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CIAL/FIN/MYTP-3/2020-21
26.10.2020

To,
The Chairman,
Airports Economic Regulatory Authority of India,
AERA Building, New Administrative Complex,
Safdarjung Airport, New Delhi - 110 003.

Subject: Submission of Multi Year Tariff Proposal (MYTP) for the 3rd Control Period

Dear Sir,

This is in reference to Airports Economic Regulatory Authority of India (Terms and Conditions for Determination of Tariff for Airport Operators) Guidelines, 2011. As per the directions by the Authority, CIAL hereby submits the MYTP for the 3rd control period which includes:

1. MYTP document
2. Business Plan
3. MYTP Forms

The MYTP for the 3rd control period is being submitted as per the requirement under the AERA guidelines. CIAL wishes to highlight to the Authority that the prevalent environment due to COVID-19 is uncertain and therefore, humbly requests the Authority to allow revision in the submitted MYTP, if required.

CIAL requests AERA to ensure complete confidentiality of the submitted information as part of the MYTP proposal.

Thanking You.
Yours faithfully,

For Cochin International Airport Limited

V. J. Kurian
Managing Director

(Encl: MYTP document, Business plan and MYTP forms)

Cochin International Airport Limited

Multi Year Tariff Proposal (MYTP) for Third Control Period

(FY 2021-22 to FY 2025-26)

October 2020

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1. Preamble

1.1 Cochin International Airport Limited (also referred as "Cochin airport" or "CIAL") is one of the major airports notified by Airports Economic Regulatory Authority of India ("AERA" or the "Authority") 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 through its orders[1] ("Guidelines") which are applicable to:

- Airport Operators
- Service providers for cargo, ground handling, and supply of fuel

1.2 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.

1.3 CIAL is now submitting the MYTP for the third control period from FY 2022 to FY 2026.

[1] Airports Economic Regulatory Authority of India "Terms and Conditions for Determination of Tariff for Airport Operators" – Guidelines, Feb 2011;
Airports Economic Regulatory Authority of India (Terms and Conditions for Determination of Tariff for Services Provided for Cargo Facility, Ground Handling and Supply of Fuel to the Aircraft) Guidelines, January 2011

2. Background

2.1 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.

2.2 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.

2.3 The shareholding pattern of equity investors is shown in the table below –

Table 1: Ownership structure of CIAL as on 31st March 2020

Equity Partner	% Share
Government of Kerala	32.4%
Directors and Key Managerial Personnel	18.9%
Synthite Industries Private Limited	6.5%
BPCL	3.4%
HUDCO	3.3%
Air India Limited	3.3%
State Bank of India	3.3%
Federal Bank Limited	2.0%
Others	26.9%
Total	**100%**

Source: CIAL

2.4 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.

Pioneering low-cost airport

2.5 CIAL is widely recognized as a low-cost functionally efficient airport and is considered as a pioneering project in India's aviation sector.

2.6 CIAL has been successful in developing the airport at a relatively lower capital expenditure for the following reasons:

- Modular expansion philosophy
- Simple and no-frills development model
- Use of locally available materials
- Award of multiple contracts competitively tendered as opposed to a single large turnkey contract
- Prudent financial management

2.7 The management of CIAL has focused on making the airport affordable by keeping a strict control on costs. CIAL was developed with a capital expenditure of approximately INR 300 crore, one of the lowest in the country among comparable airports with similar capacity. The entire land area of 1,261 acres was acquired at market value, which is unlike any other privately-operated airport in India.

2.8 In keeping with its philosophy of being cost efficient in airport development and operations, CIAL has been able to develop the airport with a comparatively smaller quantum of land as compared to other major airports. Any major future expansion would require additional land involving significant expenditure.

2.9 Due to the prudent financial management, CIAL has also been able to raise the debt for the capital expenditure at highly competitive interest rates.

2.10 CIAL has clearly demonstrated that it is ahead of its peers in controlling capital costs, and delivering a functional, no-frills and operationally efficient airport. CIAL believes in efficient management of resources and expenses. The philosophy of effective cost management can be seen in CIAL's operations as well. The operational expenditure per passenger is among the lowest at CIAL, despite it not having benefits of economies of scale as compared to larger private airports in the country. Notwithstanding the low operational expenditure, CIAL has ensured high standards of customer service and planned development of infrastructure facilities in line with this objective.

2.11 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).

Impact of COVID on CIAL

2.12 COVID-19 has caused severe disruption and an unprecedented crisis in the aviation industry as most countries have travel advisories or outright bans in place to restrict the spread of the virus. Air travel in the country has remained disrupted since the start of the current fiscal year. While the restriction on domestic travel in India has been easing, however international traffic, which is a key driver for CIAL, is still affected by many restrictions.

2.13 Below table shows a snapshot of the impact of Covid-19 on CIAL. A detailed assessment of Covid-19 on the traffic at CIAL is presented in subsequent chapter.

Table 2: COVID impact on CIAL

S no	Parameters (Apr 2020– Sept 2020)	Change from similar period in previous year
1	**Passenger Traffic (in Million)**	
1A	Domestic	-89%
1B	International	-91%
2	**Revenue heads**	
2A	Aero revenues	-76%
2B	Non-aero revenues	-83%

2.14 CIAL has incurred significant capital expenditure for expansion of the airport including construction of a new international terminal building. Additional capital expenditure is planned to be incurred during the forthcoming control period in line with the operational requirement at the airport.

2.15 CIAL operates in a highly competitive environment with the presence of multiple international airports, viz. Trivandrum Airport (230 km), Kozhikode Airport (160 km), Kannur Airport (270 km), and Coimbatore Airport (170 km) in the vicinity. Competitive market dynamics and focus on growth continues to ensure reasonable tariffs for airport users.

2.16 CIAL has demonstrated its commitment to keep air travel affordable, without compromising on timely capacity creation or service quality.

2.17 CIAL has been a pioneer in developing airport infrastructure in Kerala and actively strives to improve the air travel penetration in the region by keeping the tariffs affordable. CIAL's commitment to promote the industry is evidenced by the fact that it has not increased aeronautical tariffs since 2001 till FY 2017 but has focused on increasing its non-aeronautical revenues and subsidizing aeronautical tariffs even before the setting up of AERA.

2.18 It is pertinent to mention that the Government of Kerala holds significant equity in CIAL (32%). The chairman of the board of directors is the Chief Minister of Kerala. On account of the government's active involvement in the airport development and operations, safeguarding public interest continue to remain a key priority for CIAL.

2.19 CIAL has been constantly engaging with its users and stakeholders at the airport in all operational and commercial matters. All commercial contracts with airlines and other service providers have been negotiated and finalized on a consensual basis, on terms and conditions that address the concerns and interests of either party.

2.20 Aeronautical charges at the airport could not have remained low without a conscious effort by the management to balance the interest of all stakeholders and voluntarily cross-subsidize airport charges from other aero-related income sources. This is a philosophy that has been consistently demonstrated by the CIAL management with support from the Government of Kerala and has stood the test of time.

2.21 CIAL would humbly request AERA to consider the above-mentioned points and the severe impact of COVID-19 on airport operations while issuing the order for 3rd control period.

2.22 Since cargo assets and operations are currently managed by CIAL, assets and expenses pertaining to cargo operations have been included as part of MYTP for 3rd control period for the purposes of aeronautical tariff determination. The treatment of cargo assets and expenses is in line with the 2nd control period order for CIAL.

Technical details of CIAL

2.23 The technical details about CIAL aerodrome are summarized below:

Table 3: CIAL technical details

Area	1261.24 acres approximately
Aerodrome reference code	4
Aerodrome code letter	E
Aerodrome Ref. Point	Lat. 10^0 09^l 13.8^{ll} N Long. 76^0 24^l 25.3^{ll} E
Aerodrome Elevation	30 ft
Aerodrome Reference Temperature	29.6^0 C

2.24 The key characteristics of the runway at CIAL are as follows:

- Runway Length: 3,400 m
- Runway Width: 45 m

- Runway Shoulder Width: 7.5 m (on both sides)
- Orientation: 27/09
- Parallel Taxiway: 3,400 m

2.25 The key characteristics of the apron at CIAL are as follows:

- 34 Parking stands (Including 2 Multiple Apron Ramp System (MARS))
- 17 Aerobridge Bays
- Power in and Pushback system

2.26 The details of parking stand are given below:

Table 4: Details of parking stand at CIAL

Parking Stand No	Suitability
1	Code E
2	Code E
3	Code E except B777 & A346
4	Code E except B772ER/LR& A346
5	Upto A-300
6	Upto A-300
7	Code C
8	Upto A-320
9	Upto ATR72-500
10	Code C
10A	Upto DO-228
11	Code C
12	Code C
13	Code C
14	Code C
15	Code C
16	Code C
17	Code C
18	Code C

Parking Stand No	Suitability
19	Code E
20	Code E
21	Code E
22L	Code C
22	Code E
22R	Code C
23L	Code C
23	Code E
23R	Code C
35	Code C
36	Code C

2.27 The aircraft suitability and helicopter suitability in terms of overall dimension/max rotor diameter suitability for parking stand 41, 42, 43 and 44 is given below:

Table 5: Aircraft suitability and helicopter suitability details of parking stand 41, 42, 43 and 44

Parking Stand No	Aircraft Suitability (upto wingspan)	Helicopter suitability (overall dimension/max rotor diameter)
41	18M	18M/14.5M
42	18M	18M/14.5M
43	18M	18M/14.5M
44	14M	Not permitted

2.28 Other relevant details are as follows:

Table 6: Other relevant details of CIAL

Isolation Parking Bay				**Elevation: 26 FT**	
Surface	PCN	Latitude	Longitude	Dimension	Suitability
Cement Concrete	**65 R/B/W/T**	**100913.39E**	**762306.00N**	**60m radius**	**Code E**

Hangar Apron				Elevation: 29 FT	
Surface	PCN	Latitude	Longitude	Dimension	Suitability
Cement Concrete	**65 R/B/W/U**	**100924.24N**	**762406.47E**	**--**	**Code C**

2.29 Some of the electrical systems at the airport include:

- Fully equipped maintenance section
- Highly sensitive relay, protection and safety systems
- Centralized A/C plant with two standby units for domestic terminal and international terminal
- Centralized A/C with two standby units for ATC tower
- Fully automated programmable addressable fire detection system in both the terminals and the ATC tower
- Superior sophisticated escalator in departure and arrival of international terminal
- Lift with standby unit in ATC tower
- Fully sophisticated Baggage Conveyor System in both Arrival and Departure of both terminals
- Round-the-clock water availability through different sources and modern control pumping systems
- Automatic Fire Hydrant System
- Round-the-clock 3-shift operation under the supervision of qualified and experienced Electrical Engineers
- 3 shift operation in all outer stations
- A fully furnished maintenance section
- Night landing facilities
- Illuminated signboards and markers

2.30 Other major technical details about CIAL are given in the table below:

Table 7: Other major technical details about CIAL

System/feature at Airport	Details
Approach Lighting System	• Runway 27: Precision Approach CAT III lighting as per ICAO standards • Runway 09: CAT I lighting system (full complement)
PAPI (Precision Approach Path Indication)	• Runway 09: PAPI, Glide angle 3 degrees • Runway 27: PAPI, Glide angle 3 degrees
Runway Lighting	• Runway 27: Edge and Threshold lights • Runway 09: Edge and Threshold lights
Runway Lighting System	• Runway lighting: CAT III: High intensity runway lighting with a standby circuit • Approach lighting: CAT-III: Approach Lighting System at 27 and Category I approach lighting system at 09 • PAPI (Precision Approach Path Indication) at 27 and 09 • Taxiway Lighting-medium intensity: Taxiway lighting system with spare circuit • Modern beacon system and illuminated wind cone
Apron Flood Lights	• Apron Flood Lights consist of six 30M high masts placed between the terminal and the apron to give uniform illumination on the apron.
Emergency Power Supply	• Emergency power supply by Diesel Generators is available for Runway, Taxiway, Approach Lights, PAPI and Apron Flood Lights • Switch over time is nil, satisfying ICAO requirement
Wind Direction Indicator	• One Wind Direction Indicator (WDI) provided on the southern side of the Runway 27 near to glidepath • One Wind Direction Indicator (WDI) provided on the northern side of the Runway 09 adjacent to C1 • One non-illuminated wind cone is provided on eastern side of taxiway H on Runway 27 end for fire station
Landing Direction Indicator	• Lighted landing 'T' provided adjacent to Taxiway C4 • Category III Approach Lighting System from Runway 27 & Category I for Runway 09 • Complete Taxi way central lighting systems. • Precision Approach Path Indicator for Runway 27 and 09 • Instrument Landing System including DME category • Doppler VHF omni range I & II • Non-Directional Beacon

System/feature at Airport	Details
	• Distance Measuring Equipment I & II • VHF communication facilities • Digital Airport Met Info Service • Hotlines to other ATC centers • 45 M high control tower • Automatic Visual Range Assessor
Hydrant Fuel Filling System	Bharat Petroleum Corporation Limited (BPCL) operates the hydrant refueling system at CIAL with full-fledged state-of-the-art aircraft refueling facilities.
Facilities	• Fuel storage of 4,800 kl to cover 4 to 5 weeks of fuel requirement to ensure uninterrupted fuel supply at all times and ample provision for future expansion • 1400 m long pipeline from fuel depot to the last aircraft parking bay • Each aircraft parking bay with 2 of hydrant pit box, pit valve and emergency isolation valve of international standards confirming to API/IP standards • Internally epoxy lined hydrant pipeline to ensure high quality • Filtration system as per API standards and floating suction in tanks for delivering high quality, clean, dry fuel • Well-designed sampling arrangement and infrastructure at the tank farm and along the pipeline to ensure stringent quality checks • Diesel Generator sets to provide uninterrupted fuel refueling operations • Test rig to simulate refueling conditions for testing of mobile refueling equipment • State-of-the-art Hydrant Dispensers of 45001pm capacity to cater to high speed refueling of any type of aircraft. These are fitted with most modern imported 0.8-micron filter monitor to ensure on spec. delivery of fuel to aircraft • 9 KL / 27 KL / 45 KL capacity refuellers to supplement the hydrant operations in the event of unforeseen emergencies and to meet refueling demands

3. True Up of 2nd Control Period

A. Traffic

Passenger Traffic

3.1 The domestic and international passenger traffic at CIAL in FY 2020 was 9.71 million. The passenger traffic in the 2nd control period is summarized in the table below:

Table 8: Summary of passenger traffic for the 2nd control period (AERA approved and actual)

In Million	Domestic		International		Total	
FY	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers
2017	3.43	3.95	4.86	5.00	8.29	8.95
2018	3.75	4.89	5.14	5.23	8.90	10.12
2019	4.11	5.27	5.75	4.93	9.86	10.20
2020	4.50	5.01	6.42	4.70	10.93	9.71
2021*	4.93	1.19	7.18	0.71	12.11	1.89

*forecasted

3.2 The domestic traffic is driven by increase in per capita income, low air fares, intense competition from low cost carriers, active promotion of Kerala's tourism industry and increasing business travel given Cochin's importance as a business center in Kerala. The international traffic is driven by increased outbound travel to the gulf in search of employment opportunities, tourism travel and intense competition from gulf carriers leading to lower fares.

3.3 Cochin Airport was closed for 15 days in August 2018 due to severe floods which impacted the traffic of FY 2019.

3.4 The drop-in passenger traffic for FY 2020 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. For the methodology adopted to forecast traffic of FY 2021, please refer to Section 4-Traffic.

Air Traffic Movements

3.5 The ATMs has shown a growth with CAGR of 7.5% (FY 2015 – FY 2020) for domestic ATMs and 2.4% (FY 2015 – FY 2020) for international ATMs. The growth in domestic ATMs can be attributed to the capacity addition by LCCs out of CIAL with increase in traffic.

3.6 The ATMs have fallen in proportion to the passenger traffic in FY 2020 for similar reasons mentioned in the passenger traffic section above and is expected to fall drastically in FY 2021. For the methodology adopted to forecast traffic of FY 2021, please refer to Section 4-Traffic.

3.7 The following table shows the comparison between AERA approved numbers and actual ATMs for the 2nd control period:

Table 9: AERA approved and actual ATMs for CIAL

(In Numbers)	Domestic		International		Total	
FY	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers
2017	30,127	31,164	30,985	31,653	61,113	62,817
2018	32,531	36,752	32,448	32,909	64,979	69,661
2019	35,134	41,104	35,920	30,762	71,054	71,866
2020	37,952	38,463	39,768	29,267	77,720	67,730
2021*	41,005	14,420	44,031	7,881	85,036	22,301

*forecasted

Air Cargo

3.8 CIAL handles international and domestic cargo including perishables, valuables and general cargo. Air cargo traffic has increased from 64,940 MT in FY 2015 to 73,588 MT in FY 2020 growing at a CAGR of 2.5%. Cargo traffic is dominated by exports to Middle East and Europe. Out of the 73,588 MT of cargo handled in FY 2020, approximately 80% was Export-Import (EXIM) cargo.

3.9 The domestic cargo has grown at a CAGR of 7.8% in the period FY 2015-FY 2020 with the inbound cargo dominating the total domestic cargo majorly due to electronics, mobile phones, etc.

3.10 International cargo traffic at CIAL has shown a mixed trend increasing from 54,633 MT to 67,729 MT from FY 2015 to FY 2016 and later falling by the end of FY 2020 to 58,582 MT. The increase in cargo traffic during FY 2016, specifically export cargo, was a result of diversion of traffic from Kozhikode Airport which had been partially closed for renovation. Additionally, further increase in FY 2017 and FY 2018 was due to the widebody operations being halted at Kozhikode airport leading to traffic being diverted to Cochin airport.

3.11 The international import cargo reduced in FY 2016, as the customs rules were tightened, and due examination of cargo was done before it was cleared. In addition, duty was levied on the import of couriers in FY 2017.

3.12 In FY2019, widebody operations were again allowed at Kozhikode Airport leading to a decrease in cargo volumes at CIAL.

3.13 For the methodology adopted to forecast traffic of FY 2021, please refer to Section 4-Traffic.

3.14 The following table shows the comparison between AERA approved numbers and actual cargo traffic for the 2nd Control period:

Table 10: AERA approved and actual domestic cargo traffic for CIAL

In MT	Domestic Outbound		Domestic Inbound		Total Domestic	
FY	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers
2017	3,039	3,291	9,503	9,867	12,542	13,159
2018	3,280	3,658	10,570	9,765	13,851	13,423
2019	3,541	3,831	11,757	11,087	15,298	14,919
2020	3,822	4,013	13,078	10,933	16,900	15,007
2021*	4,126	1,731	14,547	5,608	18,673	7,339

*forecasted

Table 11: AERA approved and actual international cargo traffic for CIAL

In MT	International Export		International Import		Total International	
FY	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers	AERA Approved	Actual Numbers
2017	51,849	64,012	4,837	7,239	56,687	71,250
2018	57,341	62,794	5,050	6,068	62,391	68,862
2019	63,414	49,454	5,272	11,993	68,685	61,447
2020	70,129	47,727	5,503	10,855	75,633	58,582
2021*	77,557	37,289	5,745	5,668	83,302	42,957

*forecasted

Summary of traffic

3.15 The summary of traffic for the 2nd control period is as follows:

Table 12: Summary of traffic for 2nd Control Period

FY 2017 - FY 2021*	AERA Approved	Actual Numbers	Difference
Passengers# (In Million)			
Domestic Passengers	20.72	20.31	-0.41
International Passengers	29.35	20.57	-8.78
Total Passengers	**50.07**	**40.88**	**-9.22**
ATMs# (In Numbers)			
Domestic ATMs	1,76,749	1,61,903	-14,846

FY 2017 - FY 2021*	AERA Approved	Actual Numbers	Difference
International ATMs	1,83,152	1,32,472	-50,680
Total ATMs	**3,59,902**	**2,94,375**	**-65,527**
Cargo# (In MT)			
Domestic Outbound	17,808	16,524	-1,284
Domestic Inbound	59,455	47,321	-12,134
International Export	3,20,290	2,61,275	-59,015
International Import	26,407	41,823	15,416
Total Cargo	**4,23,960**	**3,66,943**	**-57,017**

#includes FY 2021 numbers
* difference is due to rounding off

B. Opening Regulatory Asset Base (RAB)

3.16 The opening RAB of FY 2017 is considered as INR 272.5 cr. for the calculation of true–up as per the opening RAB approved by AERA for CIAL in its 2nd control period order. Details of opening RAB are given in the table below.

Table 13: Opening RAB for the True Up Calculation

Particulars* (in INR cr.)	Approved by AERA	Considered by CIAL
Land	0.0	0.0
Buildings & Civil Works	102.03	102.03
Golf Course Development	0.0	0.0
Runway, Roads & Culverts	66.06	66.06
Plant & Equipment, Office Equipment, Computers & Accessories, Furniture & Fixture, Vehicles and Intangible Assets	104.42	104.42
Total	**272.5**	**272.5**

* difference is due to rounding off

C. Capital Additions in the 2nd control period

3.17 CIAL had planned to undertake major capital expenditure in the 2nd control period which included construction of new international terminal T3, construction of apron, runway re-carpeting etc. The details for the same are described below:

Construction of New Terminal T3

3.18 CIAL had constructed the new International Terminal T3 which was commissioned in March 2017.

3.19 CIAL had conducted consultations with the Airport Users Consultative Committee (AUCC) on the proposed project as per the guidelines of AERA and thereafter the construction of new terminal commenced on 1st February 2014.

3.20 The estimated cost of developing the new international terminal at CIAL was benchmarked with similar airport projects undertaken in India in the last five years. The estimated cost for development at CIAL was observed to be among the lowest as compared to other airport expansion/ development projects.

3.21 The construction of T3 falls under the normative approach of AERA as detailed in Order No. 07/ 2016-17. Capital expenditure for T3 is INR 922.5 cr. and the area of T3 is 1,46,528 sq. m. Based on the above, the per sq. m. cost of T3 is INR 62,957 which is lower than the normative cost of INR 65,000 per sq. m.

3.22 The comparison of the capital expenditure proposed for T3 as approved by AERA and actual cost incurred by CIAL is shown in the table below:

Table 14: Capital expenditure for construction of new Terminal T3 (AERA approved and actual)

Particulars (in INR cr.)	Terminal cost heads
T3 cost approved by AERA	**926.7**
Break-up of actual cost of T3	
Building and civil works	609.9
MEP works	145.6
BHS and in-line X-ray	114.1
Aerobridge and VDGS	30.2
IT infrastructure	22.7
Total	**922.5**
Difference between AERA approved and actual cost	**-4.2**

* difference is due to rounding off

Apron Works for T3

3.23 CIAL had constructed the apron works which were commissioned in 2017.

3.24 The construction of apron falls under the normative approach of AERA as detailed in Order No. 07/ 2016-17. Capital expenditure for apron excluding earthwork upto sub grade level is 96.5 cr. and the area of the apron is 2,22,660 sq. m. Based on the above, the per sq. m. cost of the apron is INR 4,335 which is lower than the normative cost of INR 4,700 per sq. m.

3.25 Please refer to the Annexure 1 for the breakup of the capital expenditure of apron.

3.26 The comparison of the capital expenditure for construction of apron works, roads etc. as approved by AERA and actual cost incurred by CIAL is shown in the table below:

Table 15: Capital Expenditure for Apron Works (AERA approved and actual)

Particulars (in INR cr.)	Aero/Non-Aero	Approved by AERA	Actual cost incurred by CIAL
Apron works	Aero	200.5	172.0
Total		**200.5**	**172.0**
Difference		**-28.5**	

Runway Recarpeting and Construction of Rapid Exit/Vertical Links

3.27 The re-carpeting of runway which involves re-surfacing and strengthening of runways was carried out in 2009 at CIAL.

3.28 Under normal circumstances, deterioration of runway is gradual and becomes noticeable over a period of few years. This deterioration can be due to surface weathering or structural fatigue or both. In deciding the design life, the following considerations are important.

i. To ensure longer time period between major maintenance work on airfield pavements
ii. The likelihood of a change in aircraft use after a number of years.
iii. Durability of construction.
iv. Impact of recent floods on runway.

3.29 Determination of the pavement thickness is a complex engineering process. Pavements are subject to wide variety of loading and climatic effects. The climatic conditions in Kerala warrant for rehabilitation of surface grades and renewal of skid resistant properties. Similarly, there are a number of factors that influence the thickness of pavement required for satisfactory service. These include the magnitude and character of the airplane loads to be supported, the volume of traffic, the concentration of traffic in certain areas and the strength of the subgrade soil and quality of materials that make up the pavement structure.

3.30 Taking into consideration the above factors, CIAL conducted a technical study through IIT Chennai to ascertain the timing of next runway re carpeting and the specification required to be adopted while doing the work. Accordingly, IIT Chennai had prescribed to conduct the next re-carpeting during the financial year 2019-2020.

3.31 The useful life of runway re-carpeting has been considered as five years and has been depreciated over five years as per AERA Order.

3.32 Recently, CIAL introduced ILS facility on both sides of the runway as airlines prefer to land from 09 end provided a vertical line rapid exit is made available. At present there are five vertical lines, which can be increased to seven links facilitating rapid clearances of aircraft

from the runway. As this works involves disruption of services in the runway, it is required to be undertaken during runway and taxiway re-carpeting works.

3.33 The runway lighting system needs to change along with the runway re carpeting process. The earlier lighting systems are of CAT II category. While changing the lighting systems during the re carpeting, the up gradation of runway/taxi way lighting systems to CAT III category was also carried out.

3.34 The necessity for upgradation on taxiway and runway lighting system to CAT III is as follows:

i. To improve Aerodrome safety and efficiency.
ii. Recommendation from Aircraft Accident Investigation Bureau (AAIB) For Taxiway C/L Lights.
iii. To make the system comprehensive
iv. For integrating with Surface Movement Guidance and Control (SMGC) system.

