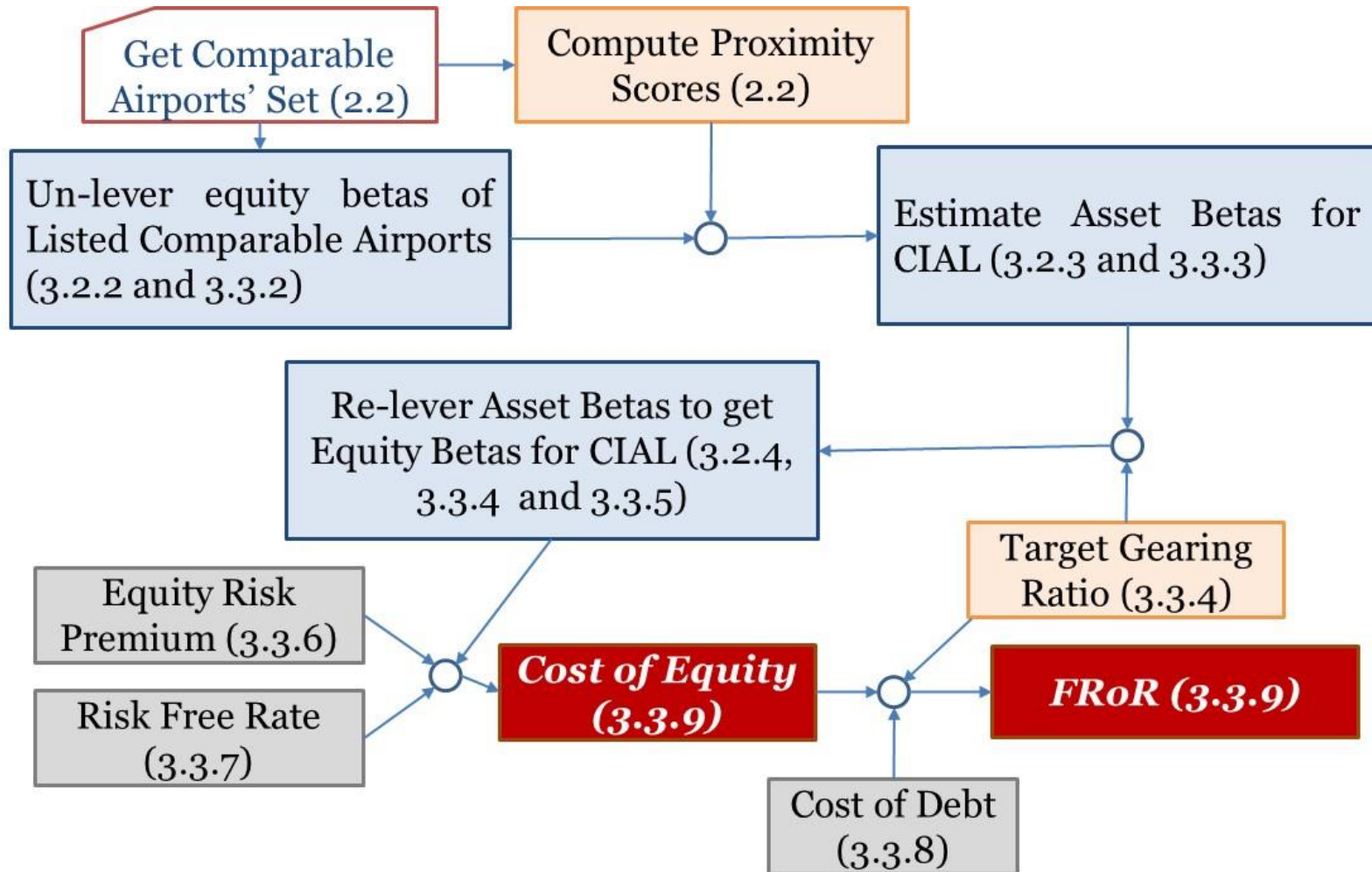
Chart 1: CIAL Passenger Growth Rate vs. Indian Stock Market Returns from 2013–2018



	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 99.0%	Upper 99.0%
Intercept	0.0123	0.0174	0.7055	0.4829	-0.0224	0.0469	-0.0224	0.0469
Slope	-0.1796	0.4286	-0.4190	0.6765	-1.0345	0.6754	-1.0345	0.6754

As highlighted in the charts, the slope (proxy for asset beta) is ~ -0.180 for CIAL. However, while demand risk is low, there could be other uncertainties playing out.