3.35 The total capital expenditure related to runway re-carpeting, construction of rapid exit/vertical links and light fitting is as follows:

Table 16: Capital Expenditure for Runway re-carpeting and construction of rapid exit/vertical links

Particulars* (in INR cr.)	FY 20 WIP	2021#	2022	2023	2024	2025	2026
Runway re-carpeting	77.0	20.9	0.0	0.0	0.0	0.0	0.0
Rapid exit and vertical link	30.1	13.4	0.0	0.0	0.0	0.0	0.0
Light fittings - Air Side	28.6	7.8	0.0	0.0	0.0	0.0	0.0
Total	**135.6**	**42.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Grand Total	**177.7**						
Approved by AERA	**175.9**						
Difference	**1.8**						

*difference is due to rounding off
forecasted

Additional Parking Bays, Code f upgradation, Approach road and other road works

3.36 CIAL has undertaken capital expenditure of INR 166 cr. during the 2nd control period on these assets. The major items included construction of approach road, service road, construction of ROB, internal roads and car park, T3 flyover etc.

3.37 Additional capital expenditure is planned to be undertaken in the 3rd control period. The details related to capital expenditure for this line item is as follows:

Table 17: Capital expenditure for additional parking bays, code f upgradation, approach road and other road works

Particulars^ (in INR cr.)	Approved by AERA
AERA approved capital expenditure for additional parking bays, code F upgradation, approach road and other road works	**310.9**
Actual cost incurred by CIAL	
Construction of approach road	49.4
Service road including T3 flyover	60.4
Construction of ROB	11.3
Others including internal roads and car park#	44.7*
Total	**165.8**
Difference	**-145.1**

proposed works for construction of parking bays phase II were not undertaken in 2nd control period and are proposed in 3rd control period
^ difference is due to rounding off

Other works - including terminal modification, new equipment purchases etc.

3.38 The details related to capital expenditure for the other works are as follows:

Table 18: Capital expenditure for other works including terminal modification, new equipment purchase, etc.

Particulars^ (in INR cr.)	Approved by AERA
AERA approved capital expenditure for terminal modification, new equipment purchase, etc.	**370**
Actual cost incurred by CIAL	
Terminal 1 modification	248
Augmentation of 110 KV substation	12
Refurbishment of 5 arrival BHS T3	11
Compound wall	6
Data centre revamping	4
Other projects	92
Total	**373***
Difference	**3**

^ difference is due to rounding off
* includes estimated capital expenditure for FY 2021

Other projects undertaken by CIAL – Flood Control measures

3.39 Kerala experienced severe floods in August 2018, causing havoc that affected 13 out of 14 districts of Kerala. CIAL premises were also hit by this flood, resulting in suspension of the airport operations for 15 days. Flood in 2013 & 2019 had also hampered flight operations in

CIAL. CIAL is situated within the river basin of Periyar. The floods in the river Periyar created an alarming situation for the airport and the adjoining area as well.

3.40 In view of the above, CIAL board had taken a decision to address and overcome this problem. Thus, the task was entrusted to consultant M/s KITCO Ltd. for conducting the field surveys, carrying out detailed studies and recommending suitable flood mitigation measures.

3.41 Accordingly, KITCO Ltd. had prepared detailed report for flood mitigation measures for CIAL and adjoining area.

3.42 Implementation of various projects identified in the report were started in FY 2020 and these works are in progress. Remaining projects will be taken up for implementation from FY 2021 to FY 2023. The total capital expenditure on flood control measures is estimated at INR 122.9 cr. out of which INR 29.9 cr. will be capitalized in the 2nd control period.

3.43 The details of the capitalized assets for flood control measures in the 2nd control period is shown in the table below:

Table 19: Capitalized assets of flood control measures for 2nd control period

Particulars (in INR cr.)	FY 2020 WIP	2021*
Flood Control Measures (Civil Works)	12.7	10.7
Widening of storm water drain Avanamcode to Neduvannoor (Civil Works)	2.0	4.5
Total	**14.7**	**15.2**
Grand total for 2nd control period	**29.9**	

*forecasted

Passenger Service Fee (Security Component) assets

3.44 Ministry of Civil Aviation vide order dated 18th 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.

3.45 Accordingly, the PSF (SC) assets were accounted in the FY 2018 financial statements of CIAL at its original cost of INR 84.99 cr. Corresponding depreciation of INR 13.06 cr. was accounted in the financial statements of FY 2018.

3.46 The details for the PSF (SC) assets are shown in the table below:

Table 20: PSF (SC) assets

Particulars (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
PSF (SC)	0.0	84.99	0.0	0.0	0.0

Summary of Capital Additions for 2nd Control Period

3.47 The summary of capital additions approved by AERA and undertaken by CIAL for the 2nd control period is summarized in the table below:

Table 21: Summary of Capital Additions for 2nd CP for true-up calculation

Particulars# (in INR cr.)	Approved by AERA	Actual cost incurred by CIAL	Difference	Remarks
Construction of new Terminal T3 and related works proposed to be constructed in March 2017	927	923	-4	Please refer to the Section above "Construction of New Terminal T3."
Apron works, roads proposed to be commissioned in March 2017	201	172	-29	Please refer to the Section above "Apron works, roads proposed to be commissioned in March 2017"
Runway Re-carpeting & Construction of Rapid Exit/Vertical Links - FY 2021	176	178	2	Please refer to the Section above "Runway Re-carpeting & Construction of Rapid Exit/Vertical Links"
Additional Parking Bays, Code f upgradation, Approach road and other road works	311	166	-145	Please refer to section above on additional parking bays, code f upgradation, approach road and other road works.

Particulars# (in INR cr.)	Approved by AERA	Actual cost incurred by CIAL	Difference	Remarks
				Proposed works for construction of parking bays phase II were not undertaken in 2nd control period and these are proposed to be undertaken in 3rd control period.
Ground Handling related	71	59	-12	Ground handling equipment procurement and leasing was intended to be undertaken in 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.
Other Works-including terminal modification, new equipment purchases etc.	370	373	3	These include capital additions for Terminal 1 modification, augmentation of 110 KV substation, construction of storm water drains, reconstruction of

Particulars# (in INR cr.)	Approved by AERA	Actual cost incurred by CIAL	Difference	Remarks
				compound walls, attendance machines, CCTV additions, video conferencing facilities, etc..
New cargo warehouse & allied works	131	20*	-111	Cargo warehouse construction capital expenditure has started in FY 2020. As it is not capitalized by FY 2021, it has not been added to the capital additions of the 2nd control period.
PSF-SC assets	0	85	85	Ministry of Civil Aviation vide order dated 18th 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

Particulars# (in INR cr.)	Approved by AERA	Actual cost incurred by CIAL	Difference	Remarks
				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.
Flood control measures - FY 2021	0	30	30	This includes the deepening and widening of diversion canal constructed by CIAL in the past and other related activities undertaken based on the master plan for flood mitigation in the report given by KITCO.
Total	**2,186**	**2,005**	**-181**	

difference is due to rounding off
* includes actual CWIP amount for FY 2020 and estimated CWIP amount of FY 2021

3.48 The details of the capital additions of the commercial projects in the 2nd control period are given in the table below.

Table 22: Capital additions of the commercial projects in the 2nd control period

difference is due to rounding off
* includes actual CWIP amount for FY 2020 and estimated CWIP amount of FY 2021

Particulars# (in INR cr.)	Approved by AERA	Actual cost incurred by CIAL	Difference	Remarks
Commercial projects - Commercial Complex, Family entertainment Centre, product Display showroom	354	97*	-257	These are non-aeronautical projects planned to be undertaken during the 2nd control period out of which the construction of the commercial/ hotel complex work is progressing, and an amount of INR 36.3 cr. is capital work in progress in FY 2020. Once the entire work is completed, during FY 2022, the total value of the project will be INR 137.5 cr.. As far as other commercial projects are concerned, some of them have been proposed in 3rd control period.

Allocation of assets in the 2nd control period

3.49 For the opening RAB (FY 2017) of 2nd control period, CIAL has considered the same bifurcation approach as approved by AERA in para 9.2.3 and 9.2.4 of the 2nd control period order for CIAL.

Table 23: Aeronautical and non-aeronautical asset allocation considered for opening RAB of 2nd control period

Existing Assets	Aero allocation ratio for FY17 Opening Gross Block	Opening RAB of FY17 (in INR cr.)
Land	Not Considered as part of RAB	102.39
Buildings and civil works	71%	102.03
Golf course development	0%	0
Runway, roads and culverts	100%	66.06
Plant and equipment, Office equipment, Computers and accessories, Furniture and fixtures, Vehicles and Intangible Assets	90%	104.42

3.50 The approach followed by CIAL for segregation of assets capitalized in the 2nd control period is as follows:

Table 24: Aeronautical and non-aeronautical asset allocation basis for assets capitalized in the 2nd control period

Existing Assets	Basis for segregation
Land	Land is excluded from RAB and it is taken as separate line item for determination of FRoR as per AERA Order 42/2018-19 dated 5th 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 3 for KITCO certificate on terminal area usage.
Golf course development	Golf course development assets have been considered as non-aeronautical assets.
Runway, 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. Common assets have been apportioned into aeronautical and non-aeronautical component based on the terminal area ratio of 92.81% and 7.19%.
Office equipment	
Computers and accessories	
Furniture and fixtures	
Vehicles	
Intangible assets	

Car Park

3.51 During the 2nd control period (FY 2017 to FY 2021), two road projects were undertaken by CIAL.

3.52 The first one, was partially commissioned during the first half of 2017 at INR 19.87 cr. and during the second half of 2017 commissioned value of INR 12.14 cr. aggregating to INR 32.01

cr. These roads are connecting roads to newly constructed terminal T3 and car park area in front of terminal.

3.53 The second one, was commissioned in March 2019 at INR 22.19 cr. which includes roads to T1 - Domestic roads, Substation Road, Naka Morcha road, additional area for parking and service road electrical works. These roads are connecting roads to the newly modified terminal T1 and car park area in front of the terminal.

3.54 Accordingly, the overall cost of these connecting roads have been bifurcated into aeronautical and non-aeronautical components based on the ratio computed in the following table. Please refer Annexure 4 for the details of the bifurcation ratio for internal roads and car park cost.

Table 25: Internal roads and car park cost details and bifurcation

S. no.	Description	Asset type	Bifurcation ratio – Non-aero	Aero	Non-aero	Total (INR cr.)
1	Interior Roads in car park area - T3	Common Car Park - T3	34%	13.06	6.81	19.87
2	Additional Interior Roads in car park area (17-18) - T3	Common Car Park - T3	34%	7.98	4.16	12.14
3	Roads to T1: Domestic roads	Common Car Park - T1	34%	10.77	5.50	16.27
4	Roads to T1: Substation Road	Common Car Park - T1	34%	0.24	0.12	0.37
5	Roads to T1: Naka Morcha road	Common Car Park - T1	34%	1.24	0.63	1.87
6	Roads to T1: Additional Area for parking	Common Car Park - T1	34%	1.70	0.87	2.56
7	Roads to T1: Service Road Electrical works	Common Car Park - T1	34%	0.21	0.11	0.31
8	Roads to T1: Consultancy	Common Car Park - T1	34%	0.53	0.27	0.80
	Total			**35.73**	**18.47**	**54.20**

D. Depreciation

3.55 CIAL has a policy of charging depreciation till 95% of the original cost and the same methodology has been considered for true up for the second control period.

3.56 For the assets capitalized from FY 2017 till FY 2021, the depreciation for the year in which the assets will be capitalized, is calculated based on the actual date of capitalization. For the new assets capitalized in FY 2021, the depreciation for the year in which the assets will be capitalized is calculated on 50% of asset value.

3.57 CIAL had used the methodology for calculation of depreciation based on The Companies Act 2013 until the adoption of Ind AS. The new Companies Act proposes to calculate depreciation taking into account the useful life of the assets.

3.58 On adoption of Ind AS, CIAL has revised its methodology for calculation of depreciation as detailed in para 3.4 under Notes to the Standalone Financial Statements for the financial year ended 31 March 2017. The same methodology has been adopted to calculate depreciation in the second control period from FY 2017 to FY 2018.

Table 26: Useful life of assets adopted by CIAL for FY 2017 and FY 2018

S no	Type/Category of Asset	Useful life years
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.	Electrical installations, DG sets, transformers, sign boards, firefighting systems, UPS	5-10
6.	HVAC systems	4-15
7.	Light fittings	5
8.	Apron, approach road bridge, railway over bridge	30
9.	Roads, flexible pavements	10
10.	Flexible pavements	5
11.	CUPPS, CUSS, Networking, BRS	5

3.59 From FY 2019 onwards, CIAL has adopted the useful life given in the AERA Order no. 35/ 2017-18 dated 12th January 2018 which is applicable from 1 April 2018 and accordingly revised the depreciation rates. Details of the methodology for calculation of depreciation from FY 2019 onwards is given in 25th Annual Report 2018-19 of CIAL.

3.60 The useful life of assets as per AERA Order No. 35/2017-18 is given below:

Table 27: Useful life of assets adopted by CIAL from FY 2019 onwards as per AERA Order dated 12th January 2018

S no	Type/Category of Asset	Useful Life	Asset Class
A	**Assets and components of assets for which the useful life as prescribed as per Part C of Schedule II / directed by AERA / technical evaluation is applied:**		
1.	Building - Civil, earth works, pile masonry, concrete, steel and RCC Works (including terminal building and cargo complex)	60	Buildings & Civil Works
2.	Building - False ceiling, handrails and façade works	20	Buildings & Civil Works
3.	Building - Interior, flooring, roofing, plumbing and finishing	15	Buildings & Civil Works
4.	Elevators, Escalators, Baggage Handling Systems, Travellators, HVAC equipment, aircraft recovery equipment and aerobridges	15	Plant and Equipment
5.	Light fittings	10	Plant and Equipment
6.	Runway, Apron and Taxiway	30	Runway, Roads and Culverts
B	**Assets and components of assets for which different useful life as directed by AERA is applied:**		
7.	Electrical Installation and equipment	10	Plant and Equipment
8.	Flight Information System	10	Plant and Equipment
9.	Aircraft Fire tenders and other fire equipment	15	Plant and Equipment
10.	X - Ray, RT Sets, DFMD, HHMD and security equipment	15	Plant and Equipment
11.	Office equipment	5	Office Equipment
12.	Furnitures and fixtures other than trolleys	7	Furniture and Fixtures
13.	Furniture and fixture trolleys	3	Furniture and Fixtures
14.	Computer end user devices	3	Computers and Accessories
15.	Computers, servers and networks	6	Computers and Accessories
16.	CUPPS, CUSS, Networking and BRS	6	Plant and Equipment
17.	Roads and flexible pavement	10	Runway, Roads and Culverts
18.	Flexible pavements	5	Runway, Roads and Culverts
19.	Software	5	Intangible assets

S no	Type/Category of Asset	Useful Life	Asset Class
20.	Vehicles	8	Vehicles

3.61 The total depreciation for the 2nd control period is given below:

Table 28: Total depreciation for the 2nd Control Period

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Land	0.0	0.0	0.0	0.0	0.0
Buildings & Civil Works	6.3	27.1	28.7	34.3	35.0
Golf Course Development	2.5	2.5	2.5	2.5	1.8
Runway, Roads and Culverts	10.0	22.2	20.6	25.5	35.5
Plant and Equipment	14.6	47.4	49.4	58.0	59.6
Office Equipment	0.0	0.1	0.1	0.2	0.4
Computers and Accessories	1.0	1.0	1.0	1.2	2.2
Furniture and Fixtures	0.8	1.0	1.7	1.8	1.7
Vehicles	0.5	0.6	0.7	0.9	1.1
Intangible assets	3.1	1.6	1.4	0.7	0.5
FA	0.0	0.0	0.0	0.0	0.6
Total Depreciation	**38.8**	**103.6**	**106.2**	**125.1**	**138.3**

*difference is due to rounding off
forecasted

3.62 The aero depreciation considered for the calculation of true–up of second control period is summarized in the table below:

Table 29: True-up of aero depreciation for the 2nd Control Period

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Land	0.0	0.0	0.0	0.0	0.0
Buildings & Civil Works	4.6	23.6	25.2	30.5	31.0
Golf Course Development	0.0	0.0	0.0	0.0	0.0
Runway, Roads and Culverts	10.0	21.2	19.5	22.7	32.6
Plant and Equipment	12.5	44.2	45.7	54.0	55.6
Office Equipment	0.0	0.1	0.1	0.2	0.4
Computers and Accessories	0.9	0.9	1.0	1.1	2.1
Furniture and Fixtures	0.7	0.9	1.6	1.7	1.6
Vehicles	0.5	0.6	0.6	0.9	1.1
Intangible assets	2.8	1.5	1.3	0.6	0.5
FA	0.0	0.0	0.0	0.0	0.6
Total Depreciation	**31.9**	**92.9**	**94.9**	**111.7**	**125.4**

*difference is due to rounding off
forecasted

3.63 Comparison between the aero depreciation approved by AERA and actual aero depreciation of CIAL for the 2nd control period is given in the table below:

Table 30: Aero depreciation (AERA approved and actual)

Particulars* (in INR cr.)	Approved by AERA	Actual Depreciation by CIAL	Difference
Land	0.0	0.0	0.0
Buildings & Civil Works	64.07	114.8	50.7
Golf Course Development	0.0	0.0	0.0
Runway, Roads and Culverts	91.16	106.0	14.8
Plant and Equipment	208.46	211.9	3.5
Office Equipment	10.62	0.8	-9.8
Computers and Accessories	42.49	5.9	-36.6
Furniture and Fixtures	6.41	6.5	0.1
Vehicles	3.94	3.7	-0.3
Intangible assets	10.44	6.7	-3.8
FA	0.0	0.6	0.6
Total Depreciation	**437.59**	**456.8**	**19.2**

*difference is due to rounding off

E. Regulatory Asset Base (RAB) for 2nd Control Period

3.64 The assets capitalized during the 2nd Control Period have been added to the opening RAB and adjusted for depreciation charged during the year to arrive at closing value of RAB.

3.65 Average of opening and closing RAB has been considered for computation of true–up.

3.66 Exclusions from RAB:

I. Under Ind AS accounting, value of grants at written down value as on 1 April 2016 have been included as part of the Gross Block of CIAL and depreciated going forward. Since, these are notional accounting adjustments, the value of grants and the depreciation has been excluded from the aeronautical RAB.

II. Land cost is excluded from the RAB as per AERA's directions in 2nd control period order of CIAL and separate section on return on land is included as per AERA's Order no. 42/ 2018-19.

3.67 The Regulatory Asset Base (RAB) for the 2nd Control Period is summarized in the table below:

Table 31: Computation of RAB for the control period

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Opening RAB	272.5	1,350.7	1,414.0	1,576.0	1,529.3
Less: Depreciation during year	31.9	92.9	94.9	111.7	125.4
Add: Capitalization during the year	1,110.0	157.8	276.8	65.3	249.1
Sales/transfer/ retirements	0.0	-1.5	-19.9	-0.3	0.0
Closing RAB	1,350.7	1,414.0	1,576.0	1,529.3	1,653.0
Average RAB	**811.6**	**1,382.4**	**1,495.0**	**1,552.7**	**1,591.2**

*difference is due to rounding off
forecasted

Table 32: Total RAB considered for true-up for the 2nd Control Period (AERA approved and actual)

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Average RAB by CIAL	**811.6**	**1,382.4**	**1,495.0**	**1,552.7**	**1,591.2**
Average RAB approved by AERA	815.8	1382.61	1486.5	1642.7	1856.2
Difference	-4.2	-0.3	8.5	-90.0	-265.1

*difference is due to rounding off
forecasted

F. Return on Land

3.68 As per the 2nd control period order for CIAL, decision on return on land to CIAL was proposed post completion of the study undertaken by AERA in this matter.

3.69 AERA in its Order No. 42/2018–19 released on 5th March 2019 has laid down the mechanism for calculation of FRoR to be provided on cost of land. As per the order, the following decisions are applicable to CIAL:

I. The return will be given only on the cost of land used for aeronautical activities.

II. In case land is purchased by the airport operating company either from private parties or from the government, the compensation shall be in the form of equated annual installments computed at actual cost of debt or SBI Base rate plus 2% whichever is lower over a period of thirty years. The equated annual installment is calculated as per the following formula:

Equated Annual Installment = [Cost X Rate (1+Rate) ^ 30] / [(1+Rate) ^ 30 - 1]

where,

Cost: Actual Cost of Land

Rate: Actual cost of debt or SBI Base Rate plus 2% whichever is lower

3.70 CIAL has bifurcated the total land cost into aeronautical and non-aeronautical on the basis of aeronautical to non-aeronautical area ratio. Accordingly, aero land cost as a share in total land cost is 89.6%. Please refer to Annexure 2 for breakup of area usage of CIAL. As per the above formula, the return on land is computed below:

Table 33: Return on Land for 2nd Control Period

Particulars^ (In INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Land Cost	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 (%) (A)	9.63%	9.63%	8.90%	8.50%	7.80%
SBI rate* + 2% (%) (B)	>11%	>10.5%	>10.5%	>10%	>9%
Rate for calculation of return on land cost (%) (lower of A and B)	9.63%	9.63%	8.90%	8.50%	7.80%
Return on land cost	11.5	11.5	10.8	10.4	9.8
Total Return on Land	**54.0**				

* Source: SBI (Rates vary throughout the year)
^difference is due to rounding off
forecasted

G. Fair Rate of Return (FRoR)

3.71 Fair Rate of Return (FRoR) has been calculated as per the tariff guidelines. The computation of FRoR has been done as below:

$$FRoR = g*R_d + (1-g) * R_e$$

where: g = Weighted Average Gearing for the control period

R_d = Weighted Average Pre-Tax Cost of Debt for the control period

T= Corporate Tax Rate

R_e = Post-Tax Cost of Equity.

Equity

3.72 Changes suggested by AERA in the 2nd control period order of CIAL has been included in the true-up calculation wherein:

I. Investment in other businesses have been excluded for computing equity for FRoR
II. Grants received from the government have been excluded
III. Used average equity balance for the year instead of closing balances

IV. AERA had revised the cost of equity from 16% to 14% which is lower than 16% cost of equity approved by AERA for other airports. To comply with the 2nd control period order of AERA, CIAL has considered a cost of equity of 14% for the purposes of calculation. Without prejudice to above, CIAL strongly requests AERA to consider 16% cost of equity for CIAL in the 2nd control period to provide consistent treatment for all airports.

3.73 The computation of equity for the 2nd control period is shown in the table below:

Table 34: Computation of equity for true-up calculation of 2nd control period

Equity* (in INR cr.)	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Share Capital (A)	382.6	382.6	382.6	382.6	382.6	382.6
Reserves and Surplus (B)	524.0	599.8	640.7	692.3	771.8	457.3
Share Premium (C)	306.1	306.1	306.1	306.1	306.1	306.1
Grant (D)	8.0	0.0	0.0	0.0	0.0	0.0
Investment in Subsidiaries (E)	230.7	230.7	230.8	235.1	239.5	239.5
Equity without grant and investment in subsidiaries (A+B+C-D-E)	**973.9**	**1057.7**	**1098.6**	**1145.8**	**1220.9**	**906.4**
Average equity without grant and investment in subsidiaries		**1015.8**	**1078.1**	**1122.2**	**1183.4**	**1063.7**
AERA approved numbers		899	941	988	1055	1147
Difference		116.8	137.1	134.2	128.4	-83.3

*difference is due to rounding off
forecasted

Debt

3.74 CIAL had raised debt from the banks to fund its capital expenditure. Existing long-term debt and new debt required for capex funding has been considered for this purpose.

3.75 As suggested by AERA, average debt balance for the year has been used instead of closing balances.

3.76 The weighted average cost of debt (R_d) for the second control period is computed from the outstanding debt and yearly actual cost of debt as given below:

Table 35: Computation of debt for true-up calculation

Debt* (in INR cr.)	FY 2016	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	149	379	488	570	555	749
Average debt		**264**	**434**	**529**	**562**	**652**
AERA approved		369	639	775	933	1086
Difference		-105.1	-205.5	-246.1	-370.7	-434.4

*difference is due to rounding off
forecasted

Security Deposit

3.77 As per Telecom Disputes Settlement & Appellate Tribunal (TDSAT) judgement dated 23rd April 2018 in response to a petition filed by DIAL relating to AERA proposing no or 0% return on refundable security deposits, the judgement concluded that refundable security deposits cannot be a zero cost debt and its cost needs to be ascertained through appropriate fiscal exercise.

3.78 Based on the directions of the TDSAT order, AERA had proposed cost of debt as a return on security deposit in the Consultation Paper no. 15/ 2020-21 for DIAL.

3.79 CIAL has considered cost of debt as return on security deposit of INR 150 cr. for computation of FRoR. Without prejudice to above, CIAL requests AERA to allow cost of equity, that is, 16% as return on security deposit.

Calculation of Fair Rate of Return (FRoR) for 2nd Control period

3.80 Basis the above factors, the FRoR for the 2nd Control period is computed below:

Table 36: FRoR computed for 2nd Control Period

Particulars (in INR cr.)	Details (%)
Weighted Average Gearing including security deposit (D/D+E)	36.9%
Share of Equity	63.1%
Weighted average cost of debt and security deposit	8.7%
Cost of Equity	14.0%
FRoR calculated by CIAL	**12.05%**
FRoR approved by AERA	11.17%

H. Operations & Maintenance Expenditure

3.81 CIAL has been cost effective in managing the airport. Its operational expenditure per passenger is relatively lower as compared to some other major airports. Notwithstanding the low operational expenditure, CIAL has always ensured that customer service is always of high

standards and has planned airport development in line with this objective. As a no-frills airport, CIAL has maintained consistent levels of service quality.

3.82 The Operation and Maintenance (O&M) cost mainly consists of the employee costs, repairs & maintenance cost, utilities costs, other operational expenditure costs, administration and general costs.

3.83 The following adjustments in the O&M expenses from the financial statements have been undertaken to compute aeronautical O&M expenses for the second control period:

I. Loss on sale of assets due to floods and flood related expenses considered after netting it with the amount of insurance claim recovery.

II. CSR expenses have been excluded as per the 2nd control period order for CIAL by AERA.

III. Provision of doubtful debts have been excluded as per the previous AERA orders for other airports.

IV. The power and water charges have been considered net of revenues from concessionaire (utility service charge).

3.84 Flood mitigation expenses were recommended by the KITCO study to mitigate the risk of floods in future, few of which were basically in the nature of revenue expenditures which has been expensed off in compliance of Ind-AS standards. These have been included in the O&M expenses for calculation of ARR.

3.85 The basis of allocation of O&M expense is given below:

Table 37: Basis of allocation of O&M expense for 2nd Control period

O&M expense head	Basis for segregation of O&M cost
Employee cost	Employees have been bifurcated into aeronautical, non-aeronautical and common employees. Common employees include employees in MD's office, Finance and HR department. As per 2nd control period order of CIAL, these common employees have been further bifurcated into aeronautical and non-aeronautical employees. Total employee cost has been segregated into aeronautical and non-aeronautical in the proportion of number of employees providing aeronautical and non-aeronautical services. CIAL duty free employees are seconded to CDRSL whose amount is paid directly by CDRSL. Their employee cost is therefore not part of the total employee cost of CIAL. Hence, these employees have been excluded from the employee ratio calculations.
Administration and General costs	Loss on sale of assets due to flood and flood related expenses after netting it with the insurance claim recovery is bifurcated into aeronautical and non-aeronautical component based on the ratio of aeronautical gross block to total gross block. Flood mitigation expenses have been considered as aeronautical expenses. Remaining, admin expenses have been segregated into aeronautical and non-aeronautical in the proportion of number of employees providing aeronautical and non-aeronautical services as per AERA's 2nd control period order for CIAL.
Utilities Costs	The power and water charges have been considered net of revenues from concessionaire (utility service charge). The net amount has been considered 100% aeronautical expenses as per 2nd control period order for CIAL.
Repair and maintenance costs	Repair and maintenance costs except for CUTE operational expenses have been bifurcated based on AERA approved ratio of 85.37% in the 2nd control period order for CIAL.
Duty free shop management fees and duty-free discount allowed	Considered non-aeronautical expense.
Other operational expenses	These expenses pertain to safety & security expenses, vehicle operations & maintenance, housekeeping expenses, consumables and other miscellaneous expenses. Expenses have been segregated in the proportion of number of employees providing aeronautical and non-aeronautical services as per AERA's 2nd control period order for CIAL.
CUTE operational expenses	CUTE operational expenses incurred are considered to be aeronautical expenses.

3.86 The proportion of aeronautical O&M expenses for the true-up of 2nd control period is shown below:

Table 38: Proportion of Aeronautical Expenses

Particulars (in %)	2017	2018	2019	2020	2021#
Employee cost	95.3%	95.4%	95.7%	96.0%	96.1%
Operational Expenses					
Total Repairs Costs	85.4%	85.4%	85.4%	85.4%	85.4%
Safety & Security expenses	95.3%	95.4%	95.7%	96.0%	96.1%
Power Charges (net amount)	100%	100%	100%	100%	100%
Water Charges (net amount)	100%	100%	100%	100%	100%
Fuel Generator Sets (net amount)	100%	100%	100%	100%	100%
Duty free shop management fee and duty-free discount allowed	0%	0%	0%	0%	0%
Vehicle R&M expenses	95.3%	95.4%	95.7%	96.0%	96.1%
House Keeping 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%	100%	100%	100%	100%
Cost of duty-free goods sold	0%	0%	0%	0%	0%
Admin Expenses					
Admin Expenses except flood related costs and flood mitigation expenses	95.3%	95.4%	95.7%	96.0%	96.1%
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%	100%	100%	100%	100%

forecasted

Employee cost

3.87 The employees of CIAL have increased from 477 to 496 during the period FY 2017 to FY 2021. The breakup of employees is shown below:

Table 39: CIAL employee breakup 2017-2021

Employees (in number)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Aero employees	428	432	445	433	447
Non-aero employees	21	21	20	18	18
Common employees	28	29	29	31	31
Total employees	**477**	**482**	**494**	**482**	**496**
Common employees apportionment					

Employees (in number)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Aero common employees	27	28	28	30	30
Non-aero common employees	1	1	1	1	1
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**
Aero employee ratio	**95.3%**	**95.4%**	**95.7%**	**96.0%**	**96.1%**

forecasted

3.88 The pay revision was implemented in the year 2019 as per the 5 year pay increase policy of CIAL.

3.89 CIAL duty free employees are seconded to CDRSL whose amount is paid directly by CDRSL. Their employee cost is therefore not part of the total employee cost of CIAL. Hence, these employees have been excluded from the employee ratio calculations.

3.90 The employee cost of CIAL for true-up calculation is given in the table below:

Table 40: Employee cost of CIAL for 2nd control period

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Employee Cost-Total	52.9	57.6	80.2	78.3	82.5
Employee Cost-Aero	**50.4**	**54.9**	**76.7**	**75.1**	**79.3**

*difference is due to rounding off
forecasted

Operational Expenses

3.91 Operational expenses include repair costs, power, water and fuel charges, safety and security expenses, vehicle R&M expenses, housekeeping, consumables and other operational expenses.

3.92 The breakup of operational expenses considered for true-up calculation is summarized below:

Table 41: Aero operational expenses considered for true-up

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Total operational expenses	**68.2**	**92.3**	**103.6**	**110.8**	**90.2**
Total Aero operational expenses	**53.6**	**75.6**	**82.7**	**93.2**	**78.1**
R&M expenses	15.2	19.3	20.8	25.2	20.2
Power, Water and Fuel Charges (net amount)	17.0	26.3	27.8	31.2	23.4
Safety & Security Expenses	3.8	6.4	8.2	8.5	6.8

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Vehicle R&M expenses	0.9	0.9	1.4	0.9	0.6
Housekeeping expenses	6.9	9.5	9.8	11.1	10.0
Consumables	2.0	3.2	3.2	3.6	3.7
Other operational expenses	6.9	7.9	7.1	7.3	7.3
CUTE Operational expenses	1.0	2.1	4.5	5.3	6.2

*difference is due to rounding off
forecasted

Administration & General Expenses

3.93 The admin and general expenses consist of repairs to office equipment, rent, rates and taxes, printing and stationery, telephone, postage and communication, travelling expense, insurance, advertisement, bank charges, auditor's remuneration, professional charges and net amount of flood related expenses.

3.94 The admin & general expenses considered for true-up calculation are shown below:

Table 42: Administration & general expenses for true-up calculation

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Admin expenses (Total)	23.3	15.6	68.0	42.1	33.4
Admin expenses (Aero)	**22.2**	**13.1**	**26.0**	**35.2**	**28.5**

*difference is due to rounding off
forecasted

Summary of total aero O&M expenditure

3.95 The summary of total O&M expenditure for true-up calculation is summarized in the below table:

Table 43: Summary of O&M expense for true-up calculation

Particulars* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Employees' Cost	50.4	54.9	76.7	75.1	79.3
Operational Expenses	53.6	75.6	82.7	93.2	78.1
Admin expenses	22.2	13.1	26.0	35.2	28.5
Total aero opex (actual)	**126.2**	**143.6**	**185.4**	**203.6**	**185.9**

*difference is due to rounding off
forecasted

I. Non-Aeronautical Revenues

3.96 Non-aeronautical revenues comprise of following components:

I. Non-Aeronautical royalty, license fee and lease rentals

II. Duty free revenues
III. Interest income
IV. Other income
V. Revenue from Golf Course, Trade Center and other commercial activities

3.97 The following heads have been excluded from the non-aeronautical revenues as per guidance given by AERA in CIAL's 2nd control period order:

I. **Utility service charges:** Considered in the opex as a net of total utility cost.
II. **Airline space rentals:** Airline space rentals have been considered aeronautical as per the directions given by AERA for 2nd control period order. However, airline space rentals have been considered non-aeronautical revenues in the 3rd control period in line with the orders passed for AAI Airports, Delhi, Mumbai, Bangalore and Hyderabad Airports to keep a consistent treatment between airports.
III. **Fuel rentals:** It is considered as part of aeronautical revenue.
IV. **Lease rentals from subsidiaries:** Since the equity investment in subsidiaries is not considered as part of the equity component for calculation of FRoR, CIAL has excluded lease rentals from subsidiaries from aeronautical and non-aeronautical revenues.
V. **Notional income as per Ind AS:** Since it is the accounting adjustment which does not generate any cash for the airport, it has been excluded from non-aeronautical revenues.

Non-Aeronautical royalty, license fee and lease rentals

3.98 Non-aeronautical royalties, license fees and lease rentals include following major revenue heads –

I. Royalty-Engineering
II. Royalty-Security
III. Royalty-Terminal Handling & Valet Service
IV. License fee for Car park
V. License fee for catering services
VI. Other License fee from F&B, Retail, GH Agency Space, Hoarding/Board and land space excluding BPCL Fuel Hydrant Rent, Baggage wrapping service, forex counter (including SBT and Federal Bank), Antenna Space, ATM, Duty free shops, mobile counter and miscellaneous.

3.99 Based on the CIAL's 2nd MYTP issued by AERA, CIAL has excluded rentals from airline space, fuel lease rentals and lease rentals from subsidiaries.

3.100 The revenue from non-aeronautical royalties, license fees and lease rentals is summarized in the table below:

Table 44: Non-aeronautical royalties, license fees and lease rentals considered for 2nd control period

Non-aeronautical royalties, license fees and lease rentals* (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Non aero Royalty, license Fees & lease rentals	75.9	88.3	107.1	137.0	44.8
Less: Airline space	4.6	6.4	6.8	8.8	6.8
Less: Fuel throughput lease rentals	2.1	2.4	2.7	3.0	3.4
Less: Lease rentals from subsidiaries	0.1	0.1	0.1	0.2	0.2
Total Non-aero Royalty, license Fees & lease rentals for true-up (Actual)	**69.1**	**79.4**	**97.5**	**124.9**	**34.4**
Total Non-aero Royalty, license Fees & lease rentals (Approved by AERA)	67.8	93.4	113.6	135.0	143.9
Difference	1.3	-14.0	-16.2	-10.1	-109.4

*difference is due to rounding off
forecasted

Duty free revenues

3.101 CIAL has been developing its duty-free business to increase volume of the duty-free operations and to bring greater operational expertise and efficiencies into the duty-free business. Accordingly, CIAL had hived off its duty-free business to a 100% subsidiary CDRSL in FY2017.

3.102 AERA had allowed 30% revenue share on the duty-free revenues as per the previous order. During the initial period of 2nd control period, CIAL was able to generate higher revenue share from the contract with CDRSL. The duty-free business has been impacted severely because of disruption of international flights under Covid-19. CIAL expects to generate revenue share of 30% from CDRSL on recovery of traffic during the 3rd control period.

3.103 The actual duty-free revenues for CIAL and comparison with AERA are shown in the table below:

Table 45: Duty free revenues of CIAL for 2nd control period

Duty free revenues* (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Sale of duty-free goods	64.8	0.0	0.0	0.0	0.0
Royalty from CDRSL	68.3	100.3	97.5	98.0	12.6
Total duty-free revenue for CIAL (Actual)	**133.1**	**100.3**	**97.5**	**98.0**	**12.6**
Total duty-free revenue for CIAL (Approved by AERA)	72.17	82.46	99.58	120.26	145.23
Difference	61.0	17.9	-2.1	-22.2	-132.7

*difference is due to rounding off
forecasted

Interest Income

3.104 Interest income comprises of interest on bank deposit and other interest income including dividend income. The interest income considered for the true up is shown below:

Table 46: Interest income considered for 2nd control period

Interest income* (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Total interest income (Actual)	**8.0**	**8.6**	**7.3**	**12.0**	**1.8**
Total interest income (Approved by AERA)	2.7	0.9	0.9	0.9	0.9
Difference	5.3	7.6	6.4	11.0	0.8

*difference is due to rounding off
forecasted

Other Income

3.105 Other income includes income from rent & services-other activities, miscellaneous income and public admission fees. The other income for true-up is shown below:

Table 47: Other income considered for 2nd control period

Other income* (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Income from rent & services from other activities	0.4	0.3	0.7	0.8	0.2
Miscellaneous Income	6.1	4.7	5.6	5.2	3.6
Public Admission Fees	4.0	2.4	2.0	1.2	0.2
Total other income (Actual)	**10.5**	**7.4**	**8.3**	**7.2**	**4.0**
Approved by AERA	8.2	9.0	9.9	10.9	12.0
Difference	2.3	-1.6	-1.7	-3.7	-8.0

*difference is due to rounding off
forecasted

Revenue from Golf Course, Trade Center and other commercial activities

3.106 This non-aeronautical head includes income from Golf Course and Facilities, Income from Trade Fair Centre and other commercial activities.

3.107 The revenue considered for true up calculation is shown below:

Table 48: Non-aero revenue from golf course, trade center and other commercial activities

Revenue from Golf Course, Trade Center and other commercial activities* (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Income from Golf Course and Facilities	2.5	2.4	2.5	3.1	3.1
Income from Trade Fair Centre	2.6	3.7	3.8	3.3	0.0
Total (Actual)	**5.1**	**6.1**	**6.3**	**6.4**	**3.1**
Approved by AERA	4.6	4.9	6.3	7.9	9.7
Difference	0.5	1.3	-0.1	-1.5	-6.6

*difference is due to rounding off
forecasted

Summary of Non-Aeronautical revenue for true-up

3.108 The revenue considered for true up calculation is shown below:

Table 49: Summary of non-aeronautical revenue for true-up

Non-aeronautical revenues* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Non-Aeronautical royalties, license fees and lease rentals	69.1	79.4	97.5	124.9	34.4
Duty free revenues	133.1	100.3	97.5	98.0	12.6
Interest Income	8.0	8.6	7.3	12.0	1.8
Other Income	10.5	7.4	8.3	7.2	4.0
Income from Golf Course and Facilities, Trade Fair Centre	5.1	6.1	6.3	6.4	3.1
Total non-aeronautical revenues	**225.8**	**201.9**	**216.8**	**248.5**	**55.9**
Approved by AERA	155.5	190.7	231.0	275.1	311.8
Difference	70.3	11.2	-14.2	-26.6	-255.9

*difference is due to rounding off
forecasted

J. Tax on Income

3.109 CIAL has bifurcated the total taxes to be paid into aeronautical and non-aeronautical based on the methodology adopted by AERA in its Order no 34/2019-20 dated 27th March 2020 for Hyderabad Airport. As per the order, the total tax has been bifurcated into aeronautical and non-aeronautical based on percentage share of aeronautical PBT and non-aeronautical PBT. For tax computation, CIAL has considered actual tax amount taken from the IT tax returns for the period FY 2017 – FY 2020. For FY 2021, the estimated tax as per the P&L statement has been used for computation.

3.110 Calculations for aeronautical tax and non-aeronautical tax which is described below:

Table 50: Forecasted tax on income for CIAL

Tax computation* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Aero revenues	255.5	342.7	385.9	391.3	130.7
30% of non-aero revenues	67.7	60.6	65.0	74.6	16.8
Aero opex	126.2	143.6	185.4	203.6	185.9
Aero depreciation	31.9	92.9	94.9	111.7	125.4
Interest	3.0	36.3	39.2	44.0	47.7
PBT	162.1	130.5	131.4	106.6	-211.5
Tax rate applicable	34.9%	34.9%	34.9%	25.2%	25.2%
Aero Tax (A)	**56.6**	**45.6**	**45.9**	**26.8**	**0.0**
70% of non-aero revenues	164.1	150.1	160.1	183.6	39.1
Non-aero opex	62.4	21.9	66.3	27.6	20.2
Non-aero Depreciation	6.9	10.7	11.3	13.4	12.3
Interest	0.5	6.3	6.4	7.0	6.7
PBT	94.2	111.2	76.1	135.6	-0.1
Tax rate applicable	34.9%	34.9%	34.9%	25.2%	25.2%
Non-aero tax (B)	**32.9**	**38.9**	**26.6**	**34.1**	**0.0**
Aero Tax % (A/(A+B))	**63%**	**54%**	**63%**	**44%**	**0%**
Tax as per IT returns till FY20 and Tax as per P&L statement for FY21	**54.3**	**48.2**	**52.1**	**48.5**	**0.0**
Aero Tax for ARR	**34.3**	**26.0**	**33.0**	**21.4**	**0.0**

*difference is due to rounding off
forecasted

K. Aeronautical revenues

3.111 The following are the changes in the aeronautical revenue:

I. **Airline space rentals:** Airline space rentals have been considered aeronautical as per the directions given by AERA for 2nd MYTP.

II. **Land space rentals - Fuel Hydrant:** It has been considered as part of aeronautical revenue.

III. **Notional income from Ind AS:** Since it is the accounting adjustment which does not generate any cash for the airport, it has been excluded from aeronautical revenues.

3.112 The aeronautical revenues for CIAL for the 2nd CP are summarized in the below table:

Table 51: Aeronautical revenues for CIAL for 2nd CP

Aeronautical revenues* (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Landing fee	62.8	92.5	108.4	102.5	43.4
Parking and housing fee	0.8	1.1	1.5	2.3	0.8
Aerobridge charges	6.3	7.1	8.4	10.6	3.4
Passenger service fee	36.0	39.4	39.3	37.4	6.7
X-ray inspection charges	1.1	1.4	1.5	0.0	0.0
Inline X-ray screening charges	24.0	23.7	25.2	39.5	13.0
Total aero royalty	102.0	147.8	165.9	163.3	41.1
Royalty-ATF/ Fuel	6.4	22.0	29.8	28.5	0.0
Land space rentals-fuel hydrant	2.1	2.4	2.7	3.0	3.4
Airline space rentals	4.6	6.4	6.8	8.8	6.8
Royalty-GH	55.7	75.5	85.2	83.3	22.5
Royalty-CUTE services	33.2	41.6	41.4	39.6	8.5
Income from cargo operations	22.5	29.8	35.7	35.5	22.3
Total aeronautical revenues	**255.5**	**342.7**	**385.9**	**391.3**	**130.7**

*difference is due to rounding off
forecasted

L. Aggregate Revenue Requirement

3.113 Basis the above building blocks, the ARR computed for the 2nd control period is as follows:

Table 52: ARR computation for 2nd control period

ARR computation* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Average RAB	811.6	1382.4	1495.0	1552.7	1591.2
FRoR	12.1%	12.1%	12.1%	12.1%	12.1%
Return on RAB	97.8	166.6	180.2	187.2	191.8
Return on Land	11.5	11.5	10.8	10.4	9.8
Depreciation	31.9	92.9	94.9	111.7	125.4
Opex	126.2	143.6	185.4	203.6	185.9
Tax	34.3	26.0	33.0	21.4	0.0
Working capital interest	0.2	1.0	0.3	1.9	5.1

ARR computation* (in INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021#
Less: 30% of non-aero revenues	67.7	60.6	65.0	74.6	16.8
ARR	**234.2**	**381.2**	**439.7**	**461.6**	**501.2**
Aero Revenues	**255.5**	**342.7**	**385.9**	**391.3**	**130.7**
Over-recovery/ (Shortfall)	**21.2**	**-38.5**	**-53.8**	**-70.3**	**-370.5**
PV of Over-recovery/ (Shortfall) (as on March 31, 2021)	**37.5**	**-60.6**	**-75.7**	**-88.3**	**-415.1**
Total shortfall of second control period (as on 31 March 2021)	**-602**				

*difference is due to rounding off
forecasted

3.114 Shortfall of INR 602 cr. as on 31 March 2021 is carried forward to the 3rd control period.

4. Traffic for 3rd Control period

Passenger Traffic

4.1 The passenger traffic at CIAL has grown to 9.7 million in FY 2020. In FY 2020, CIAL was the 8th largest airport in India in terms of passengers handled. Passenger traffic has grown at a CAGR of 8.7% from FY 2015 – FY 2020. CIAL was only behind Delhi, Mumbai and Chennai in terms of international traffic in FY 2020.

4.2 The passenger traffic at CIAL for the period FY 2015 – FY 2020 is shown below:

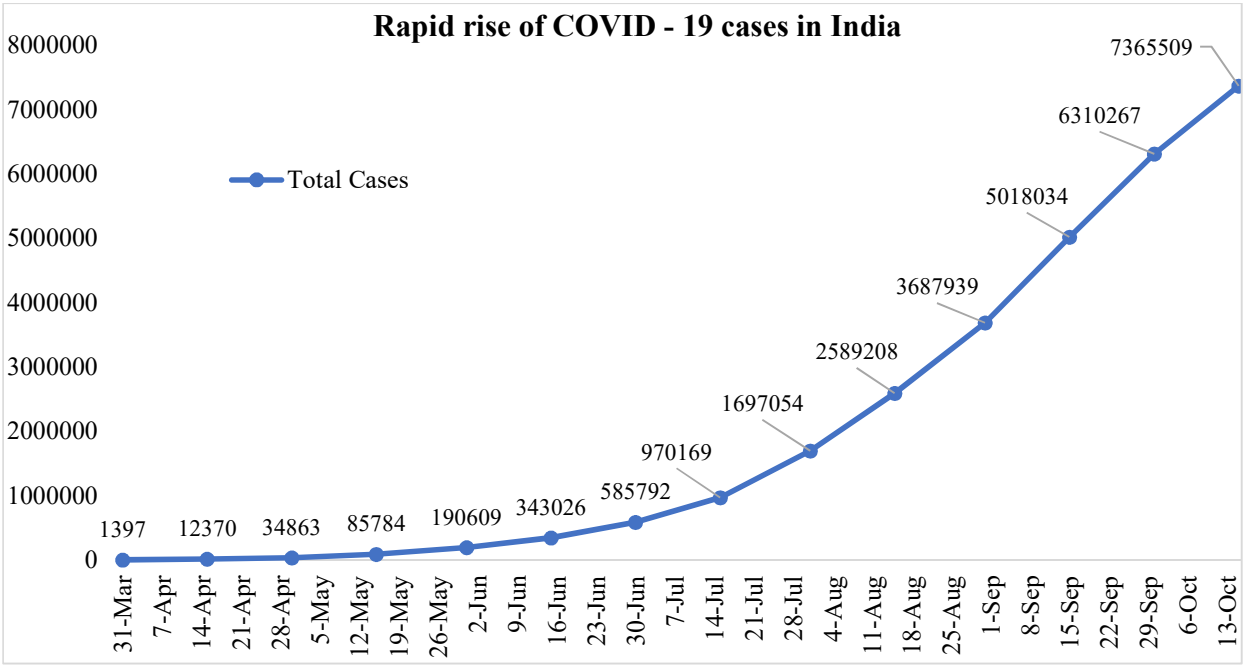
Table 53: Passenger Traffic at CIAL (million pax)

Traffic (in mppa)	2015	2016	2017	2018	2019	2020	2021 (E)	CAGR[1]
Domestic	2.7	3.1	3.9	4.9	5.3	5.0	1.2	13.5%
International	3.7	4.6	5.0	5.2	4.9	4.7	0.7	4.7%
Total	**6.4**	**7.8**	**8.9**	**10.1**	**10.2**	**9.7**	**1.9**	**8.7%**

1: 2015-2020

4.3 COVID - 19 has resulted in severe disruption globally with aviation becoming one of the most impacted sectors. Cases in India have grown over the past months leading to India becoming the 2nd most affected country in the world in terms of total number of cases after USA.

Figure 1: COVID-19 cases growth in India



Source: Worldometers

Figure 2: Top 8 most affected countries by COVID - 19

WHO Coronavirus Disease (COVID-19) Dashboard
Data last updated: 2020/10/15, 3:53pm CEST

Name	Cases - cumulative total	Cases - newly reported in last 24 hours	Deaths - cumulative total	Deaths - newly reported in last 24 hours	Transmission Classification
Global	**38,394,169**	**336,515**	**1,089,047**	**5,297**	
United States o...	7,774,745	46,309	214,369	743	Community transmission
India	7,307,097	67,708	111,266	680	Clusters of case
Brazil	5,113,628	10,220	150,998	309	Community transmission
Russian Feder...	1,354,163	13,754	23,491	286	Clusters of case
Colombia	924,098	5,015	28,141	156	Community transmission
Argentina	917,035	13,305	24,572	386	Community transmission
Spain	908,056	5,104	33,413	86	Community transmission
Peru	853,974	2,803	33,419	62	Community transmission

Source: World Health Organization (16th October 2020)

4.4 Passenger traffic (both international and domestic) has plummeted for the current financial year (FY2021) due to worldwide spread of this pandemic. Covid-19 has severely impacted the aviation value chain as follows:

India-Domestic

I. Domestic operations suspended for 2 months from 25th March to 25th May 2020.

II. Domestic operations resumed from 26th May 2020 with airlines allowed to operate only 30% of scheduled capacity which was gradually increased to 45% by June end and further increasing to just 60% in September.

III. Revenue of airport operators has reduced year-on-year by 84.4%[1] from INR 5,747 crores to INR 894 crores during April-June 2020.

IV. Domestic traffic fell by 79.48%[1] year-on-year during the March to July 2020 period.

Source: 1 MoCA

India-International

I. International flight operations were suspended in India from 23rd March 2020 with suspension in place till 31st October 2020.

II. The government began the Vande Bharat Mission on 7th May 2020 to fly back stranded Indians to their homes and also stranded foreign nationals to their respective nations

initially with national carrier Air India, which was then later supported by other Indian carriers.

III. MoCA introduced the concept of Transport Bubble which is a temporary arrangement between two countries aimed at restarting commercial passenger services when regular international services are suspended as a result of COVID-19 pandemic. They are reciprocal in nature which means that airlines from both countries enjoy similar benefits. The first air bubble flight operated on 22nd July from Delhi to Washington.