Appendix 4: Flowchart to compute Cost of Equity (CoE) and FRoR*



* The numbers in bracket indicate the respective section number in the report.

Appendix 5: Section-wise Indexing of Terms of Reference (ToR)

Clause 3a. Study of capitalization structure, funding mechanisms, divestment deals reported in recent projects in Asia/Europe, investor returns and co-relation to their return models in these cases.		
Subject	Section(s) of the Report	Comments/Caveats
Document cases on airport divestments in Asia/Europe with focus on:		
Capitalization	2.2.1	
Funding mechanism	2.2.2	
Investor returns	2.3.1	
Correlation to their return models	2.2.3	The last part of section discusses this and also does a comparative study w.r.t. Indian airports (Ref. Table 2.12 and Table 2.13.)
Clause 3b. Study recent airport asset divestment cases witnessed in PPP/Other projects in India and/or region. Understand implication of such deals on stakeholder behavior, impact on return models, passenger tariff & capital gains realized and their co-relation to FRoR & Cost of Equity and reason for absence of co-relation.		
Subject	Section(s) of the Report	Comments/Caveats
Same as 3a for Indian airport disinvestment in all respects along with	2.2.1 – 2.2.3	
Implications on stakeholder behavior	2.3.2	The case of Bangalore divestment is discussed. MIAL could not be discussed for lack of recent data
Impact on return models, passenger tariff and capital gains and their correlation to FRoR	2.2.3	Indian Airports (BIAL, DIAL, CIAL, MIAL and HIAL) are compared to international comparables in terms of their IRR
Reason for absence of correlation	Last part of the section 2.2.3	Explicitly gives parameters to find the correlation and the absence currently observed (Ref Table 2.12 and Table 2.13)

3c. Prepare an observation summary stating how and why cases from a) and b) above have impacted and influenced the determinants of FRoR in particular Cost of Equity, CAPM model and its underlying premises.		
Subject	Section(s) of the Report	Comments/Caveats
1. Document Determinants of FRoR (CoE in focus) 2. Impact of 3(a) and 3(b) on the same	2.4	
3d. Trace developments in both Business and Regulatory environment from 2009 (beginning of Airport regulation) to evaluate the impact of change in underlying assumptions for CAPM model	2.1	
3e. Study to also cover prevalent trends and developments in other regulated infrastructure intensive industries like Power, Roads, etc.	2.3.3	Discusses InVITs

Subject	Section(s) of the Report	Comments/Caveats
4a. Capital Employed Structure: Study the components of capital employed, suitability to the airport project, its feasibility and sustainability	2.2.1	
4b. Share-holding pattern: Study the composition of shareholders, their holding period, their prevalent divestment scenario and opportunities and possible impact on Cost of Equity	2.2.1	Refer to Table 2.8 – Table 2.11
4c. Cost of Equity: Impact of the cost of equity determined for the previous control periods, suggestions for improvement, impact on the passenger fee aeronautical charges. Study of the scenario must also cover expectations on return or cost of equity, risk-free return, equity market risk premium, equity beta, asset beta, taxation, etc.	3.2.5 and 3.3.9	
4d. Dividend distribution policy: Study on the specific airport's dividend distribution policy, application of Dividend relevance theory in determination of Cost of capital	2.1 and 2.3.1	Fig. 2.7 and Table 2.12 and Table 2.13
4 (Others) a. Cost of debt: Impact of actual cost of debt for previous control periods, variance to projections, suggestions for improvement, impact on passenger fee/aero charges	3.3.8	
4 (Others) b. Debt Structure, Leverage level: Assessment of the efforts of the airport in raising Debt via different avenues, Debt service cost reduction and negotiation efforts	3.3.4	Table 3.4
4 (Others) c. Debt standing and Market perception of the Airport/Major shareholder: Risk profile of the airport operator and/or its largest shareholder and consequent impact on cost of debt	3.3.8	Table 3.7

Subject	Section(s) of the Report	Comments/Caveats
5a. Recommendation 1: Cost of Equity - risk-free return, risk premium and beta levels	3.4 and Excel Utility provided along with this document.	Excel utility manual is provided in section 3.4.1.
5b. Recommendation 2: Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing		
5c. Recommendation 3: Alternative models for determination of cost of equity		
6a. Assist in drafting of consultation paper for determination of cost of equity and undertaking stakeholder consultations and consolidating comments received from various stakeholders, preparing clarifications on comments thereof.	Consultations based on one-on-one interactions with AERA	
6b. Assist in drafting the order on determination of cost of equity		