IV. Currently, India has signed Transport bubble arrangement with around 15 countries as of 12th October (Source: MoCA) including US, UK, France, Canada, UAE, Japan, Qatar etc.

V. International traffic has dropped to 11.55 Lakh in March-July period compared to 93.45 Lakh in the year ago registering a staggering 87.6%[1] drop in traffic.

Source: 1 MoCA

4.5 Additionally, the air traffic movement is seen to be affected due to the following reasons:

I. **Rattled consumer sentiment:** The customer sentiment has been deeply impacted due to COVID-19 considering fear of contracting virus during flight and quarantine guidelines of destinations coupled with travel restrictions. The consumer mindset and habits of air travel is also set to change as was seen after 9/11 where people were seen to prefer alternative mode of transport over air.

II. **Cost cutting by businesses:** With the pandemic causing significant loss of business to companies, the companies will undertake cost cutting by reducing air travel and planning more virtual meetings.

III. **Economic slowdown:** This unprecedented pandemic has deeply impacted the economy with Indian GDP shrinking by 23% in June quarter. This affects passenger spending for air travel and reduces non-aero revenues generated by the airport which is majorly passenger driven.

4.6 Industry bodies are estimating a 70-80% drop in passenger traffic for FY2021 with recovery of FY2019 levels by FY2023 or FY2024. CIAL has forecasted the passenger traffic for the 3rd control period taking into account historical growth, growth prospects and impact of Covid-19 as mentioned above. CIAL estimates that the domestic traffic is expected to recover to pre-COVID levels by September 2022 (after 2.5 years) which could be further delayed if the

development of vaccine takes a longer time. The international traffic on the other hand is expected to recover by September 2023 (after 3.5 years) due to international travel bans imposed by various countries and reduced demand considering the higher chances of picking up the infection.

Table 54: Domestic and International passenger recovery forecast

CIAL	Depth of Recovery	Recovery Curve	Time for Recovery
Domestic	76%	L-Shaped recovery	**2.5 Years**
International	85%	L-Shaped recovery	**3.5 Years**

4.7 Once the traffic reaches the pre-Covid levels, domestic traffic is estimated to grow at a rate of 12.1% (10-year CAGR 2008-2018) and international traffic is estimated to grow at a rate of 7.7% (10-year CAGR 2010-2020). The traffic forecast for the 3rd control period in tabular form along with corresponding graphs is shown below:

Table 55: Projected passenger traffic at CIAL (million)

Domestic Passengers# (in mppa)			International Passengers# (in mppa)			Total
FY	Passengers	% Recovery*	FY	Passengers	% Recovery*	
2016	3.1	-	2016	4.6	-	7.8
2017	3.9	-	2017	5.0	-	8.9
2018	4.9	-	2018	5.2	-	10.1
2019	5.3	-	2019	4.9	-	10.2
2020	5.0	-	2020	4.7	-	9.7
2021	1.2	24%	2021	0.7	15%	1.9
2022	3.4	67%	2022	2.1	44%	5.4
2023	5.4	108%	2023	3.5	76%	9.0
2024	6.1		2024	4.7	100%	10.8
2025	6.8		2025	5.1		11.9
2026	7.6		2026	5.5		13.1
2027	8.6		2027	5.9		14.5
2028	9.6		2028	6.4		16.0
2029	10.7		2029	6.9		17.6
2030	12.0		2030	7.4		19.4
2031	13.5		2031	8.0		21.5

*W.r.t 2020 levels
difference is due to rounding off

Figure 3: Domestic Traffic forecast (2021-2031)

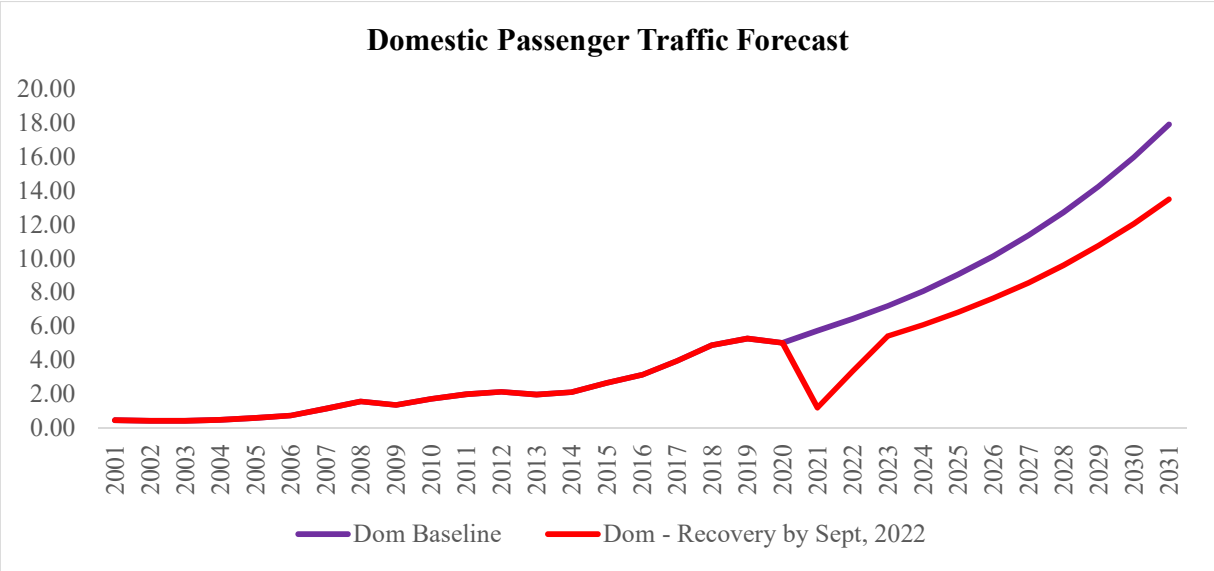
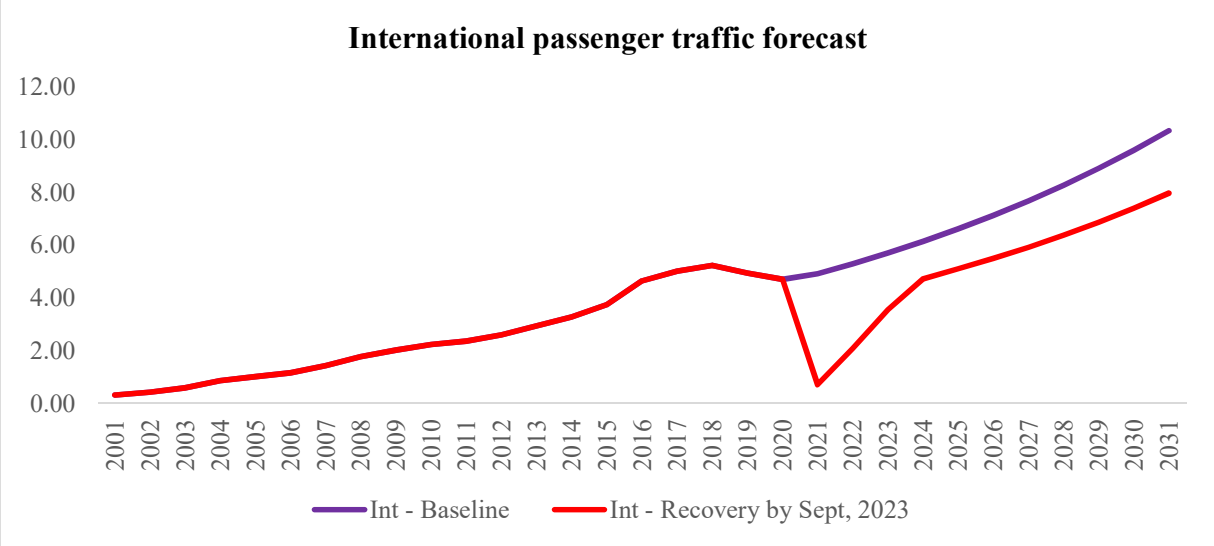


Figure 4: International Traffic Forecast (2021-2031)



Air Traffic Movements (ATMs)

4.8 Domestic ATMs at CIAL have increased from 26,823 in 2015 to 38,463 in 2020 while international ATMs at the airport have increased from 25,970 movements in 2015 to 29,267 movements in 2020. The ATMs during this period are shown below:

Table 56: Growth in Air Traffic Movements at CIAL

ATM	2015	2016	2017	2018	2019	2020	2021 (E)	CAGR[1]
Domestic	26,823	27,907	31,164	36,752	41,104	38,463	14,420	7.5%

ATM	2015	2016	2017	2018	2019	2020	2021 (E)	CAGR[1]
International	25,970	29,861	31,653	32,909	30,762	29,267	7,881	2.4%
Total	**52,793**	**57,768**	**62,817**	**69,661**	**71,866**	**67,730**	**22,301**	**5.1%**

1: 2015-2020

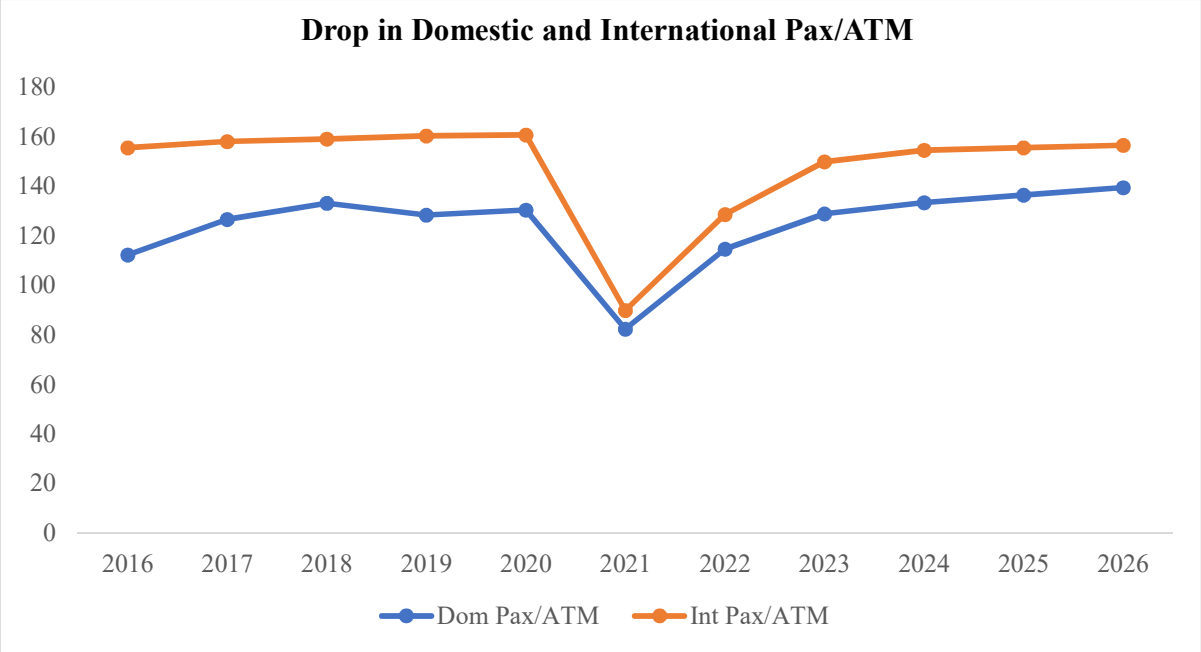
4.9 ATMs at CIAL have been forecasted using the forecasts for passenger traffic (as detailed in the previous section) and forecast of passengers per ATM for domestic and international airports.

4.10 Pax/ ATM at CIAL in FY 2020 for domestic operations was 130 and for international operations was 161. CIAL estimated passengers per ATM to reduce to 82 for domestic operations and to 90 for international operations for FY 2021 due to impact of Covid-19. The pax per ATM estimated for the next control period at CIAL is as follows:

Table 57: Forecasted number of passengers per ATM at CIAL

FY	Domestic Passengers/ATM	International Passengers/ATM
2016	112	155
2017	127	158
2018	133	159
2019	128	160
2020	130	161
2021	82	90
2022	115	129
2023	129	150
2024	133	154
2025	136	155
2026	139	156

Figure 5: Drop in Domestic and International Pax/ATM



4.11 Based on number of passengers per ATM and forecasted traffic numbers, the projected ATMs at CIAL is shown below:

Table 58: Projected Air Traffic Movements at CIAL

Domestic ATMs#			International ATMs#			Total
FY	ATMs	% Recovery*	FY	ATMs	% Recovery*	
2016	27,907	-	2016	29,861	-	**57,768**
2017	31,164	-	2017	31,653	-	**62,817**
2018	36,752	-	2018	32,909	-	**69,661**
2019	41,104	-	2019	30,762	-	**71,866**
2020	38,463	-	2020	29,267	-	**67,730**
2021	14,420	37%	2021	7,881	27%	**22,301**
2022	29,234	76%	2022	16,157	55%	**45,390**
2023	42,100	109%	2023	23,695	81%	**65,796**
2024	45,629	-	2024	30,543	104%	**76,172**
2025	50,004	-	2025	32,767	-	**82,770**
2026	54,824	-	2026	35,074	-	**89,897**
2027	60,137	-	2027	37,544	-	**97,681**
2028	65,994	-	2028	40,191	-	**106,185**
2029	72,452	-	2029	43,025	-	**115,477**
2030	79,575	-	2030	46,062	-	**125,637**
2031	87,433	-	2031	49,592	-	**137,025**

*W.r.t 2020 levels
difference is due to rounding off

Figure 6: Domestic ATM Traffic Forecast (2021-2031)

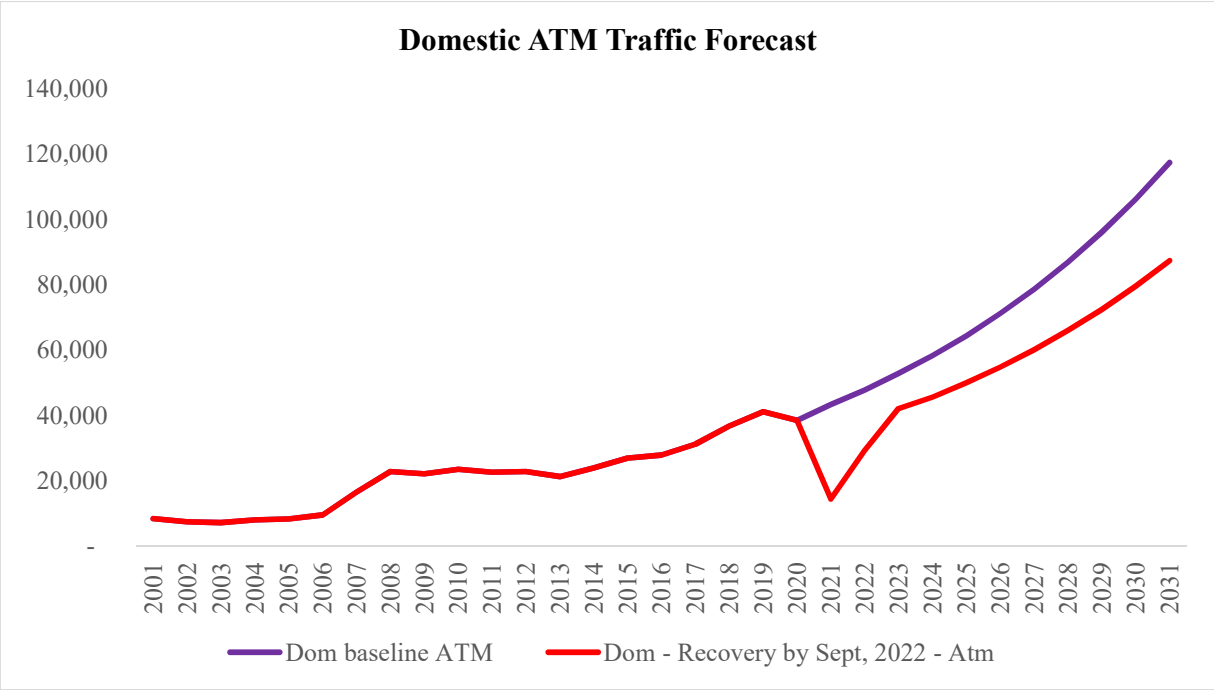
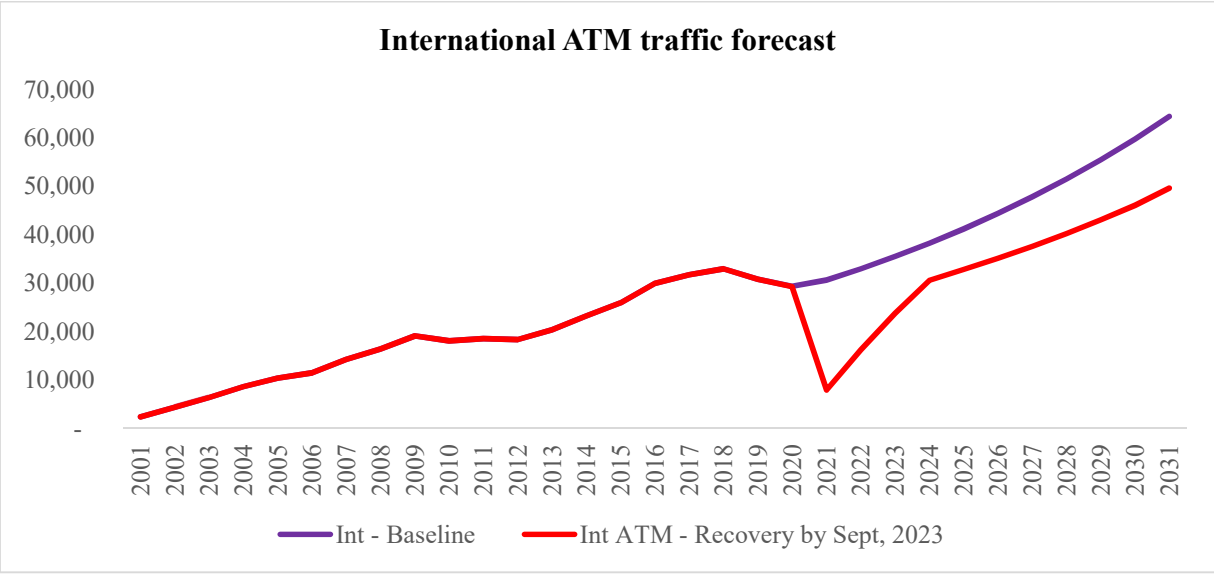


Figure 7: International ATM Forecast (2021-2031)



Air Cargo

4.12 Domestic air cargo handled at CIAL has grown at a steady CAGR of 7.8% during last 5 years which is shown below:

Table 59: Growth in Domestic Cargo handled at CIAL

Cargo (in MT)	2015	2016	2017	2018	2019	2020	2021 (E)	CAGR[1]
Outbound	2,630	2,815	3,291	3,658	3,831	4,013	1,731	8.8%
Inbound	7,677	8,543	9,867	9,765	11,087	10,993	5,608	7.4%
Total Domestic	**10,307**	**11,359**	**13,159**	**13,423**	**14,919**	**15,007**	**7,339**	**7.8%**

1: 2015-2020

4.13 The International air cargo on the other hand dominates the total cargo carried out of CIAL with exports dominating due to demand of perishables in the middle east. The international cargo handled at CIAL during the last five years is shown below:

Table 60: Growth in International air cargo handled at CIAL

Cargo (in MT)	2015	2016	2017	2018	2019	2020	2021 (E)	CAGR[1]
Export	42,394	63,095	64,012	62,794	49,454	47,727	37,289	2.4%
Import	12,239	4,634	7,239	6,068	11,993	10,855	5,668	-2.4%
Total International	**54,633**	**67,729**	**71,250**	**68,862**	**61,447**	**58,582**	**42,957**	**1.4%**

1: 2015-2020

4.14 The cargo traffic is expected to recover faster from impact of Covid-19 than passenger and ATMs due to sustained demand and lesser restrictions.

4.15 The cargo traffic forecast for the next control period is summarized below:

Table 61: Projected Cargo traffic at CIAL (MT)

Cargo (in MT)	2021	2022	2023	2024	2025	2026
Domestic						
Outbound	1,731	2,701	4,157	4,523	4,922	5,356
Inbound	5,608	7,633	11,662	12,531	13,464	14,467
Total Domestic	**7,339**	**10,334**	**15,819**	**17,054**	**18,386**	**19,823**
International						
Export	37,289	42,580	46,788	53,981	62,281	71,857
Import	5,668	10,292	11,718	12,619	13,588	14,633
Total International	**42,957**	**52,873**	**58,505**	**66,600**	**75,869**	**86,490**
Total	**50,296**	**63,207**	**74,324**	**83,654**	**94,256**	**106,313**

4.16 The graphical representation of cargo traffic forecast for the next control period is summarized below:

Figure 8: Domestic cargo traffic forecast

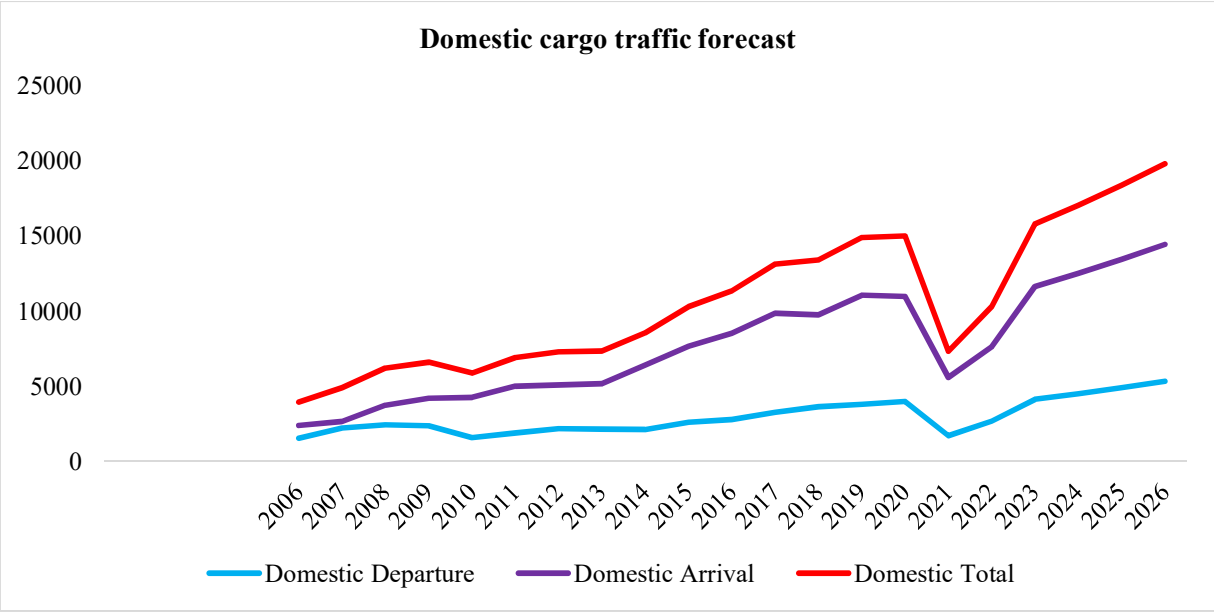
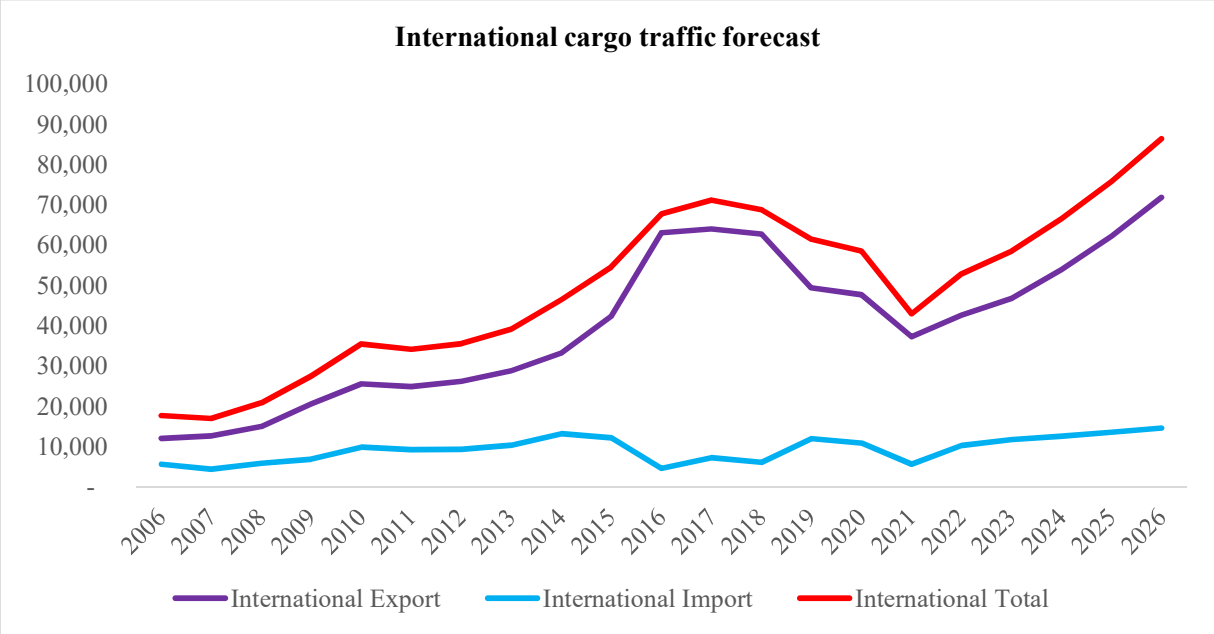


Figure 9: International cargo traffic forecast



5. Capital Expenditure

CIAL has planned to undertake capital expenditure for the 3rd control period which includes flood mitigation measures, maintenance and expansion of facilities to cater to future requirements and enhanced safety and security measures to ensure that the safety standards of the airport always remain at par with international standards. Some of the key items of capital expenditures to be undertaken in the next control period are described below:

Cargo Facilities

The proposed capital expenditure projects for cargo facilities are provided below. The Airport User Consultative Committee (AUCC) meeting of CIAL on the proposed expansion of cargo facilities was conducted on 5th April 2018 and was agreed upon by the stakeholders. The construction and modification work is under progress, though, with some delays due to COVID-19 pandemic.

Construction of import warehouse and modification of existing export warehouse

5.1 At present international cargo operations are carried out in one building and, the export and import sections are separated by a wall. Both export and import are facing space congestion during peak season. Construction of new building for handling import cargo is underway and will be completed in FY 2022. Once the import operations are shifted to the new building the whole area of the present building would be converted and used for export operations.

5.2 The conversion of the building would help CIAL augment its capacity for cargo operations at minimal cost:

i. The project can be completed at an efficient cost as the existing building can be used with little modifications.

ii. No additional area needs to be created and hence same roofing structure can be used.

iii. Presently, handling capacity of export and import warehouses are 50,000 MTPA each. On modification, handling capacity of exports is estimated to increase to 150,000 MTPA to meet the forecasted cargo requirement up to 2031.

5.3 The capital expenditure related to construction of new import warehouse is as follows:

Table 62: Capital expenditure related to Construction of Import Warehouse

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
New import warehouse (Civil)	10.5	30.2	0.0	0.0	0.0	0.0

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
New import warehouse (Electrical)	10.0	2.0	0.0	0.0	0.0	0.0
Total	**20.5**	**32.2**	**0.0**	**0.0**	**0.0**	**0.0**
Grand Total	**52.7**					

*difference is due to rounding off

5.4 The capital expenditure proposed for modification of existing export warehouse is as follows:

Table 63: Capital expenditure related to modification of existing export warehouse

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Modification of existing cargo to an export warehouse-Building (Civil)	0.0	6.1	24.6	0.0	0.0	0.0
Modification of existing cargo to an export warehouse-Building (Electrical)	0.0	1.0	4.2	0.0	0.0	0.0
Total	**0.0**	**7.2**	**28.8**	**0.0**	**0.0**	**0.0**
Grand Total	**35.9**					

*difference is due to rounding off

Mechanization of export warehouse after modification

5.5 Presently all activities at cargo like unloading, moving, stacking, palletisation, loaded ULD storage, etc. are done manually using basic equipment like tractors and forklifts. There is an urgent need for mechanization of the warehouse for efficient operations and to meet global standards. Following automated systems are suggested for the export warehouse:

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

5.6 The benefits of mechanization of export warehouse are:

i. Better control and higher accuracy in the job to meet the airline requirements.
ii. Reduces human dependency thereby reducing safety related incidents.

iii. Ensures speedy and quality service for customers thereby attracting more business.

5.7 The capital expenditure proposed for mechanization of export warehouse after modification is as follows:

Table 64: Capital Expenditure related to mechanization of export warehouse after modification

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Mechanization of Export Warehouse after modification	0.0	5.1	5.2	0.0	0.0	0.0
Total	**0.0**	**5.1**	**5.2**	**0.0**	**0.0**	**0.0**
Grand Total	**10.3**					

*difference is due to rounding off

Construction of Parking Bays Phase II (24,25,26,27,28,29,30) and 31,32 & 34 and development of northern side of T3 pier

5.8 CIAL's domestic terminal and international terminal was operating beyond its maximum passenger handling capacity and was facing severe congestion. To address capacity constrains at both the terminals as well as cater to future growth, CIAL decided to develop a new international terminal at the airport.

5.9 AUCC was conducted in FY 2014 to construct the new international terminal wherein the need for construction of the new international terminal and extending the domestic terminal to the old international terminal area was presented to the stakeholders.

5.10 CIAL undertook construction of new international terminal which was inaugurated on 11th March 2017 with capacity to handle 4000 passengers during peak hours and when fully operational would have 112 check in counters, 19 gates and 15 aerobridges.

5.11 The terminal was designed with a pier having aircraft docking /parking facilities in its three sides namely southern side (facing runway), east side and northern side. The western side of the pier is the airport terminal / city side and the southern side of the pier is the operational area, both of which are already developed.

5.12 In the southern side pier, five aerobridges having two door connectivity facility, cater the requirements of Code-C and Code-E type of aircraft is fitted and presently it is used for boarding and de-boarding of passengers in T3. The double door aerobridges and contact bays are suitable to accommodate 5 wide bodied aircraft at a time or 3 wide bodied aircraft and 4

narrow bodied aircraft. Apart from that, there are 4 remote bays, which are suitable for accommodating narrow body aircraft in the eastern side of T3 pier.

5.13 The northern side of the pier has been earmarked to construct additional contact bays. This development is necessary for optimal capacity utilization of the northern side of the terminal for faster turnaround of flights.

5.14 The existing proportion of wide-body and narrow-body aircraft operating from CIAL is 1:4. Also, it has been observed that Code C narrow body aircrafts are more used at CIAL for international operations and CIAL expects this trend to continue in the future as well.

5.15 Considering the traffic as well as northern side of the pier, it is planned to construct 8 contact bays, for Code C operations. Thereafter, the southern side of the pier can be used exclusively for wide body operations (Code E operations) and Code C operations would be shifted to the northern side of the pier which will efficiently utilize the terminal.

5.16 In addition, three additional remote bays suitable for three Code C aircrafts or two Code E aircrafts are scheduled for development.

5.17 The Airport User Consultative Committee (AUCC) meeting of CIAL on construction of parking bays was conducted on 5th April 2018. The development was agreed upon by the stakeholders at a cost of INR 131.52 Crore. The total capital expenditure related to construction of parking bays is shown below:

Table 65: Capital Expenditure for Construction of Parking Bays

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Construction of parking bays phase II (24,25,26,27,28,29,30) and 31,32 &34 (Civil Work	0.0	0.0	55.5	82.4	0.0	0.0
Construction of parking bays phase II (24,25,26,27,28,29,30) and 31,32 &34 (Electrical Works)	0.0	0.0	3.1	4.5	0.0	0.0
Total	**0.0**	**0.0**	**58.6**	**86.9**	**0.0**	**0.0**
Grand Total	**145.5**					

*difference is due to rounding off

5.18 During the construction and development of the northern side of Terminal 3, the connecting areas to pier would face operational disturbance. This period is opportune to undertake modifications in the piers to avoid operational closure at a later stage.

5.19 The main areas where modification is required is in the Pier width and covering of open terrace available in the T-3. It is appropriate to undertake such construction activities along with the apron development and contact bays development to avoid operational disturbances in the future.

5.20 Primarily, pier will be expanded to 55 meters width as against 35 meters. This will contribute to additional passenger boarding and seating areas in the pier. Further concessionaire and retail areas in SHA & office spaces in the basement would also be developed.

5.21 As part of the expansion of T3 operations, 8 new aircraft parking bays from bay numbers 24-31 are planned in 2023. To improve passenger comfort and reduce the turnaround time, it is planned to install 8 aerobridges and 8 Advanced Visual Docking Guidance System (AVDGS) in the northern side of pier of Terminal T3.

5.22 The Airport User Consultative Committee (AUCC) meeting of CIAL on development of northern side of T3 pier was conducted on 5th April 2018 and was agreed upon by the stakeholders. The AUCC approved cost for development of northern side of T3 pier to be undertaken in FY 2020 was INR 149.06 Crore. However, since the capital expenditure is being undertaken in FY 2023 and FY 2024, an added component of inflation has been included in the total cost estimate. The total capital expenditure related to development of northern side of T3 pier is shown below:

Table 66: Capital Expenditure for development of northern side of T3 pier

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Development of northern side of T3 pier (Civil)	0.0	0.0	36.6	85.6	0.0	0.0
Development of northern side of T3 pier (Electrical)	0.0	0.0	7.3	21.5	0.0	0.0
New Aerobridge and VDGS for T3 North Apron	0.0	0.0	8.4	12.8	17.5	0.0
Total	**0.0**	**0.0**	**52.3**	**120.0**	**17.5**	**0.0**
Grand Total	**189.9**					

*difference is due to rounding off

Flood Control Measures

5.23 In continuation of the work undertaken in the 2nd CP for flood control measures, the capital expenditure undertaken for flood control measures in the 3rd CP is shown below:

Table 67: Capital expenditure related to Flood Control Measures in 3rd CP

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Flood Control Measures (Civil Works)	15.6	26.5	9.3	0.0	0.0	0.0
Regulator cum bridge (Civil Works)	3.1	17.7	20.7	0.0	0.0	0.0
Regulator cum bridge (Electrical Works)	0.0	0.0	0.2	0.0	0.0	0.0
Total	**18.7**	**44.3**	**30.2**	**0.0**	**0.0**	**0.0**
Grand Total	**93.1**					

*difference is due to rounding off

IT Systems

CCTV Surveillance System

5.24 CIAL has a CCTV Surveillance System as per the guidelines of Bureau of Civil Aviation Security (BCAS).

5.25 The system includes nearly 3,300 full HD cameras with 30 days full HD recording facility, along with 7 days redundant recording facility at reduced resolution. The total storage capacity of the system is 6.7 PB. The recording and management is undertaken through around 80 servers. The system is running through an independent IP network consisting of more than 200 network switches.

5.26 The cameras, network switches, servers and storage associated with the system are operational 24 x 7 and have a typical life cycle of 6 to 7 years. Usually, by the end of the life cycle, products become obsolete as new technologies and products are available in the market. The OEMs also end support and spare availability for older products. The failure rate is also typically high at the end of the product life cycle.

5.27 The CCTV Surveillance System at CIAL was implemented by M/s Honeywell Automation India Ltd. The system was commissioned in March 2017. Currently the system 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.

5.28 The project for revamping of CCTV Surveillance System is proposed in 2025. The capital expenditure proposed for CCTV Surveillance system is as follows:

Table 68: Capital expenditure related to CCTV Surveillance System

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
CCTV Surveillance System	0.0	0.0	0.0	0.0	43.8	0.0
Total	**0.0**	**0.0**	**0.0**	**0.0**	**43.8**	**0.0**
Grand Total	**43.8**					

*difference is due to rounding off

CT based Hand Baggage X-BIS – T1 and T3

5.29 As per current BCAS guidelines registered baggage screening is carried out using CT based Explosive Detection System. It is proposed to have CT based Explosive Detection System for hand baggage screening at pre-embarkation security check at Domestic Terminal (T1) and International Terminal (T3). There are 6 single view-based X-BIS to be replaced with CT based X-BIS in T3 and another 6 replacements are required in T1. The capital expenditure proposed for CT based Hand Baggage X-BIS T1 and T3 is as follows:

Table 69: Capital expenditure related to CT Based Hand Baggage X-BIS T1 and T3

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
CT based Hand Baggage X-BIS T1	0.0	0.0	25.1	0.0	0.0	0.0
CT based Hand Baggage X-BIS T3	0.0	0.0	0.0	30.0	0.0	0.0
Total	**0.0**	**0.0**	**25.1**	**30.0**	**0.0**	**0.0**
Grand Total	**55.1**					

*difference is due to rounding off

Smart Lane System-T1 and T3

5.30 Smart-lane system for passenger security management at pre-embarkation security check is proposed for fast and effective passenger, baggage & tray handling. It provides increased throughputs and enhanced passenger experience at security checkpoint. Each lane will have multiple divest stations for passengers to place their bags to the tray. The system consists of roller trays for automated diversion of security cleared and suspicious baggage based on the security screener's decision. The system will have automatic tray return feature that will eliminate the need to transport trays manually. It is proposed to install 7 smart-lanes integrated

with the hand baggage X-BIS at pre-embarkation security check at International Terminal (T3) and another 7 to be installed in Domestic Terminal (T1). The capital expenditure proposed for Smart Lane System T1 and T3 is as follows:

Table 70: Capital expenditure related to Smart Lane System-T1 and T3

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Smart Lane System-T1	0.0	0.0	19.9	0.0	0.0	0.0
Smart Lane System-T3	0.0	0.0	0.0	22.5	0.0	0.0
Total	**0.0**	**0.0**	**19.9**	**22.5**	**0.0**	**0.0**
Grand Total	**42.4**					

*difference is due to rounding off

Digi Yatra-IT Systems

5.31 Ministry of Civil Aviation (MoCA) has initiated DIGI-YATRA to provide a paperless and hassle-free journey to all passengers. The program also aims to enhance the security of travel through Biometric-based passenger authentication. On August 2018, MoCA published the Digi-Yatra policy document covering guidelines for implementation of Digi-Yatra system by the airport operators. Director General of Civil Aviation (DGCA) has also published the Civil Aviation Requirement (CAR) document mandating the airports to implement the Digi-Yatra (E-Boarding) system.

5.32 There are three objectives of the Digi-Yatra project:

i. It aims to carry out validation of ticket with airline Departure Control System (DCS) and Airport Operational Database (AODB).

ii. It aims to automate the passenger movement through e-gates and using biometrics.

iii. It aims to authenticate passenger identity using passenger biometrics fetched from a central database.

5.33 In the Digi-Yatra program, passengers will be provided with a Digi-Yatra ID by government's central platform. Passenger needs to provide this ID to airline while booking ticket. During the first journey, the passenger's biometric will be captured and ID will be activated by CISF. This is a one-time process. On subsequent journeys, the passenger directly goes to the entrance gate. At the entrance gate, the Digi-Yatra system automatically verifies the identity of the passenger through biometric and the flight details through Airline Departure Control System (DCS). The gate opens only if this verification is successful. At all subsequent

processing points in the airport namely check-in, security check and boarding gate, the passenger will be validated by the Digi-Yatra system.

5.34 CIAL plans to implement the system in 3 phases in Domestic Terminal (T1).

i. In Phase 1, one electronic gate (e-gate) will be implemented at each boarding gate, two gates will be implemented at security-check and one gate at the terminal entrance.

ii. In Phase 2, the biometric capture devices will be installed at all the existing e-gates after carrying out system trials.

iii. In Phase 3, the airport's Digi-Yatra system will be integrated with the government's central platform and the number of electronic gates may be increased based on user requirement.

5.35 The capital expenditure proposed for Digi-Yatra is as follows:

Table 71: Capital Expenditure related to Digi Yatra

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Digi Yatra IT systems (Networks)	0.0	18.4	0.0	0.0	0.0	0.0
Digi Yatra IT systems (Softwares)	0.0	6.1	0.0	0.0	0.0	0.0
Digi Yatra IT systems (End User Devices)	0.0	6.1	0.0	0.0	0.0	0.0
Total	**0.0**	**30.7**	**0.0**	**0.0**	**0.0**	**0.0**
Grand Total	**30.7**					

*difference is due to rounding off

Passenger Processing IT System

5.36 Existing passenger processing system infrastructure is being provided by CIAL. The system will reach end of life in December 2022. CIAL needs to revamp the current passenger processing system infrastructure and enter into a fresh agreement with airlines. There are three components of passenger processing system – CUPPS system, BRS and CUSS.

5.37 The components of CUPPS system include check in workstation, boarding pass printers, baggage tag printers, boarding gate readers, boarding gate workstations, document printers, load/service control room workstations, CUPPS licenses etc. A core room is required where servers, network core infrastructure for CUPPS etc. can be housed.

5.38 Baggage Reconciliation system (BRS) also needs to be implemented as part of the passenger processing systems. BRS helps ensure that the baggage is loaded in the correct flight

and container and, is accompanied by passenger. The components of the system include workstations, servers, HHT, Wi-Fi access points, printers, software etc. Currently, CIAL is using the SITA BRS at the airport. The system is able to receive and process the BSM (Baggage Source messages) from the airlines.

5.39 CUSS (Common Use Self Service kiosks) is a self-service system that allows the passenger to perform all the necessary transaction for airline check in and generate the boarding pass without assistance of airline or ground handling personnel. The components of the system include rack mount PC, Barcode reader, UPS, boarding pass printer, touch screen display etc. The capital expenditure proposed for Passenger Processing IT System is as follows:

Table 72: Capital expenditure related to Passenger Processing IT Systems

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Passenger Processing IT systems (Networks)	0.0	0.0	18.8	0.0	0.0	0.0
Passenger Processing IT systems (Software)	0.0	0.0	6.3	0.0	0.0	0.0
Passenger Processing IT systems (End User Devices)	0.0	0.0	6.3	0.0	0.0	0.0
Total	**0.0**	**0.0**	**31.4**	**0.0**	**0.0**	**0.0**
Grand Total	**31.4**					

*difference is due to rounding off

Perimeter Intrusion Detection System

5.40 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. In such cases, system would give an alert and indicate location of intrusion to security personnel in real time. The perimeter area covers all the operational area of the airport including terminal buildings, apron, cargo area, runways and taxiways.

5.41 The system involves active sensors and CCTV Surveillance System. Any intrusion attempt at the perimeter area is detected in real time and alarms are generated in Command Control Centre. The CCTV footages of the area of intrusion is also displayed in real time at the Command and Control Centre.

5.42 BCAS has shortlisted the following technologies for implementing the Perimeter Intrusion Detection System (PIDS):

i. Fibre Optic Mesh based PIDS
ii. Vibration Sensor-based PIDS
iii. Ground Surveillance Doppler Radar based PIDS
iv. Infrared sensor based PIDS
v. Taut wire based PIDS
vi. Microwave Sensors based PIDS
vii. Power fence (Non-lethal) based PIDS

5.43 As per the BCAS specification, there shall be a mandatory primary technology. The airports can select any of the above technologies that is suitable for their perimeter area. Multiple technologies can be implemented as per site requirement.

5.44 The technologies proposed at CIAL is Non-lethal Power Fence on top of the perimeter wall, Fibre Optic Mesh System on top of perimeter wall (on locations where power fence is not practical like ILS area and areas having vegetation), Fibre Optic vibration sensor on the perimeter wall (to detect intrusion attempt through wall penetration) and Intrusion Detection Grid at the outlets of the rain water drains. The non-lethal power fence will act as a deterrence as well as a detection system. The above technologies are integrated with a thermal camera-based CCTV Surveillance System for day and night surveillance.

5.45 The approximate length of the perimeter area where PIDS is proposed to be implemented is 12 km. Out of the above non-lethal power fence is proposed for a length of 9 km, Fibre Optic Mesh Technology is proposed for a length of 3 km. Fibre Optic vibration sensor will be installed on the perimeter wall for a length of 13 km.

5.46 The capital expenditure proposed for Perimeter Intrusion Detection System is as follows:

Table 73: Capital Expenditure related to Perimeter Intrusion Detection System

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Perimeter Intrusion Detection System	7.0	15.3	0.0	0.0	0.0	0.0
Total	**7.0**	**15.3**	**0.0**	**0.0**	**0.0**	**0.0**
Grand Total	**22.3**					

*difference is due to rounding off

Security Operations Center (SOC) and Network Operations Center (NOC)

5.47 CIAL has a total of 12,000 + IT equipment, which includes critical equipment like physical and virtual servers, baggage handling equipment, check-in systems, network switches, firewalls, EPABX systems, TETRA radios, SCADA systems and UPS powering these equipment. The 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).

5.48 Hence, a "Network Operation Center" (NOC) and "IT Security Operation Centers" (SOC) is required to be established in line with industry standard practices of monitoring such a critical network. Round the clock monitoring of performance statistics of systems need to be viewed continuously in video wall displays. The video walls will provide entire view of the network and its performance. Any change in network performance is displayed as alerts for urgent action. Software will co-relate seemingly separate events and find the pattern of a network-based attack, and immediately alert the monitoring team.

5.49 The NOC and SOC proactively monitors and prevents external threat using latest security tools. It also audits internal servers continuously for presence of any latest vulnerabilities and fix them so that CIAL Network and Servers remain safe from hacking, viruses and continuously evolving forms of ransomwares. The capital expenditure proposed for SOC and NOC is as follows:

Table 74: Capital Expenditure related to SOC and NOC

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Security Operations Control center & NOC for IT	0.0	3.8	2.9	3.0	3.1	3.1
Total	**0.0**	**3.8**	**2.9**	**3.0**	**3.1**	**3.1**
Grand Total	**15.9**					

*difference is due to rounding off

Fire and Safety Measures

Crash fire tenders

5.50 At present CIAL's Rescue and Firefighting Service is maintaining ARFF Catgory-9 level of fire protection as per ICAO standard. This requires a minimum 03 Air Field Crash Fire

Tenders with suitable quantity of extinguishing media which are capable of reaching at the site of accident within the response time of 2 minutes and not less than 3 minutes and are be able to apply the media as per the discharge rate prescribed by ICAO.

5.51 Since all ACFTs are imported vehicles, in case of a breakdown, CIAL has to wait for the arrival of spare parts or technical experts/service engineers from the OEM. To ensure the un-interrupted operation in case of breakdown of ACFTs, there is need to maintain sufficient number of reserve vehicles to address any emergency. In addition, CIAL needs to maintain fire tenders to attend to emergencies which may occur in the terminal buildings or in the city side.

5.52 The ACFTs available with CIAL include 05 Rosenbauer vehicles (1998 make: 04 Nos and 2004 make: 01 No) and 02 Iveco Magirus (2013). CIAL proposes to procure two ACFTs with 12,000 litres water capacity and two crash fire tenders with a capacity of 10,000 litres each which can replace the four 1998 model Rosenbauer fleet.

5.53 CIAL has included this procurement during the 2nd control period and started the procurement process during March, 2020. The expected time for supply is around 12 months and delivery is expected by March, 2021. But due to Covid-19, the process might be delayed and expected to meet the actual payments only during FY 2022 onwards. Thereafter, the Rosenbauer vehicle which completes 18 years need to be replaced and 2013 model Iveco Magirus vehicle needs to be withdrawn from the frontline due to delays in service support and availability of spare parts. Accordingly, procurement of 2 more ACFTs is projected for FY 2024 at the cost of INR 37.5 cr., which is based on the past actual cost duly adjusted for inflation.

5.54 The capital expenditure proposed for procurement of fire tenders is as follows:

Table 75: Capital Expenditure for crash fire tenders

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
ACFTs (2 Numbers)	0.0	0.0	0.0	37.5	0.0	0.0
Crash Fire Tenders	0.0	15.3	15.7	0.0	0.0	0.0
Total	**0.0**	**15.3**	**15.7**	**37.5**	**0.0**	**0.0**
Grand Total	**68.5**					

*difference is due to rounding off

Satellite fire station 09 side

5.55 CIAL has one fire station for attending all emergencies at the Airport. The fire station is situated at the north of Taxiway Charlie and is about 400 metre far from the runway. All crash Fire Tenders are located in the Fire Station Bays facing towards the runway.

5.56 ACFT has to cross Taxiway C to reach runway from fire station approach road. If there is any obstruction on this approach - a vehicle, an equipment, or an aircraft on Taxiway C, it can cause a delay in response time. In addition, it is difficult for the emergency vehicle to reach the domestic terminal building, cargo area or the city side within prescribed time in case of emergencies.

5.57 The risk during pandemics such as Covid on ARFF personnel working in a single station cause a major impact and may lead to a closure of fire station itself. A second station is therefore required to ensure un-interrupted operations and handle emergencies within prescribed times.

5.58 A satellite fire station at western side in the airfield between Isolation Parking Bay and Gate No.4 is proposed to be developed. This will enable reaching the accident spot within the response time and avoid the delay in attending to the emergencies.

5.59 The capital expenditure proposed for setting up satellite fire station is as follows:

Table 76: Capital Expenditure proposed for setting up Satellite Fire Station

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Satellite Fire Station	0.0	10.23	5.23	0.0	0.0	0.0
Total	**0.0**	**10.23**	**5.23**	**0.0**	**0.0**	**0.0**
Grand Total	**15.46**					

*difference is due to rounding off

Widening of Roads for ACFTs

5.60 Most of the access roads within the airfield boundary, i.e. the peripheral road, approach roads for Runway 27 and 09, other roads connected with IPB, etc. are not having sufficient width to maneuver for emergency two-way transportation. The ACFTs are more than 3 metres wide and length is almost 11 metre and height is 4.5 metre. As per the ICAO (Doc 9137, Part 1, Chapter 3) "the roads should permit the passage of vehicles in both directions and sufficient vertical clearance should be provided from overhead obstructions for the largest vehicles". All emergency access roads and any associated bridges should be capable of supporting the

heaviest vehicles which will use them and constructed so as to be effectively available in all weather conditions.

5.61 The access roads are proposed to be widened at necessary locations with sufficient strength and vertical clearance for movement of ACFTs.

5.62 The capital expenditure proposed for widening of roads for ACFTs is as follows:

Table 77: Capital Expenditure proposed for widening of roads for ACFTs

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Widening of Roads for ACFTs	0.0	0.0	1.0	3.2	0.0	0.0
Total	**0.0**	**0.0**	**1.0**	**3.2**	**0.0**	**0.0**
Grand Total	**4.3**					

*difference is due to rounding off

Emergency Rescue Tender

5.63 An emergency rescue tender is proposed to be purchased by CIAL to handle various emergency situations like infrastructure collapse, confined space rescue etc. The capital expenditure proposed for procurement of emergency rescue tender is as follows:

Table 78: Capital Expenditure proposed for procurement of Emergency Rescue Tender

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Emergency Rescue Tender	0.0	0.0	0.0	0.0	11.0	0.0
Total	**0.0**	**0.0**	**0.0**	**0.0**	**11.0**	**0.0**
Grand Total	**11.0**					

*difference is due to rounding off

Procurement of Hydraulic platform for High Rise building firefighting & rescue

5.64 A hydraulic platform to enable access to high rise buildings in case of fire is proposed to be procured to ensure safety. The capital expenditure proposed for procurement of hydraulic platform is as follows:

Table 79: Capital Expenditure proposed for procurement of Hydraulic Platform for High Rise Building

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Hydraulic Platform for High Rise Building	0.0	0.0	0.0	10.7	0.0	0.0
Total	**0.0**	**0.0**	**0.0**	**10.7**	**0.0**	**0.0**
Grand Total	**10.7**					

*difference is due to rounding off

Construction of Parking bays 37, 38, 39 & 40 & Extension of Taxiway J upto H and Construction of Taxiway K & Taxiway, West of A to Isolation parking bay

5.65 CIAL is planning to construct 4 parking bays (37, 38, 39 and 40), extend taxiway J upto H and construct taxiway K for use by Code C aircrafts.

5.66 The proposed capital expenditure for construction of the above line item is as follows:

Table 80: Capital Expenditure proposed for Construction of Parking Bays 37, 38, 39 and 40 & Extension of Taxiway J upto H and construction of taxiway K

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J upto H and Construction of Taxiway K & Taxiway, West of A to Isolation parking bay (Civil Work)	0.0	0.0	0.0	0.0	13.1	54.9
Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J upto H and Construction of Taxiway K & Taxi way, West of A to Isolation parking bay (Electrical Work)	0.0	0.0	0.0	0.0	2.2	3.1
Total	**0.0**	**0.0**	**0.0**	**0.0**	**15.3**	**58.0**
Grand Total	**73.4**					

*difference is due to rounding off

CISF Quarters

5.67 CISF has requested for development of residential building for staff working at CIAL.

5.68 At present, the posted strength of CISF personnel at CIAL is 824 numbers and barrack accommodation has to be provided for 40% of the strength. The present barrack accommodation are arranged through rented premises scattered into various locations which CISF wants to be located in a single place. Moreover, most of the personnel posted here belong to outside the state of Kerala. The CISF personnel are finding it difficult to get adequate number of rented houses in the vicinity of the airport as the airport is located in outskirts of the city. Hence, CISF has requested for staff quarter facility and barrack accommodation in a single location.

5.69 The proposed capital expenditure for construction of CISF Quarters is as follows:

Table 81: Capital Expenditure proposed for CISF Quarters

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
CISF Quarters (Civil Work)	0.0	0.0	12.3	25.3	27.4	0.0
CISF Quarters (Electrical Work)	0.0	**0.0**	**1.6**	**4.3**	**3.2**	**0.0**
Total	**0.0**	**0.0**	**13.9**	**29.5**	**30.5**	**0.0**
Grand Total	**74.0**					

*difference is due to rounding off

Regrading of side strips beyond 30 m

5.70 Californian Bearing Ratio (CBR) value of side strips has been found to be less at some locations. This insufficiency was also noted by DGCA.

5.71 Stabilization of side strip up to 30 m on both sides of runway was carried out along with runway re-carpeting during 2019-2020. It is proposed to undertake stabilization and regrading of area beyond 30 m on either side of runway and to provide vehicular road in side strip. The proposed capital expenditure for regrading of side strips beyond 30 m is as follows:

Table 82: Capital Expenditure proposed for regrading of side strips beyond 30m

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Regrading of side strips beyond 30m	0.0	0.0	44.0	0.0	0.0	0.0
Total	**0.0**	**0.0**	**44.0**	**0.0**	**0.0**	**0.0**
Grand Total	**44.0**					

*difference is due to rounding off

GPU & PCA south and north of T3

5.72 CIAL has 18 aircraft parking bays in Apron 1 and 9 aircraft parking bays in Apron 2. Out of these, 16 are aerobridge connected bays. Another 8 aerobridge bays are planned to be constructed in Apron 3 on the northside of T3 pier. Out of these, CIAL has installed power supply systems for feeding electric power to GPU and PCA in 9 bays in Apron 2 on the south side of T3 pier.

5.73 When the aircraft is in the parking bay, normally it uses APU for power which runs on aircraft fuel. When APU is switched off or not functional, external mobile GPU, which runs on diesel is used. Both APU and mobile GPU cause air and noise pollution. In order to reduce impact on environment due to operation of APU/GPU/PCA at airports besides minimizing the

congestion at apron and connected safety considerations, airports have adopted alternative means to these units. The improvement of airside services and equipment is needed to match the up gradation of airport infrastructure, to improve the efficiency of the airport and to reduce the carbon footprints of the airports.

5.74 As per the guidelines of Central Pollution Control Board, noise monitoring needs to be carried out at all civil airports which has more than 50,000 aircraft movements per year. As per the DGCA Civil Aviation Requirements (CAR), Section-10, Series-A, Part-I on Noise Management of Aircraft Operations at airports which was issued in December, 2014 - paragraph no.- 3.1.9(1V), the airport operator shall do noise abatement procedures like incorporating - GPU/APU Management procedure and provision of Fixed Electrical Ground Power (wherever applicable) in order to minimize the use of diesel driven Ground Power Unit (GPU) and Auxiliary Power Unit (APU) during aircraft parking at bay.

5.75 As CIAL has crossed 50,000 aircraft operations and as part of CIAL's green initiative, it is planned to undertake the above activities. It is proposed to install bridge mounted, electrically driven fixed GPU and PCA at CIAL. The proposed capital expenditure for GPU and PCA is as follows:

Table 83: Capital Expenditure proposed for GPU & PCA at T3

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
GPU & PCA at T3	0.0	0.0	2.1	12.8	6.6	0.0
Total	**0.0**	**0.0**	**2.1**	**12.8**	**6.6**	**0.0**
Grand Total	**21.5**					

*difference is due to rounding off

Security Equipments - X-BIS, ETD, DFMD, HHMD etc.

5.76 Replacement of single view-based X-ray baggage inspection system (X-BIS) which are in operation for more than 12 years is proposed to be undertaken along with addressing additional requirements. As per BCAS mandate new X-BIS is required to have Dual views / Dual Generators for better security screening. Additional requirements and replacement of existing old equipments are expected for other items viz. ETD, DFMD, HHMD etc. The proposed capital expenditure for the above security equipment is as follows:

Table 84: Capital Expenditure proposed for Security Equipments (X-BIS, ETD, DFMD, HHMD etc.)

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Security Equipment-X-BIS, ETD, DFMD, HHMD	5.0	9.7	1.0	1.1	1.1	1.1
Total	**5.0**	**9.7**	**1.0**	**1.1**	**1.1**	**1.1**
Grand Total	**19.1**					

*difference is due to rounding off

Other major capital expenditures

I. General Aviation parking bays

Currently, the General Aviation Parking bays 41, 42, 43 and 44 are aligned on the eastern side of TWY H. Many times, CIAL is finding it difficult to cater to the demand of the General Aviation operators with this existing General Aviation bays and hence permits the smaller Aircraft to park at the Scheduled Aircraft bays at T1 and T3 Apron. It is recommended to have a segregation between the Apron for Scheduled and non-scheduled Aircraft. As per the master plan, CIAL can expand the General Aviation Parking Bays to 45, 46, 47 and 48 by utilizing the available space and also create additional link TWY to TWY H for facilitating the quick turnaround. This will segregate the General Aviation Apron from the Scheduled Apron, ensures better usage and improve bay availability for long term parking, thereby improving the revenue generation.

II. Special Vegetative cover for side strip – runway and taxi way

Due to the specific climatic and soil conditions at CIAL, continuous vegetative growth occurs in the side strip and leads to:

A. High maintenance cost (both human factor and equipment)
B. Difficulty in ensuring grass growth contained
C. High capital and operational investment and expenditure for Bird control management.

On discussions with Kerala State Agriculture University and other leading agriculture experts, a special grass / vegetation is proposed to be planted along the side trip. Once this special vegetative cover spreads along the overall side strip, CIAL will be able to overcome issues of grass cutting expenditure and continuous bird control issues. In the long run, this will improve the overall Airside safety and add to the visibility of the side strip.

III. Tracking motorable & non-motorable assets, Safety and efficiency Investigation Equipment utilization

CIAL has undertaken initiative to enhance airside safety by tracking vehicles and making the airside vehicle movements available to AOCC online. The pilot project for 100 vehicles was carried out and results were satisfactory for CIAL and regulatory bodies. This is proposed to be extended to motorable assets and non-motorable assets. This would improve airside safety and can aid in safety investigation. As the overall equipment utilization can be tracked by CIAL, the initiative would help improve equipment efficiency.

IV. ATC Tower refurbishment

A refurbishing of ATC at CIAL is required, considering long-term demand from AAI, MET dept. and CIAL operations. The layout of the ATC needs to be aligned with the requirements as per current industry standards.

V. ACDM implementation through AAI - Up gradation of AODB platform

AAI is the exclusive agency for overall functions related to CNS and ATM in India. They are in the process of collaborating with airport operators, airlines, GHAs etc. so that all agencies use single data from a common platform for resource planning and other critical decision making. As an Airport Operator, the advantages of implementing ACDM are:

A. Improvement in infrastructure usage
B. Improvement in data quality
C. Airport image on punctuality
D. Reduction in last minute stand / gate changes
E. Adherence to airport slots by airlines
F. Reduction in congestion and thereby improvement in safety
G. Reduction in emissions at the airport

VI. Creation of eTOD electronic Terrain Obstruction Data

All major airport operators are mandatorily required to carry out detailed aeronautical survey once in 5 years and check survey in every two years. The data is validated by AAI and published through Aeronautical Information Publication. CIAL needs to carry out this

survey for a radius of 30nm. The last detailed survey was carried out during the year 2017 and the next detailed survey needs to be completed by Aug 2022. In addition, the latest requirement of ICAO is; creation of all obstruction charts and information in electronic form called electronic – Terrain Obstruction Data (e-TOD). Both these need to be carried out as a mandatory requirement of DGCA and from Aerodrome safeguarding point of view. CIAL as an airport operator is supposed to monitor the entire 56 km radius on continuous basis for ensuring no illegal constructions are erected and to validate the NOC requirements. e - TOD can help CIAL identify illegal constructions pro-actively and take up with the local authorities for immediate corrective actions.

VII. Outer perimeter road on northern side of airport land east of Coast Guard

At many of the locations close to CIAL perimeter wall, the nearby land bank trees are found overhanging to the operational area. This is a security hazard. An outer perimeter road in the custody of the Airport operator is required for better security and emergency response. CIAL proposes to identify locations to build a motorable outer perimeter road.

VIII. Exclusive conveyors for OOG at T1 & T3 Arrival and Departure

Currently, the movement of oversized baggage, fragile items, electronic items etc. at the Arrival and Departure at T1 and T3 is through a manual management process. Airlines and GHAs are finding this difficult to manage. Since human factors are involved in the current system, this leads to a security concern. For making the system efficient and customer friendly, it is proposed to have an OOG conveyor at T1 and T3 (both Arrival and Departure side) for facilitating movement of oversize baggage, fragile items, electronic items etc.

IX. Digital locks for all Terminal operational doors and Emergency Doors

Emergency doors and operational doors are kept locked and can be a potential hazard during emergency management. Electronic locks with central control and monitoring for opening and closing of doors during emergency are proposed to be installed. This will reduce dependency on CISF, improve the emergency response and security management and enable tracking through the door management system.

X. Creation of Online Training Platform for employees

At present, CIAL is conducting many trainings for associated stakeholders and for the internal company employees. It is proposed to create digital training modules and share it with the concerned stakeholders and conduct online evaluations. The merits of such system are:

A. Employee will have self-initiation for referring to the training module and referral books.
B. Competency building, and knowledge acquisition will become equal responsibility of the employee.

XI. HT revamping works

The main power to CIAL is fed from Angamali substation through dedicated feeders. CIAL has a 110kV substation having two 20MVA transformers and another new substation with two 40MVA transformers. The power from this main substation is fed to six other substations located in different parts of CIAL namely Power Plant, terminal Substation, Utility substation, Cargo Village substation, service building and T3 substation. Other loads are catered through Ring main units (RMU's) network using 11 KV cables. Some of the critical load centers are connected through single 11 KV cable only. So, to increase reliability of power network, it is proposed to lay additional cables, RMUs etc. to various substations.

XII. Replacement of old Panels & DG sets in substations & Terminals

DG sets are installed in the following substations as backup power supply.

I. Service Building has four IIKV DG sets (3000KVA (two) and 3000KVA (two))
II. Power plant has two 11kV DG sets - One 1875KVA DG set and one 2500KVA
III. Terminal substation has three 437.5KVA Dg sets (installed in 1999) (LT DG sets)
IV. Utility substation has two 625KVA Dg sets (installed in 1999) (LT DG sets)
V. Cargo Village has two 250KVA DG sets (LT DG sets)

Out of these, all DG sets shown under III, IV & V and one 1875KVA DG set shown under ii (power plant) have completed their life span and hence to be replaced. All the old panels installed in these substations and few LT panels in terminal building T1 must be replaced.

XIII. Upgradation of AHU and Fixing of UVC lights to improve IAQ

Indoor air quality (IAQ) management in public spaces is assuming a remarkable importance post COVID - 19 pandemic. Busy environments, like airport terminals, are currently regarded as possible hotspots and IAQ is a crucial element for passengers and staff protection, as well as a key aspect of airport passenger experience. The first step planned in improving IAQ is to improve the building's MERV rating on its filter on the mechanical equipment. Minimum Efficiency Reporting Value (MERV) rates the overall effectiveness of the air filter, with higher value MERV ratings leading to better filtration and fewer dust particles and other airborne contaminants. This will in turn affect the HVAC system with increased filter pressure drop, decreased flow, cooling capacity, and power. Hence upgrading the entire Air handling equipment with higher TSP and Energy Efficient machines is required. Along with the same UV C (ultraviolet- C band) lighting at the mechanical systems, cooling coils is also planned which will remove bacteria, mold spores, and viruses. It will improve the air quality of the entire building.

XIV. Aerobridge for T1

The Aerobridges installed in Bay 1R, 5, 6 of T1 apron are completing their life span of 20 years and hence are to be replaced with new Aerobridges.

XV. Integration of CMS with SLCMS level – II

CIAL has installed state of art ALCMS which is a software-based system where the required AGL circuits are switched on, in required brilliancy once the AYCOs select the RWY in use, visibility range and the conditions. The system can be interfaced with the SMGCS (which is under installation by AAI) and hence, the taxiway Centre line lights are switched on based on the aircraft routing. This will provide better safety and efficiency in the surface movement of aircrafts.

XVI. Replacement of STP equipments

CIAL has a sewage treatment plant having a capacity of 7.5 Lakh litres/ day which was renovated in 2013. Due to continuous usage and corrosion, most of the machinery used has corroded and requires replacement.

XVII. CIAL administrative block

CIAL plans to construct an administrative block which will act as an exclusive building as well as administrative office for CIAL so that smooth and efficient management of the airport along with optimum utilization of human resources can be achieved.

XVIII. Non-Bonded Warehouse – Development of Logistics Park

At present, air cargo operations are focused on International cargo, Export/ Import and Domestic cargo, Departure/ Arrival operational activities. CIAL plans to expand its activities through involvement in allied activities on cargo operations. The major demand for the allied activities is for the availability of Non-Bonded warehouse near the ports. The non-bonded warehouse is planned near the customs bonded warehouses as it will facilitate ease of export through air and sea. This facility will in turn help to promote Cochin's International Export and Domestic Outbound Cargo. In addition, to promote sea food exports, CIAL plans to provide cold storage facility at this non-bonded warehouse.

XIX. Extension of taxiway J1 upto isolated bay

CIAL is planning to extend taxiway J1 upto isolated bay to improve airfield connectivity at the airport.

XX. Reconstruction of compound wall and providing concertina coils

The present compound wall around operational area was constructed during the period 1995 to 1998 before the inauguration of Airport in Rubble masonry. Structural instability has been noticed in some reaches of compound wall which were rectified. However, in order to provide structural stability and make it more safe and secure, CIAL proposes to undertake reconstruction of the compound wall which was impacted due to severe floods in 2018 and 2019.

XXI. Replacement of approach lights and runway lights

Approach lights are provided in the 27 side (east) of the runway for guiding the aircraft at night and during adverse climatic conditions. These lights were installed in 1999 and are

of culvert type using halogen lamps. Due to ageing and to improve efficiency, it is proposed to replace it with LED lights.

XXII. Retrofitting of High masts and new streetlights

The high mast lighting system is used in both, city side and airside to give safety and security to aircrafts, passengers, vehicles and all stake holders. The light output must be as per the required ICAO levels. Currently high-pressure sodium vapour lamps are being used. This has an inherent switching on delay due to gas discharge. Moreover, due to ageing and non-availability of spares, it is proposed to change all HPSV lamps to modern and energy efficient LED light for the high mast lighting system. In addition to better optics, they will also reduce the energy consumption due to their low wattage. The streetlights installed in the main road using HPSV also will be changed to LED fittings.

XXIII. LT Revamping works in T3 & T1

Life span of equipment used in terminals such as UPS, water coolers, water dispensers, water purifiers etc. are having a maximum life span of 5-10 years. In addition, light fittings, distribution boards, LT panels also require replacement, after their end of life and hence requires replacement. CIAL plans to undertake LT revamping work for T3 and T1.

XXIV. Additional VDGS & GOS Implementation

At present AVDGS is installed in all Aerobridge bays and is operated manually. But due to increase in operations, remote bays also have to be used. Hence, automatic operation of AVDGS will be required. Automation will improve the efficiency of aircraft parking; Aerobridge docking and improve the turnaround time. This can be accomplished through GOS (Gate Operating System). As part of GOS implementation in all Bays including remote Bays, a total of 7 additional AVDGS are needed to be installed in remote bays.

XXV. Chiller upgradation and associated electrical works- T1

Current chillers used for T1 HVAC is around 12 years old and hence require replacement. The current chiller, Colling Tower and Associated Electrical equipment require high

maintenance and should be replaced with energy efficient and technologically advanced chillers.

XXVI. Full body scanner

In line with international best practices and to maintain the highest levels of safety and security, CIAL plans to undertake investment to procure full body scanners. The procurement of full body scanners has also been necessitated under Covid-19 to minimize close interactions between security personnel and passengers.

The summary of other major capital expenditures for the 3rd CP are given in the table below:

Table 85: Summary of other major capital expenditures

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
General Aviation parking bays (Civil and electrical works)	0.0	0.0	1.3	1.3	0.0	0.0
Special Vegetative cover for side strip – runway and taxi way	0.0	3.1	3.1	3.2	3.3	0.0
Tracking motorable & non-motorable assets, Safety and efficiency Investigation Equipment utilization	0.0	0.2	0.4	0.0	0.0	0.0
ATC Tower refurbishment	0.0	2.0	0.0	0.0	0.0	0.0
ACDM implementation through AAI - Up gradation of AODB platform	0.0	1.5	0.0	0.0	0.0	0.0
Creation of eTOD - Electronic Terrain Obstruction Data	0.0	0.0	2.1	0.0	0.0	0.0
Outer perimeter road on northern side of airport land east of Coast Guard	0.0	0.0	2.1	3.2	0.0	0.0
Exclusive conveyors for OOG at T1 & T3 Arrival and Departure	0.0	0.0	0.0	0.0	0.0	4.5

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Digital locks for all Terminal operational doors and Emergency Doors	0.0	0.0	0.0	0.0	0.0	2.8
Creation of Online Training Platform for employees	0.0	0.0	0.0	0.0	0.0	1.1
HT revamping works	1.0	0.5	0.5	0.0	0.0	0.0
Replacement of old Panels & DG sets in substations & Terminals	0.0	0.0	0.0	3.2	2.2	0.0
Upgradation of AHU and Fixing of UVC lights to improve IAQ	0.0	5.1	5.2	0.0	0.0	0.0
Aerobridge for T1	0.0	0.0	4.2	0.0	0.0	0.0
Integration of CMS with SLCMS level – II	0.0	0.0	0.0	0.0	5.5	0.0
Replacement of STP Equipment	0.0	0.0	0.0	0.5	1.1	0.0
CIAL Administrative Block	0.0	6.1	5.2	0.0	0.0	0.0
Non-Bonded Warehouse – Development of Logistics Park	0.0	0.0	2.1	3.2	0.0	0.0
Extension of Taxiway J1 upto Isolated parking bay	0.0	2.0	10.5	0.0	0.0	0.0
Reconstruction of compound wall and providing concertina coils	0.0	4.3	4.4	4.5	4.6	0.0
Replacement of Approach lights and RWY lights	0.0	0.0	0.5	1.1	0.5	0.0
Streetlight/ High Mast revamping - City side	0.0	0.0	0.5	0.5	0.6	0.0
LT revamping works in T3& T1	0.0	1.0	1.1	1.1	0.0	0.0
Additional VDGS & GOS Implementation	0.0	0.0	0.5	1.1	1.6	0.0
Chiller upgradation and associated electrical works- T1	0.0	2.0	0.5	0.0	0.0	0.0
Full body scanner	0.0	0.0	28.3	0.0	0.0	0.0
Total	**1.0**	**27.8**	**72.5**	**22.9**	**19.4**	**8.4**

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Grand Total	**152**					

*difference is due to rounding off

Summary of Capital Expenditure for Third Control Period

5.77 Total capital expenditure planned for the third control period (FY 2022 – FY2026) is around INR 1416 cr. summarized in the table below:

Table 86: Summary of Capital Expenditure proposed for 3rd Control Period

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026	Total
Construction of Import Warehouse	21	32	0	0	0	0	**53**
Modification of Existing Export Warehouse	0	7	29	0	0	0	**36**
Mechanisation of Export Warehouse after modification	0	5	5	0	0	0	**10**
Construction of parking bays phase II	0	0	59	87	0	0	**146**
Development of northern side of T3 pier	0	0	52	120	18	0	**190**
Flood Control Measures	19	44	30	0	0	0	**93**
CCTV Surveillance System	0	0	0	0	44	0	**44**
CT based Hand Baggage X-BIS - T3	0	0	0	30	0	0	**30**
CT based Hand Baggage X-BIS-T1	0	0	25	0	0	0	**25**
Smart Lane System-T3	0	0	0	23	0	0	**23**
Smart Lane System-T1	0	0	20	0	0	0	**20**
Digi Yatra-IT Systems	0	31	0	0	0	0	**31**

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026	Total
Passenger Processing IT System	0	0	31	0	0	0	**31**
Perimeter Intrusion Detection System	7	15	0	0	0	0	**22**
SOC & NOC for IT	0	4	3	3	3	3	**16**
Fire tenders	0	15	16	38	0	0	**69**
Satellite Fire Station	0	10	5	0	0	0	**15**
Widening of roads for ACFTs	0	0	1	3	0	0	**4**
Emergency Rescue Tender	0	0	0	0	11	0	**11**
Hydraulic Platform for High Rise Building	0	0	0	11	0	0	**11**
Construction of Parking bays 37,38,39 & 40 & Extension of Taxiway J upto H and Construction of Taxiway K & Taxi way, West of A to Isolation parking bay	0	0	0	0	15	58	**73**
CISF Quarters	0	0	14	30	31	0	**74**
Regrading of side strips beyond 30 m	0	0	44	0	0	0	**44**
GPU & PCA south and North of T3	0	0	2	13	7	0	**22**
Security Equipments - X-BIS, ETD, DFMD, HHMD etc.	5	10	1	1	1	1	**19**
Other major capital expenditures	1	28	73	23	19	8	**152**
Total of Major Capex Items	**52**	**202**	**410**	**380**	**148**	**71**	**1262**
Misc. Expenses for 3rd CP	**2**	**38**	**29**	**43**	**32**	**10**	**154**
Grand Total	**54**	**240**	**439**	**423**	**180**	**81**	**1416**

*difference is due to rounding off

Non – Aeronautical capital expenditure

5.78 The major non aeronautical capital expenditures proposed to be undertaken by CIAL during the 3rd CP are shown in the table below:

Table 87: Non – aeronautical capital expenditure proposed by CIAL in 3rd CP

Particulars* (in INR cr.)	Prior period WIP	2022	2023	2024	2025	2026
Commercial building in NDB area	0	0	0	0	55	56
Conversion of commercial building to Hotel	67	39	0	0	0	0
Transit Accommodation Hotel	0	31	21	0	0	0
Hotel with dormitory style options	0	0	21	11	0	0
Commercial complex/ hotel	30	1	0	0	0	0
Retail – Street Shopping, State Garments & Handicraft Emporiums, Traditional art	0	2	3	3	2	0
F&B facilities	0	2	3	3	2	0
Flower show (Phase 1)	0	0	5	5	0	0
Shopping, F&B, Warehouses and showrooms on both sides or under the bridges	0	4	4	2	0	0
Flower show (Phase 2)	0	0	0	0	0	6
Arts & Cultural Centre	0	0	3	2	0	0
Total of major non aero capex items	**96**	**79**	**61**	**27**	**60**	**62**
Misc. Expenses for 3rd CP	**5**	**20**	**16**	**9**	**4**	**0**
Grand total	**101**	**99**	**77**	**35**	**64**	**62**

*difference is due to rounding off

Summary of capital expenditure

5.79 The total capital expenditure for CIAL for the 3rd control period is shown in the table below:

Table 88: Summary of forecast of capital expenditure for CIAL for the 3rd control period

Particulars* (in INR cr.)	Capex planned for the 3rd CP
Aeronautical capital expenditure	1,416
Non - aeronautical capital expenditure	438
Grand Total	**1,854**

*difference is due to rounding off

6. Allocation of assets in 3rd control period

6.1 The assets proposed to be capitalized during the 3rd control period have been segregated into aeronautical and non-aeronautical assets.

6.2 The approach for classification of new assets to be capitalized in the 3rd control period is as follows –

Table 89: Aeronautical and Non-Aeronautical assets allocation basis for new assets to be capitalized in 3rd control period

New assets	Basis for segregation
T3 pier expansion and minor works	T3 pier expansion assets have been apportioned into aeronautical and non-aeronautical component based on the terminal area ratio of 92.81% and 7.19%.
Other than T3 pier expansion and minor works	Classification of aeronautical and non-aeronautical assets has been carried out based on the usage of such assets.

6.3 The summary of the allocation of new assets to be capitalized in the 3rd control period are as follows:

Table 90: Proportion of aeronautical and non-aeronautical assets for new assets to be capitalized in 3rd control period

New assets capitalized from FY2022 to FY2026	Amount (INR cr.)	Aeronautical (%)	Non-aeronautical (%)
Land	0.0	-	-
Buildings and civil works	768.7	44.6%	55.4%
Golf course development	0.0	0.0%	100.0%
Runway, roads and culverts	382.7	98.8%	1.2%
Plant and equipment	568.6	97.2%	2.8%
Office equipment	1.1	100.0%	0.0%
Computers and accessories	93.3	96.7%	3.3%
Furniture and fixtures	9.5	94.9%	5.1%
Vehicles	8.2	100.0%	0.0%
Intangible assets	22.0	100.0%	0.0%
Total assets	**1,854.0**	**75.7%**	**24.3%**

7. Depreciation

7.1 CIAL has a policy of charging depreciation till 95% of the original cost and the same methodology is considered while forecasting depreciation for the 3rd control period. CIAL has considered the useful life of the assets as per the AERA Order No. 35/2017-18 dated 12th January 2018. For new assets, the depreciation for the year in which the assets will be capitalized, is calculated on 50% of the asset value.

7.2 The useful life of assets used for the calculation of depreciation is as follows:

Table 91: Useful life of assets considered by CIAL as per AERA order 35/2017-18

Type/Category of Asset	Useful Life	Asset Class
Building - Civil, earth works, pile masonry, concrete, steel and RCC Works (including terminal building and cargo complex)	60	Buildings & Civil Works
Building - False ceiling, handrails and façade works	20	Buildings & Civil Works
Building - Interior, flooring, roofing, plumbing and finishing	15	Buildings & Civil Works
Elevators, Escalators, Baggage Handling Systems, Travellators, HVAC equipment, aircraft recovery equipment and aerobridges	15	Plant and Equipment
Light fittings	10	Plant and Equipment
Runway, Apron and Taxiway	30	Runway, Roads and Culverts
Electrical Installation and equipment	10	Plant and Equipment
Flight Information System	10	Plant and Equipment
Aircraft Fire tenders and other fire equipment	15	Plant and Equipment
X - Ray, RT Sets, DFMD, HHMD and Security Equipment	15	Plant and Equipment
Office Equipment	5	Office Equipment
Furnitures and Fixtures other than Trolleys	7	Furniture and Fixtures
Furniture and Fixture Trolleys	3	Furniture and Fixtures
Computer end user devices	3	Computers and Accessories
Computers, servers and networks	6	Computers and Accessories

Type/Category of Asset	Useful Life	Asset Class
CUPPS, CUSS, Networking and BRS	6	Plant and Equipment
Roads and flexible pavement	10	Runway, Roads and Culverts
Flexible pavements	5	Runway, Roads and Culverts
Software	5	Intangible assets
Vehicles	8	Vehicles

7.3 Accordingly, the aeronautical depreciation of assets is projected as follows:

Table 92: Aeronautical depreciation of assets for 3rd control period

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Land	0.0	0.0	0.0	0.0	0.0
Buildings & Civil Works	31.4	32.9	35.6	37.6	37.0
Golf Course Development	0.0	0.0	0.0	0.0	0.0
Runway, Roads and Culverts	46.5	49.4	56.3	55.0	46.5
Plant and Equipment	58.5	59.7	68.7	77.6	80.5
Office Equipment	0.6	0.6	0.6	0.6	0.4
Computers and Accessories	5.6	11.4	15.6	16.1	14.3
Furniture and Fixtures	1.5	1.8	1.9	1.7	1.6
Vehicles	1.4	1.7	1.7	1.8	1.7
Intangible assets	1.2	2.8	3.8	3.9	4.1
FA	0.9	1.3	1.8	2.1	2.3
Total Depreciation	**147.5**	**161.5**	**186.0**	**196.5**	**188.4**

*difference is due to rounding off

8. Regulatory Asset Base (RAB) for the 3rd control period

8.1 Estimated closing net block for FY 2021 forms the opening RAB for the first year of the third control period i.e. FY 2022. The assets capitalized during the year have been added to the opening RAB and adjusted for depreciation charged during the year to arrive at closing value of RAB. Average of opening and closing RAB has been considered for computation of tariffs. The details of RAB for the control period are as follows:

Table 93: Computation of the RAB for the 3rd control period

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Opening RAB	1,653.0	1,723.3	1,956.9	2,239.5	2,301.1
Add: Capitalization during the year	217.8	395.1	468.5	258.1	100.7
Less: Depreciation during year	147.5	161.5	186.0	196.5	188.4
Sales/transfer/ retirements	0.0	0.0	0.0	0.0	0.0
Closing RAB	**1,723.3**	**1,956.9**	**2,239.5**	**2,301.1**	**2,213.4**
Average RAB	**1,688.2**	**1,840.1**	**2,098.2**	**2,270.3**	**2,257.3**

*difference is due to rounding off

9. Fair Rate of Return (FRoR)

9.1 Fair Rate of Return (FRoR) has been calculated as per AERA's tariff guidelines. The computation of FRoR has been done as below

$FRoR = g*R_d + (1-g) * R_e$

Where: g = Weighted Average Gearing for the control period

R_d = Weighted Average Pre-Tax Cost of Debt for the control period

T= Corporate Tax Rate

R_e = Post-Tax Cost of Equity.

Debt

9.2 To fund the capital expenditure in the 3rd control period, CIAL is raising debt year on year from the banks. CIAL has only considered long term borrowings: existing long-term debt and new debt.

9.3 Cost of debt is assumed as 7.8% based on the actual cost of debt in FY 2021 on the existing long-term debt.

9.4 The weighted average cost of debt (R_d) for the 3rd control period is computed from the outstanding debt and yearly average cost of debt as given below:

Table 94: Debt and Cost of Debt

Debt* (in INR cr.)	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 (%)	7.80%	7.80%	7.80%	7.80%	7.80%

*difference is due to rounding off

Equity

9.5 AERA has considered cost of equity of 14% for CIAL in the 2nd control period. AERA is requested to consider higher cost of equity in case of CIAL from 3rd control period onwards because of following reasons:

A. COVID has severely impacted the aviation industry which has resulted in increase in riskiness of the airport sector. With this increase in riskiness, a higher cost of equity is required. In addition, there is a need to create reserves with airport operator to mitigate risks posed by similar severe disruptions in the future.

B. During the initial years, the returns to CIAL's investors have not matched the expected RoE because of perpetual low tariffs that have benefited the users.

C. CIAL will also need to acquire additional land and fund the same. CIAL needs to plan in advance for the airport expansion given the challenges around land acquisition and financing.

D. Shareholders including the Government of Kerala and other PSUs have a legitimate expectation of dividend at a high rate and hence, whatever profits generated is being distributed without any ploughing back of profits

9.6 CIAL proposed to use 16% as cost of equity for determination of Fair Rate of Return.

9.7 The following have been excluded from the equity computation as per the directions of AERA in the 2nd control period order:

I. Investment in other businesses have been excluded for computing equity for FRoR

II. Grants received from the government have been excluded

9.8 Computation of equity for CIAL for the 3rd control period is given below:

Table 95: Computation of equity for CIAL

Equity* (in INR cr.)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Share Capital (A)	382.6	382.6	382.6	382.6	382.6	382.6
Reserves and Surplus (B)	457.3	561.0	792.3	1,164.5	1,634.7	2,236.0
Share Premium (C)	306.1	306.1	306.1	306.1	306.1	306.1
Grant (D)	0.0	0.0	0.0	0.0	0.0	0.0
Investment in Subsidiaries (E)	239.5	239.5	239.5	239.5	239.5	239.5
Equity without grant and investment in subsidiaries (A+B+C-D-E)	**906.4**	**1,010.1**	**1,241.4**	**1,613.6**	**2,083.8**	**2,685.1**
Average equity without grant and investment in subsidiaries	**1,063.7**	**958.3**	**1,125.8**	**1,427.5**	**1,848.7**	**2,384.4**

*difference is due to rounding off

Security Deposit

9.9 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 rate of return on the security deposits for the purposes of calculation.

Weighted Average Gearing

9.10 Capital expenditure during the third control period would be financed through existing cash with CIAL, funds generated through business operations and fresh debt.

9.11 Weighted average gearing as calculated in the table below. Future capital expenditure is expected to be funded through debt given the challenge for CIAL to raise fresh equity due to large number of shareholders.

Table 96: Calculation of Weighted Average Gearing

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Equity	958	1126	1427	1849	2384
Debt	822	1050	1167	1044	873
Security deposit	150	150	150	150	150
Weighted average gearing (debt/ total funding)	**42.4%**				

*difference is due to rounding off

Calculation of Fair Rate of Return (FRoR)

9.12 Fair Rate of Return for the control period is estimated as shown in the following table:

Table 97: FRoR calculated for CIAL

Weighted Average Gearing including SD (D/(D+E))	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%**

Acquisition of land in 2026 – (Primarily to be financed by debt)

9.13 CIAL plans to acquire land for runway expansion in FY 2026 which is primarily to be funded by debt. Currently, due to uncertainty, the debt required to finance the purchase of land has not been included in the FRoR calculation.

10.Return on Land

10.1 The equated annual installment is calculated as per the following formula:

Equated Annual Installment = [Cost X Rate (1+Rate) ^ 30] / [(1+Rate) ^ 30 - 1]

Where,

Cost: Actual Cost of Land

Rate: Actual cost of debt or SBI Base Rate plus 2% whichever is lower

10.2 The return on land for the 3rd Control Period is summarized below:

Table 98: Return on land for CIAL for 3rd CP

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Land Cost	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
Cost of debt (%)	7.8%	7.8%	7.8%	7.8%	7.8%
Return on land cost	9.77	9.77	9.77	9.77	9.77
Total Return on Land	**48.83**				

*difference is due to rounding off

11.Operations & Maintenance Cost

11.1 The Operation and Maintenance (O&M) cost mainly consists of the employee costs, repairs & maintenance cost, utilities costs, other operational expenditure costs, administration and general costs. While estimating future operations and maintenance costs, the relevant costs drivers such as inflation, increase in manpower and passenger traffic have been taken into account.

11.2 The basis of segregation of O&M expenditure into aeronautical and non-aeronautical is given in the table below:

Table 99: Basis of Segregation of O&M cost among aeronautical and non-aeronautical services

11.3 The proportion of aeronautical O&M expenses for the period FY 2022 to FY 2026 is shown below:

Table 100: Aeronautical and non-aeronautical allocation of expenses for 3rd control period

Particulars	FY2022	FY2023	FY2024	FY2025	FY2026
Payment to employees	**96.1%**	**96.1%**	**96.1%**	**96.1%**	**96.1%**
Operational Expenses					
Total Repairs Costs	87.9%	87.2%	86.8%	87.0%	84.9%
Safety & Security expenses	96.1%	96.1%	96.1%	96.1%	96.1%
Power Charges (net amount)	100%	100%	100%	100%	100%
Water Charges (net amount)	100%	100%	100%	100%	100%
Fuel Generator Sets (net amount)	100%	100%	100%	100%	100%
Vehicle R&M expenses	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 Expenses					
Admin expenses except flood mitigation expenses	96.1%	96.1%	96.1%	96.1%	96.1%
Floods mitigation expenses	100%	100%	100%	100%	100%

11.4 The detailed assumption and rationale for each element of O&M cost is described below section.

O&M expense head	Basis for segregation of O&M cost
Employee cost	Employees have been bifurcated into aeronautical, non-aeronautical and common employees based on the services provided by them. Common employees include employees in MD's office, Finance and HR department. As per 2nd control period order of CIAL, these common employees have been further bifurcated into aeronautical and non-aeronautical employees. Total employee cost has been segregated into aeronautical and non-aeronautical in the proportion of number of employees providing aeronautical and non-aeronautical services. CIAL duty free employees are seconded to CDRSL whose amount is paid directly by CDRSL. Their employee cost is, therefore, not part of the total employee cost of CIAL. Hence, these employees have been excluded from the employee ratio calculations. Out of total of 496 employees, 477 employees are providing aeronautical services. Based on above, aero employee ratio is 96.1%.
Administration and General costs	Flood mitigation expenses have been considered as aeronautical expenses. Remaining admin expenses have been segregated into aeronautical and non-aeronautical in the proportion of number of employees providing aeronautical and non-aeronautical services.
Utilities Costs	The power and water charges have been considered net of revenues from concessionaire. The net amount has been considered 100% aeronautical expenses as per 2nd control period order for CIAL.
Repair and maintenance costs	Repair and maintenance costs except for CUTE operational expenses have been bifurcated into aeronautical and non-aeronautical expenses based on the proportion of gross block for aeronautical and non-aeronautical assets for buildings, runway, roads & culverts and plant & equipment.
Other operational expenses	These expenses pertain to safety & security expenses, vehicle operations & maintenance, housekeeping expenses, consumables and other miscellaneous expenses. Expenses have been segregated in the proportion of number of employees providing aeronautical and non-aeronautical services.
CUTE expenses	CUTE operational expenses incurred are considered to be aeronautical expenses.

Employees' Cost

11.5 Employee cost is forecasted for CIAL based on the increase in salary per employee and the number of employees. Historically, the CAGR for employees' cost is shown below:

Table 101: Historical CAGR for Employees' Cost

Particulars	FY 2020 (INR cr.)	CAGR (2015-2020)	CAGR (2011-2015)
Total Employee Cost	78.3	7.4%	17.8%

11.6 For the last year of the 2nd Control Period (2021), salary cost is estimated to increase by 2.5% as against the AERA approved 7% due to the impact of COVID on the aviation sector. Additionally, CIAL has not retrenched any employee in these unprecedented times of COVID.

11.7 The employee salary is expected to increase by 7% every year during the 3rd control period which is in line with the 5-year CAGR (2015-2020) of 7.4%.

11.8 The pay revision is scheduled in the year 2023 (pay revision is done every 5 years with the last revision done in 2019). However, the impact of the pay revision on the employee cost has not been considered while forecasting the employee cost. CIAL requests the Authority to true-up the pay revision on actuals.

11.9 The total employees of CIAL have been assumed to be constant for the 3rd control period at 496. The breakup of employees is shown in the table below:

Table 102: Forecast of CIAL employees from 2022 till 2026

Employees	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Aero employees	447	447	447	447	447
Non-aero employees	18	18	18	18	18
Common employees	31	31	31	31	31
Total employees	**496**	**496**	**496**	**496**	**496**
Common employees apportionment					
Aero common employees	30	30	30	30	30
Non-aero common employees	1	1	1	1	1
Total Aero employees	477	477	477	477	477
Total Non-Aero employees	19	19	19	19	19
Total employees of CIAL	**496**	**496**	**496**	**496**	**496**
Aero employee ratio	**96.1%**	**96.1%**	**96.1%**	**96.1%**	**96.1%**

11.10 The employee cost projected for the 3rd control period is shown below:

Table 103: Employee cost for 3rd control period

Particulars* (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Employee Cost-Aero	**84.9**	**90.8**	**97.2**	**104.0**	**111.2**
Employee Cost-Non - Aero	3.4	3.7	3.9	4.2	4.5
Employees Cost-Total	**88.3**	**94.5**	**101.1**	**108.1**	**115.7**

*difference is due to rounding off

Operational Expenses

Repairs and Maintenance Expenses

11.11 Repairs and maintenance expenses for buildings, roads, runways & culverts and plant & equipment have been forecasted as a percent share of gross block of these assets. Percent share of gross block is based on the historical trends and technical estimates for new assets.

11.12 The historical CAGR for Repair & Maintenance is given below:

Table 104: Historical CAGR for Repair & Maintenance Expenditure

Particulars	FY20 (INR cr.)	CAGR (2016-2020)	CAGR (2011-2015)
R&M expenses	29.54	10.4%	17.3%

11.13 For FY 2020, the actual R&M expenses for buildings is 1.2% of the gross block for buildings and the actual R&M expenses for plant, equipment and runway is 1.4% of the gross block for plant, equipment and runway. CIAL has assumed the same percentages from FY 2022 to FY 2026 for computing the R&M expenses for the existing assets as on FY 2020.

11.14 The R&M expense is expected to drop by 20% in FY 2021 over FY 2020 due to the impact of COVID-19.

11.15 In FY 2022, the R&M expenses are expected to increase by 8% over FY 2020 R&M expenses due to impact of inflation during FY 2021 and FY 2022 and R&M cost of new asset additions in FY 2021 and FY 2022.

11.16 The R&M expense projected for the next control period is shown in the table below:

Table 105: Repair & Maintenance expenses forecasted for 3rd control period

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Repair Costs-Aero	**27.6**	**29.4**	**33.4**	**38.5**	**42.3**
Repair Costs-Non-Aero	3.8	4.3	5.1	5.7	7.5
Total Repairs Costs	**31.4**	**33.8**	**38.4**	**44.3**	**49.8**

*difference is due to rounding off

Power Charges

11.17 CIAL has two agreements for power supply. One is the Power Purchase Agreement (PPA) with its subsidiary, CIAL Infrastructures Limited (CIAL Infra), for purchase of solar power generated by the latter. The other agreement is the Banking Agreement with Kerala State Electricity Board Limited (KSEBL), the state power generation, transmission and distribution agency for providing banking facility for CIAL.

11.18 Vide this agreement, CIAL is permitted to use KSEBL's grid facility to store the excess solar power available with CIAL and withdraw the same as and when the need arises.

11.19 The PPA with CIAL Infra is for a period of 20 years for purchase of power at a fixed rate of INR 6.8 per unit. Every month, CIAL Infra bills CIAL for the actual power consumed by CIAL out of the solar power generated by the former. The excess power generated by CIAL Infra, is stored in the KSEB grid by CIAL, for its future use. This banked units of power is not billed by CIAL Infra, until the same is withdrawn from the grid and consumed by CIAL.

11.20 The agreement with KSEB consists of two parts, first part is regarding the contract demand (connected load). As per the said agreement, KSEB will bill CIAL for its contract demand as well as for the units consumed by CIAL over and above the banked units. The contract demand with KSEB is 9000 KVA. Regardless of CIAL's consumption of KSEB's power, 75% of the contract demand will be billed by KSEB as Demand Charges every month, @ INR 410/- per KVA. Hence, KSEB will be raising a fixed monthly bill of INR 27.67 lakhs (6750 * 410) on CIAL, under the head, Contract Demand Charges.

11.21 Over and above the contract demand charges, the units supplied by KSEB and consumed by CIAL shall be billed as per KSEB's tariff rate as applicable from time to time. Additionally, no GST on Demand Charges is billed by KSEB. For EHT consumers, the present tariff is given below:

Table 106: Present Tariff charged by KSEB for CIAL

Time Zone	0-60000 units (INR per unit)	Above 60000 units (INR per unit)
6 am to 6 pm	5.8	6.8
6 pm to 10 pm	8.7	10.2
10 pm to 6 am	4.35	5.1

11.22 For the bills generated by KSEB, the following is the structure of taxes and duties:

- KSEB bills - demand charges (no taxes or duties)
- Units consumed (Electricity Duty is charged @ 10%)
- Meter rent (GST is charged)
- Reactive EC (no taxes or duties)

11.23 The average daily consumption for CIAL during FY 2020 was around 1.3 lakh units, the details for which are given below:

Table 107: Power Consumption for CIAL in FY2020

Months	Total sum of units
Apr-19	4,588,095
May-19	4,647,845
Jun-19	4,247,629
Jul-19	4,134,921
Aug-19	3,766,288
Sep-19	3,822,232
Oct-19	3,835,303
Nov-19	3,877,287
Dec-19	3,659,082
Jan-20	3,785,473
Feb-20	3,653,292
Mar-20	3,497,403
Grand Total	**47,514,850**

11.24 The historical CAGR for power charges is given below:

Table 108: Historical CAGR for power charges

Particulars	FY20 (INR cr.)	CAGR (2016-2020)	CAGR (2011-2015)
Power Charges	36.00	20.7%	19.9%

11.25 Power unit consumption can be bifurcated into fixed unit consumption and variable unit consumption which is linked to changes in traffic.

11.26 For the months of April 2020 and May 2020 which had almost nil passenger traffic, the fixed units consumption of CIAL was approximately 75,000 units per day. The variable power unit consumption was also computed to be approximately 0.079 per pax per day for CIAL.

11.27 Based on the traffic growth, the variable unit consumption for CIAL was forecasted from FY 2021 till FY 2026. By adding the fixed unit consumption to the variable unit consumption, total power unit consumption was forecasted for CIAL.

11.28 The projected power charges for CIAL is given below:

Table 109: Projected Power charges for CIAL for the third control period

Particulars* (INR cr.)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Total units consumed (in lakhs)	475	317	403	488	533	558	587
Power units supplied by KSEB		0	0	0	0	0	21
Power units supplied by CIAL infra		566	566	566	566	566	566

Particulars* (INR cr.)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Effective rate of KSEB		7.1	7.9	7.9	7.9	8.6	8.6
Effective rate of CIAL infra		6.8	6.8	6.8	6.8	6.8	6.8
Power charges - Total		**24.8**	**31.1**	**36.8**	**39.9**	**42.0**	**44.3**

*difference is due to rounding off

Water charges

11.29 The historical CAGR for water charges is given below:

Table 110: Historical CAGR for Water Charges

Particulars	FY20 (INR cr.)	CAGR (2016-2020)
Water Charges	1.27	6.1%

11.30 Water unit consumption from FY 2021 till FY 2026 has been changed in proportion with the power units. Water unit rate has been increased by 20% in FY 2023.

11.31 The projected water charges for CIAL is given below:

Table 111: Projected Water Charges for CIAL

Particulars* (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Water Charges	1.1	1.6	1.7	1.8	1.9

*difference is due to rounding off

Fuel generator charges

11.32 The historical CAGR for Fuel charges is given below:

Table 112: Historical CAGR for Fuel Charges

Particulars	FY 2020 (INR cr.)	CAGR (2016-2020)
Fuel Charges	0.49	36.2%

11.33 Fuel consumption from FY 2021 till FY 2026 has been changed in proportion with the power units. Fuel generator charges have been increased by 10% year on year basis.

11.34 The projected fuel generator charges for the next control period shown in table below:

Table 113: Projected Fuel generator charges for next control period

Particulars* (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Fuel Charges	0.5	0.7	0.8	0.9	1.1

*difference is due to rounding off

Utility service charge

11.35 As per the direction of AERA in the 2nd control period of CIAL, the revenue collected from the utility service charge is netted off against the utility expenses. The utility service charges forecasted by CIAL for the 3rd control period is shown in the table below:

Table 114: Projected utility service charges for 3rd control period

Particulars* (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Utility service charges	**4.9**	**6.7**	**7.3**	**7.7**	**8.2**
As % of utility expenses	15.0%	17.2%	17.2%	17.2%	17.2%

*difference is due to rounding off

Safety & Security Expenses

11.36 The historical CAGR for Safety and Security Expenses have been summarized in the table below:

Table 115: Historical CAGR for Safety & Security Expenses

Particulars	FY20 (INR cr.)	CAGR (2016-2020)
Safety & Security Expenses	8.8	29.9%

11.37 The safety and security expenses are estimated to drop by 20% in FY 2021 due to impact of COVID-19. It is forecasted to reach pre-COVID levels by FY 2022. From FY 2023 onwards, it is forecasted to increase at a year on year growth rate of 10%.

11.38 The projected safety and security expenses for the next control period are as follows:

Table 116: Projected Safety & Security Expenses

Particulars* (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Safety & Security Expenses-Aero	8.5	9.3	10.2	11.3	12.4
Safety & Security Expenses-Non - Aero	0.3	0.4	0.4	0.5	0.5
Safety & Security Expenses-Total	**8.8**	**9.7**	**10.7**	**11.7**	**12.9**

*difference is due to rounding off

Vehicle Running & Maintenance Expenses

11.39 The vehicle running and maintenance expenses are estimated to drop by 40% in FY 2021 due to impact of COVID-19. It is forecasted to reach pre-COVID levels by FY 2022. From FY 2023 onwards, it is forecasted to increase at a year on year growth rate of 10%.

11.40 The projected vehicle running & maintenance expenses for the next control period are as follows:

Table 117: Projected Vehicle Running & Maintenance Expenses

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Vehicle Running & Maintenance Expenses - Aero	0.94	1.04	1.14	1.26	1.38
Vehicle Running & Maintenance Expenses-Non - Aero	0.04	0.04	0.05	0.05	0.06
Vehicle Running & Maintenance Expenses-Total	**0.98**	**1.08**	**1.19**	**1.31**	**1.44**

*difference is due to rounding off

Housekeeping Expenses

11.41 The historical CAGR for housekeeping expenses have been summarized in the table below:

Table 118: Historical CAGR for Housekeeping Expenses

Particulars	FY20 (INR cr.)	CAGR (2016-2020)	CAGR (2011-2015)
Housekeeping Expenses	11.6	14.8%	18.6%

11.42 Since housekeeping expenses are a manpower driver cost, minimal impact of COVID-19 is expected on these costs. It is expected to drop by 10% in FY 2021. It is forecasted to reach pre-Covid levels by FY 2022. From FY 2023 onwards, it is forecasted to increase at a year on year growth rate of 10%.

11.43 The projected housekeeping expenses for the next control period are as follows:

Table 119: Projected Housekeeping expenses

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Housekeeping Expenses-Aero	11.1	12.3	13.5	14.8	16.3
Housekeeping Expenses-Non - Aero	0.4	0.5	0.5	0.6	0.7
Housekeeping Expenses-Total	**11.6**	**12.8**	**14.0**	**15.4**	**17.0**

*difference is due to rounding off

Consumables Expenses

11.44 The historical CAGR for consumables expenses have been summarized in the table below:

Table 120: Historical CAGR for Consumables Expenses

Particulars	FY 2020 (INR cr.)	CAGR (2015-2020)	CAGR (2011-2015)
Consumables Expenses	3.80	6.6%	52.9%

11.45 The consumables expenses are estimated to remain at the same level as FY 2020 in FY 2021 because of increase in COVID related consumables. From FY 2022 onwards, it is forecasted to increase at a year on year growth rate of 6.6% in line with the 5-year CAGR from 2015-2020.

11.46 The projected consumables expenses for the next control period are as follows:

Table 121: Projected Consumables Expenses

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Consumables Expenses-Aero	3.9	4.1	4.4	4.7	5.0
Consumables Expenses-Non-Aero	0.2	0.2	0.2	0.2	0.2
Consumables Expenses-Total	**4.0**	**4.3**	**4.6**	**4.9**	**5.2**

*difference is due to rounding off

CUTE Operating Expenses

11.47 CIAL has entered into contracts with SITA and Glidepath for the CUTE services. SITA contract is valid upto FY 2022 and Glidepath contract is valid upto FY 2026.

11.48 CUTE operating expenses have been forecasted based on contractual maintenance charges of SITA and Glidepath. Post expiry of SITA contract in FY 2022, the maintenance charges of FY 2022 are assumed to increase by 10% annually.

11.49 The projected CUTE operating expenses for the next control period are as follows:

Table 122: CUTE Operating Expenses

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
CUTE Operating Expenses-SITA	2.4	2.6	2.9	3.2	3.5
CUTE Operating Expenses-Glidepath	4.0	4.1	4.3	4.5	4.7
CUTE Operating Expenses-Total	**6.3**	**6.8**	**7.2**	**7.7**	**8.2**

*difference is due to rounding off

Other Operational Expenses

11.50 Other operational expenses include miscellaneous expenses and CSR expenses.

11.51 CSR expenses are calculated as 2% of the average profit before tax of the last 3 financial years. CSR expenses have been excluded from the aeronautical operational expenditure as per AERA's 2nd control period order for CIAL.

11.52 The historical CAGR for miscellaneous expenses have been summarized in the table below:

Table 123: Historical CAGR of miscellaneous expenses

Particulars	FY20 (INR cr.)	CAGR (2015-2020)
Other Operational Expenses	7.6	4.1%

11.53 The miscellaneous expenses are estimated to remain at the same level as FY 2020 in FY 2021 because of increase in COVID related expenses. From FY 2022 onwards, it is forecasted to increase at a year on year growth rate of 4.1% in line with the 5-year CAGR from 2015-2020.

11.54 The projected other operational expenses for the next control period are as follows:

Table 124: Projected Other Operational Expenses

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Other Operational Expenses-Aero	7.6	7.9	8.2	8.6	8.9
Other Operational Expenses - Total	**9.8**	**9.4**	**11.3**	**17.4**	**22.2**

*difference is due to rounding off

Administration and General Cost

11.55 Different components of administrative and general costs have been projected based on relevant drivers like historical CAGR, inflation (WPI) and as % of gross block. Historically, the CAGR for administration & general cost is shown below:

Table 125: Historical CAGR for Administration and General Cost Expenses

Particulars	FY20 (INR cr.)	CAGR (2016-2020)
Administration and General Cost	42.1	41.2%

11.56 The forecast basis for various components of administration expenses are as follows:

Table 126: Forecast basis for various components of admin expenses

Administration Expenses	Forecast basis
Repairs to office equipment	Repairs to office equipment has been forecasted based on actual R&M expense as % of gross block in FY 2020 and the internal technical estimates. For 2021, a 15% reduction has been assumed due to impact of COVID.
Rent	Rent charges has been increased by year on year growth rate of 8%. Rent has been kept constant for FY 2021.
Rates and Taxes	Rates and taxes have been kept constant
Printing and Stationery	For 2021, a 50% reduction has been assumed due to impact of COVID and in FY 2022, it is estimated to reach pre-COVID levels. Printing and stationery expenses have been forecasted to increase by inflation from FY 2023 onwards.
Telephone, Postage and Communication	Telephone, postage and communication expenses increased by 10.3%, 5-year CAGR from FY 2015 to FY 2020

Administration Expenses	Forecast basis
Travelling expense	For 2021 and FY 2022, a reduction of 50% and 25% over FY 2020, respectively is assumed due to impact of COVID. Post FY 2023, travelling expenses have been increased by 10% year-on-year.
Insurance	Insurance expenses is for a package deal consisting of various risks such as operational large policy, public liability policy, Mediclaim policy, airport operator's policy, standalone terrorism policy, director's liability policy, etc. The insurance expense for FY 2021 is estimated to be INR 6.05 cr. Insurance expenses from FY 2022 onwards have been projected using historical % (average of last 3 years) of gross block.
Advertisement	Advertisement expenses have been forecasted to decrease by 30% in 2021 due to COVID, reaching pre-COVID levels in 2022 and then estimated to increase by 10% annually
Bank charges	Forecast was done as an average of last 5 years' expenses. They are not estimated to decrease due to COVID.
Auditors remuneration	Auditors remuneration is estimated to remain constant for the year 2021 and then estimated to grow at a CAGR of 8%.
Professional charges	Professional charges are estimated to reduce by 20% for the year 2021 due to COVID, reaching pre-COVID levels in 2022 and then estimated to increase by 10% annually
Flood mitigation expenses	Flood mitigation expenses are capital expenditure items for construction of bridges which have been expensed out in the P&L as per the accounting treatment. These measures were recommended by the KITCO study to mitigate the risk of floods. These have been included in the O&M expenses for calculation of ARR. Cost for Chowwara Bridge is included in the 3rd control period.
Provision of doubtful debts/ advances	Not included in aeronautical expenses. It is forecasted to decrease by 50% in FY 2021 and again by 50% in FY 2023.
Bad debts written off	Considered 50% of Provision of doubtful debts/ advances
Foreign exchange losses	Projected to remain constant through the 3rd control period
Director sitting fees	Projected to increase by 10% annually

11.57 The administrative and general expenses forecasted for the next control period are shown in the table below:

Table 127: Projected Administrative and General Expenses

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Repairs to Office Equipment	2.2	2.3	2.4	2.5	2.6
Rent	0.1	0.1	0.1	0.1	0.1
Rates & Taxes	3.4	3.4	3.4	3.4	3.4
Printing & Stationery	0.4	0.4	0.4	0.4	0.4
Telephone, Postage and Communication	0.7	0.8	0.9	0.9	1.0
Travelling Expenses	1.4	1.8	2.0	2.2	2.4

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Insurance	6.4	7.4	8.5	9.1	9.5
Advertisement	1.4	1.6	1.7	1.9	2.1
Loss on sale of asset	0.1	0.1	0.1	0.1	0.2
Bank Charges	0.2	0.2	0.2	0.2	0.3
Foreign Exchange Loss	0.9	0.9	0.9	0.9	0.9
Auditors Remuneration	0.1	0.1	0.1	0.1	0.1
Professional Charges	1.6	1.7	1.9	2.1	2.3
Provision for doubtful debts/advances	2.0	1.0	1.0	1.0	1.0
Directors Sitting fees	0.1	0.2	0.2	0.2	0.2
Bad debt written off	1.0	0.5	0.5	0.5	0.5
Flood Mitigation Expenses	1.0	10.5	0.0	0.0	0.0
Total	**23.1**	**32.9**	**24.4**	**25.7**	**27.1**
Admin and General Expenses - Aero	**20.3**	**30.1**	**22.4**	**23.8**	**25.1**

*difference is due to rounding off

Summary of aeronautical Operations & Maintenance Expenditure

11.58 Summary of aeronautical O&M expenses is given in the table below:

Table 128: Summary of aeronautical O&M Expenses for third control period

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Employees' Cost	84.9	90.8	97.2	104.0	111.2
Operational Expenses	93.7	103.2	113.2	123.9	133.7
Admin Expenses	20.3	30.1	22.4	23.8	25.1
Total	**198.9**	**224.1**	**232.8**	**251.6**	**270.0**

*difference is due to rounding off

12.Non-Aeronautical Revenues

12.1 Projections for non-aeronautical revenues have been made for specific components considering impact of COVID – 19, agreements entered with various vendors, estimated change in traffic and inflation. Following are the non-aeronautical revenue streams:

I. Non-aeronautical royalties, license fees and lease rentals
II. Duty free revenues
III. Interest income
IV. Other income
V. Revenue from Golf Course, Trade Center and other commercial activities

12.2 Below table provides the summary of the methodology adopted to forecast non-aeronautical revenues from FY 2021 till FY 2026.

Table 129: Methodology to forecast non-aeronautical revenues

Non-aeronautical revenues	Forecast basis
Non-aeronautical royalties, license fees and lease rentals	• Royalty engineering, royalty security and royalty terminal handling has remained unchanged for FY 2021 due to COVID-19 and thereafter, have been increased by 10% per annum. • License fee for car park – License fee for car park from April 2020 till September 2020 is not significant. CIAL has awarded the car park tender in September 2020 at a license fee of INR 12 lakhs per month till March 2021. Accordingly, car park revenues are projected at INR 72 lakhs for FY 2021. Car park revenues are projected from FY 2022 till FY 2026 based on the impact of COVID-19 and the passenger traffic growth rate. • License fee for catering services has been forecasted based on change in passenger traffic. • Since the equity investment in subsidiaries is not considered as part of the equity component for calculation of FRoR, CIAL has excluded lease rentals from subsidiaries from aeronautical and non-aeronautical revenues.

Non-aeronautical revenues	Forecast basis
	• **Other license fee** - F&B, Retail, GH Agency Space, Hoarding/Board, Airline Space and land space excluding BPCL Fuel Hydrant Rent, Baggage wrapping service, forex counter, Antenna Space, ATM, Duty free shops, mobile counter and miscellaneous has been forecasted as per the individual contract assumed to be extended upto March 2026. The methodology for projecting these revenues is bifurcated into 3 heads: **I. Fixed Rentals** • Lease rentals from BPCL for the area leased for fuel hydrant facility are forecasted to increase by 12.5% per annum as per the contract with CIAL. As per the directions in the 2nd control period by AERA, lease rentals from BPCL's fuel hydrant facility revenues are deducted from the non-aeronautical revenues and considered as part of the aeronautical revenues. • Lease rentals for land allotted for petrol pumps are forecasted to increase by 12.5% per annum as per the existing contract of CIAL. • Airline space rentals - CIAL has noted that airline space rentals have been considered as non-aeronautical revenues in orders issued for AAI Airports, Delhi, Mumbai, Hyderabad and Bangalore airports. Accordingly, to keep a consistent treatment between airports, CIAL has also considered airline space rental as non-aeronautical revenues in the 3rd control period. Airline space rentals are escalated by 10% per annum effective from July 1 of every year. However, to provide relief to the airlines from the impact of COVID-19, escalation for FY 2021 has been suspended.

Non-aeronautical revenues	Forecast basis
	• Other fixed rentals – Rentals escalated as per the respective contracts. **II. Minimum Monthly Guarantee** • MMG contracts majorly consist of retail contracts. • To provide relief to the non-aeronautical vendors of CIAL from the impact of COVID-19, CIAL has decided to reduce the contractual MMG in proportion with the drop in the passenger traffic of the terminal in which the non-aeronautical vendor is operating. For example, if the contractual MMG of the retailer is INR 100 and the retailer is in the domestic terminal which expects a drop of 80% in domestic passenger traffic, MMG payable will also drop by 80% to INR 20. • Such relief is assumed to be applicable till the passenger traffic recovers to pre-COVID levels, post which contractual increase in the MMG is assumed till FY 2026. **III. Revenue Share** • Forex counters basically operate on revenue share basis. Due to uncertainty in forecasting the revenues from forex counters considering the dip in passengers, CIAL has taken the approach followed for MMG linked contracts, that is, linking the revenue to passenger numbers. • For forex counter of SBT and Federal Bank, revenues are projected in proportion to passenger traffic growth rate.
Duty free revenues	CIAL has given the contract to CDRSL for managing the duty-free operations against a payment of revenue share. AERA had allowed 30% revenue share on the duty-free revenues as per the previous order. During the initial period of 2nd control

Non-aeronautical revenues	Forecast basis
	period, CIAL was able to generate higher revenue share from the contract with CDRSL. The duty-free business has been impacted severely because of disruption of international flights under Covid-19. CIAL expects to generate revenue share of 30% from CDRSL on recovery of traffic during the 3rd control period. Duty free revenues have been projected by forecasting the duty-free sales per passenger. Considering the impact of COVID-19 on the spending patterns of the passengers, the duty-free sales per passenger is assumed to decrease by 15% in FY 2021, followed by a drop of 8% in FY 2022 on FY 2020 base and then, reach pre-COVID levels in FY 2023. Thereafter, it is forecasted to increase by the CAGR of 3.1% for duty free sales per passenger from FY 2015 to FY 2020.
Interest income	Interest income has been forecasted based on deposit rates and the last year's closing bank balance. Additionally, as CIAL is using internal cash accruals for capital expenditure during the third control period, only a minimum cash balance of INR 20 cr. has been maintained.
Other income	Other income includes rent & services from other activities, miscellaneous income and public admission fees. Rent & services from other activities and public admission fees are projected in proportion to passenger traffic growth rate. Miscellaneous income is forecasted to reach pre-COVID levels by FY 2022 and it is assumed to increase by inflation from FY 2023 onwards.
Revenue from Golf Course, Trade Center and other commercial activities	This consists of income from golf course facilities, income from trade fair centre, and income from commercial complex. I. The income from golf course facilities is estimated to remain the same through the 3rd control period due to pre-paid membership fees.

Non-aeronautical revenues	Forecast basis
	II. Trade fair centre is currently being used to treat COVID-19 patients. Therefore, nil income is estimated for FY 2021. In FY 2022, revenues are projected to be 50% of FY 2020 levels and in FY 2023, it is projected to reach pre-COVID levels. From FY 2024, growth rate is assumed as 10% per annum. III. Commercial complex is estimated to generate revenues from FY 2023 post completion of the construction works.

Non-aeronautical royalties, license fees and lease rentals

12.3 The non-aeronautical royalties, license fees and lease rentals for the 3rd control period have been forecasted in the table below –

Table 130: Forecast of Non-Aeronautical royalties, licensee fees and lease rentals for 3rd control period

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Royalty-Engineering	0.2	0.2	0.3	0.3	0.3
Royalty-Security	1.2	1.4	1.5	1.6	1.8
Royalty-Terminal Handling	0.1	0.1	0.2	0.2	0.2
License Fee Car park	3.2	6.4	8.4	11.6	12.7
License Fee Catering Services	2.6	4.2	5.1	5.6	6.2
F&B	14.5	26.9	34.2	38.6	42.3
Retail Shops	11.9	20.5	25.5	28.4	31.3
GH Agency Space	11.4	12.8	13.9	12.8	13.8
Hoarding/Board	11.2	19.2	21.8	24.0	26.4
Airline Space	8.7	9.8	10.7	11.8	13.0
Land Space excluding BPCL fuel hydrant rent	2.8	3.1	3.4	3.8	4.1
Baggage Wrapping Space	5.3	5.9	6.5	7.1	7.8
Forex Counter	4.1	7.3	10.1	11.1	11.7
Forex Counter-SBT and Federal Bank	2.0	3.3	4.0	4.4	4.9
Antenna Space	2.3	2.5	2.7	3.0	3.3
ATM	1.6	1.8	1.9	2.1	2.4
Duty Free Shops-Rentals	0.9	0.9	1.0	1.1	1.2
Mobile Counter	0.6	1.1	1.6	1.8	2.0
Miscellaneous	1.9	2.4	2.6	2.8	3.1
Total	**86.6**	**129.7**	**155.4**	**172.1**	**188.5**

*difference is due to rounding off

Duty Free Revenues to CIAL

12.4 The forecasted revenue share from duty free operations for the 3rd control period is given in the table below.

Table 131: Forecast of duty-free revenues for 3rd control period

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Per pax duty free sales	473.9	515.1	531.1	547.7	564.8
Growth Rate (base year of FY 2020 for FY 2022 and FY 2023)	**-8.0%**	**0.0%**	**3.1%**	**3.1%**	**3.1%**
Duty free sales	98.4	182.8	250.6	279.0	310.0
Add: Advertisement Revenues	1.5	1.5	1.5	1.5	1.5
Less: Discount Offered	9.7	18.0	24.7	27.5	30.5
Duty free revenues (Net)	90.2	166.3	227.4	253.0	281.0
Revenue Share	30%	30%	30%	30%	30%
Duty free revenues to CIAL	**27.1**	**49.9**	**68.2**	**75.9**	**84.3**
Per pax duty free paid to CIAL	130.3	140.6	144.6	149.0	153.6

*difference is due to rounding off

Interest Income

12.5 The forecast of interest income for the 3rd control period is given in the table below.

Table 132: Forecast of Interest income for CIAL for 3rd control period

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Interest income	1.0	0.9	0.9	5.9	20.6

Other Income

12.6 Other income includes income from rent & services-other activities, miscellaneous income and public admission fees. The forecast of other income for the 3rd control period is given in the table below.

Table 133: Forecast of other income projected for CIAL for 3rd control period

Particulars (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Income from rent & services from other activities	0.4	0.7	0.9	1.0	1.1
Miscellaneous Income	5.2	5.3	5.4	5.6	5.7
Public Admission Fees	0.7	1.1	1.3	1.5	1.6
Total	**6.3**	**7.1**	**7.6**	**8.0**	**8.4**

*Difference is due to rounding off

Revenue from Golf Course, Trade Center and other commercial activities

12.7 The forecast of income from Golf Course, Trade Center and other commercial activities for the 3rd control period is given in the table below.

Table 134: Forecast of revenue from Golf Course, Trade Center and other Commercial Activities for CIAL for 3rd control period

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Income from Golf Course and Facilities	3.1	3.1	3.1	3.1	3.1
Income from Trade Fair Centre	1.7	3.3	3.7	4.0	4.4
Income from Commercial Complex	0.0	1.2	2.5	4.0	5.5
Total	**4.8**	**7.6**	**9.3**	**11.1**	**13.0**

*Difference is due to rounding off

Summary of Non-Aeronautical Revenue forecast

12.8 The non-aeronautical revenue forecast for the 3rd control period is summarized in the table below.

Table 135: Summary of Non-Aeronautical Revenue Forecast for 3rd control period

Particulars* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Non-Aeronautical royalties, license fees and lease rentals	86.6	129.7	155.4	172.1	188.5
Duty free revenues	27.1	49.9	68.2	75.9	84.3
Interest Income	1.0	0.9	0.9	5.9	20.6
Other Income	6.3	7.1	7.6	8.0	8.4
Income from Golf Course and Facilities, Trade Fair Centre and Commercial Complex	4.8	7.6	9.3	11.1	13.0
Total	**125.7**	**195.2**	**241.4**	**273.0**	**314.8**

*Difference is due to rounding off

13.Tax on Income

13.1 Similar to the approach followed to true-up the tax of 2nd control period, CIAL has bifurcated the total taxes to be paid into aeronautical and non-aeronautical based on the methodology directed by AERA in its Order no 34/2019-20 dated 27th March 2020 for Hyderabad Airport. As per the order, the total tax has been bifurcated into aeronautical and non-aeronautical based on percentage share of aeronautical PBT and non-aeronautical PBT. For tax computation of 3rd control period, CIAL has considered the estimated tax as per the P&L statement.

13.2 In the tax computation, the aeronautical revenues have been forecasted to recover the ARR of 3rd control period.

13.3 Calculations for aeronautical tax and non-aeronautical tax is given in the table below.

Table 136: Forecast of aeronautical tax for 3rd control period

Aero Tax* (in INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Aero Revenues	466.5	788.8	971.8	1096.3	1235.9
30% of Non-aero revenues	37.7	58.6	72.4	81.9	94.4
Aero Opex	198.9	224.1	232.8	251.6	270.0
Aero Depreciation	147.5	161.5	186.0	196.5	188.4
Interest	64.1	74.5	77.9	70.1	57.5
PBT	93.9	387.3	547.5	659.9	814.5
Tax Rate Applicable	25%	25%	25%	25%	25%
Aero Tax	**23.6**	**97.5**	**137.8**	**166.1**	**205.0**
70% of Non-aero Revenues	88.0	136.6	169.0	191.1	220.4
Non-aero Opex	18.1	20.1	22.4	29.7	36.8
Non-aero Depreciation	13.3	15.2	16.7	14.8	17.1
Interest	11.8	13.5	13.8	12.0	11.2
PBT	44.7	87.9	116.1	134.6	155.2
Tax rate applicable	25%	25%	25%	25%	25%
Non-aero tax	**11.3**	**22.1**	**29.2**	**33.9**	**39.1**
Aero Tax %	**68%**	**82%**	**83%**	**83%**	**84%**
Tax as per P&L	**34.9**	**119.6**	**167.0**	**199.9**	**244.0**
Aero Tax for ARR	**23.6**	**97.5**	**137.8**	**166.1**	**205.0**

*Difference is due to rounding off

14. Aggregate Revenue Requirement (ARR)

14.1 CIAL has estimated the WPI inflation based on RBI's Survey of Professional Forecasters on Macroeconomic Indicators dated 9 October 2020. Below table provides the estimated WPI inflation for the 3rd control period:

Table 137: Estimated WPI inflation for 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%

14.2 Based on the above-mentioned regulatory building blocks, the ARR for the third control period has been computed and is summarized below:

Table 138: Aggregate Revenue Requirement (ARR) for 3rd control period

Particulars*(in INR crore)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
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 Regulatory Base	211.4	230.4	262.7	284.3	282.6
Return on Land	9.8	9.8	9.8	9.8	9.8
Depreciation	147.5	161.5	186.0	196.5	188.4
Operation & Maintenance cost	198.9	224.1	232.8	251.6	270.0
Tax	23.6	97.5	137.8	166.1	205.0
Working Capital interest	9.4	5.5	0.0	0.0	0.0
Less: 30% of Revenue from Non-Aeronautical Revenue	37.7	58.6	72.4	81.9	94.4
True up of previous control period	602.2	0.0	0.0	0.0	0.0
Aggregate Revenue Requirement (ARR)	**1165.0**	**670.2**	**756.7**	**826.4**	**861.3**
Yield per passenger	**859.7**	**879.5**	**899.7**	**920.4**	**941.6**
Aero revenues	**466.5**	**788.8**	**971.8**	**1096.3**	**1235.9**
Over-recovery/ (Shortfall)	**-698.4**	**118.6**	**215.1**	**269.9**	**374.6**
PV of over-recovery/ (shortfall) (31 March 2021)	**-698.4**	**105.4**	**169.9**	**189.5**	**233.7**
Sum of PV of over-recovery/ (shortfall)	**0.0**				

*difference is due to rounding off

15.Annexures

Annexure 1: Apron Costing per sqm breakup for civil works excluding IDC and electrical works

Sno	Description of Item	Amount (in INR cr.)
A	**Apron**	
1.	Clearing Jungle	0.11
2.	Earthwork Excavation	3.57
3.	Banking Earth	0.02
4.	S/F Good earth	0.20
5.	SG mix	4.26
6.	SG mix with available earth	1.20
7.	Expansion Joint (20cm PQC)	0.29
8.	Expansion Joint (45cm PQC)	0.22
9.	Dowel bar	5.37
10.	Painting	0.14
11.	Letter, Emblem painting	0.01
12.	GSBC	9.23
13.	DRLCC	14.16
14.	PQC	53.08
15.	Cast Fe Manhole	0.23
16.	40mm to 12mm aggregate	1.76
17.	Escalation	2.62
	Total	96.5
	Apron Area	2,22,660
	Sqm rate of Apron - Rs	**4,335**
B	**Blast Fence**	
1.	Structural steel work	0.4
2.	Decking profile	0.2
3.	Foundation bolt	0.0
	Total	0.7
C	**Drain Work**	
	M Sand filling	1.7
	1:03:06	0.1
	1:02:04	0.0
	1:04:08	0.4
	M25	2.6

Sno	Description of Item	Amount (in INR cr.)
	Centering & Shuttering	0.5
	Steel	4.3
	F900 grating	0.3
	Total	**10.0**
D	**Stone column works**	**33.9**
E	**Bitumen work (connection to Charlie and Shoulder)**	
1.	WMM	0.8
2.	Plum Concrete	3.1
3.	Emulsion	0.0
4.	Tack coat	0.3
5.	DBM	3.0
6.	SDAC	1.4
7.	DAC	0.9
8.	Paver block	2.5
F	**Miscellaneous (Dismantling existing structures, Hume pipes, construction of compund wall for separating operational area etc.)**	**10.5**
	Total	**164 crore**

Annexure 2: Land break up for calculation of return on land

Description	Area (Acres)	Purpose
Total area (A)	**1261.24**	
Non – aero land breakup		
Golf excluding DVOR Influence area	59.66	Non-Aero
IT car park	10.61	Non aero
Domestic car park	7.59	Non aero
Trade fair centre	5.5	Non aero
Federal bank building	0.2	Non aero
Canteen and prepaid restroom	2.23	Non aero
Duty free warehouse and yard	4.5	Non-Aero
Star Hotel	1.91	Non-Aero
Additional area for star hotel car park	3.09	Non-Aero
Future development area (near ROB)	33	Non-Aero
Airport museum	2.5	Non-Aero
Non – aero land area total (B)	**130.79**	
Aero land area (A-B)	**1130.45**	
Non-Aero % (B/A) *100	***10.4%***	

Annexure 3: KITCO report on Aero-Non-Aero bifurcation of CIAL's terminals

KITCO Ltd.
(Estd. In 1972 by IDBI & Govt. of Kerala)

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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	**220651**	sqm
Combined Non-Aero Area	15872	sqm
Combined Aero area	204780	sqm
Combined Non-Aero % of the Terminals in CIAL	**7.19**	**%**

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Annexure 4: Internal roads and car park – cost details and bifurcation

S. no.	Work	Contractor and duration	Total cost of internal roads and car park (INR cr.)	Cost of internal roads (INR cr.)	Cost of car park (INR cr.)	Non-aero ratio (%)
1	Modification of Car park and Construction of Internal Roads and Drains	M/s Vishal Infrastructures Ltd (2015 – 2017)	32.01	21.04	10.97	34.3%
2	Construction of Road to Terminal 1 and associated works at CIAL	M/s Tarmat Ltd (2018 – 2019)	22.19	14.69	7.50	33.8%