

F. No. AERA/20010/MYTP/BIAL/CP-III/2021-22
CONSULTATION PAPER NO: 10/2021-22



AIRPORTS ECONOMIC REGULATORY AUTHORITY OF INDIA

**IN THE MATTER OF
DETERMINATION OF AERONAUTICAL TARIFF FOR
KEMPEGOWDA INTERNATIONAL AIRPORT, BENGALURU (BLR)
FOR THE THIRD CONTROL PERIOD
(01.04.2021 - 31.03.2026)**

DATE OF ISSUE: 22 JUNE, 2021

**AERA BUILDING
ADMINISTRATIVE COMPLEX
SAFDARJUNG AIRPORT
NEW DELHI 110 003**

Stakeholder Comments

The Authority is aware of the fact that the aviation sector has been severely affected by the COVID-19 pandemic and the associated lockdown situation in the major cities around the world which has resulted in restrictions in air travel both domestic and international. The recovery in air traffic by the end of FY 2021 has been affected due to the second wave of COVID-19 in India. In this background, Authority understands the challenges involved in the traffic forecast. Authority has put forward traffic forecast proposals in the Consultation Paper based on the inputs provided by the Airport Operator in the Multi Year Tariff Proposal (MYTP) and Authority's own analysis. Stakeholders are expected to give their valuable suggestions/comments on these proposals during the Consultation process.

The Authority has used estimated figures for FY 2021 for various building blocks for true-up of the Second Control Period as the audited financial statements of FY 2021 were not available at the time of release of this Consultation Paper. This is done to avoid delay in the tariff determination exercise for the Third Control Period and the Authority shall use the audited financial statements of FY 2021 in the final Tariff Order.

The Authority shall consider written evidence-based feedback, comments and suggestions from stakeholders (preferably in electronic form (editable "Microsoft Word" file) on the proposals made in the Consultation Paper No. 10/ 2021-22 dated 22 June 2021 at the following address:

Director (P&S)

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AERA Administrative Complex,

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Stakeholder Consultation Meeting:	9 July 2021
Last date for submission of Stakeholder Comments:	20 July 2021
Last date for submission of Counter Comments:	30 July 2021

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

For any clarification/information, Director (P&S, Tariff) may be contacted at Telephone Number:
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List of Abbreviations

Abbreviation	Expansion
AAI	Airports Authority of India
ACI	Airport Council International
AERA	Airports Economic Regulatory Authority of India
AHU	Air Handling Unit
AISATS	Air India SATS
AOD	Airport Opening Date
APM	Automatic Passenger Movement
ARFF	Aviation Rescue and Fire Fighting
ARR	Aggregate Revenue Requirement
ASQ	Airport Service Quality
ASRS	Automated Storage & Retrieval System
ASSOCHAM	Associated Chambers of Commerce and Industry of India
ATC	Air Traffic Control
ATM	Air Traffic Movement
BACL	Bengaluru Airport City Limited
BAHL	Bangalore Airport Hotels Limited
BCAS	Bureau of Civil Aviation Security
BHS	Baggage Handling System
BIAL	Bangalore International Airport Limited
BMRL	Bengaluru Metro Rail Corporation Limited
BMTCL	Bangalore Metropolitan Transport Corporation
CA	Concession Agreement
CAGR	Compounded Annual Growth Rate
CCTV	Closed Circuit Television
CFT	Crash Fire Tender
CGF	Cargo, Ground handling & Fuel farm
CIC	Common Infrastructure Charges
CII	Confederation of Indian Industry
CISF	Central Industrial Security Force
CNS	Communication, Navigation and Surveillance
CP	Control Period
CPI	Consumer Price Index
CSR	Corporate Social Responsibility
CUSS	Common User Self Service
CUTE	Common User Terminal Equipment
CWIP	Capital Work in Progress
D/E	Debt/Equity
DFMD	Door Frame Metal Detector
DG	Diesel Generator
DGCA	Directorate General of Civil Aviation
DIAL	Delhi International Airport Limited
EAC	Estimate at Completion
EBITDA	Earnings before Interest, Tax, Depreciation and Amortization
ECT	Eastern Connectivity Tunnel

Abbreviation	Expansion
EIL	Engineers India Limited
EoI	Expression of Interest
ETV	Elevating Transfer Vehicles
F&B	Food and Beverages
FA	Financing Allowance
FIA	Federation of Indian Airlines
FRoR	Fair Rate of Return
FY	Financial Year
GHIAL	GMR Hyderabad International Airport Limited
GoI	Government of India
GoK	Government of Karnataka
GSE	Ground Support Equipment
GST	Goods and Services Tax
HHMD	Hand-Held Metal Detector
HIAL	Hyderabad International Airport Limited
HR	Human Resource
HRA	House Rent Allowance
HVAC	Heat, Ventilation and Air Conditioning
IATA	International Air Transport Association
ICT	Information and Communication Technology
IDC	Interest During Construction
IGAAP	Indian Generally Accepted Accounting Principles
IIM	Indian Institute of Management
INR	Indian Rupee
IoT	Internet of Things
IRR	Internal Rate of Return
IT	Income Tax
ITI	Industrial Training Institute
KIA	Kempegowda International Airport
KL	Kilo Litres
KSIIDC	Karnataka State Industrial and Infrastructure Development Corporation
kVA	Kilo Volt Amperes
kWH	Kilowatt Hour
LED	Light Emitting Diode
LLA	Land Lease Agreement
MABB	Menzies Aviation Bobba Bangalore Private Limited
MAG	Minimum Annual Guarantee
MAR	Main Access Road
MAT	Minimum Alternative Tax
MCLR	Marginal Cost of Funds based Lending Rate
MIAL	Mumbai International Airport Limited
MLCP	Multi-Level Car Parking
MMTH	Multi Modal Transport Hub
MoCA	Ministry of Civil Aviation
MoEF	Ministry of Environment, Forest and Climate Change

Abbreviation	Expansion
MPPA	Million Passengers per Annum
MRO	Maintenance, Repair & Overhaul
MT	Metric Tonne
MYTO	Multi Year Tariff Order
MYTP	Multi Year Tariff Proposal
NAR	Non – Aeronautical Revenue
NHAI	National Highways Authority of India
NSPR	New South Parallel Runway
O&M	Operations & Maintenance
ORAT	Operational Readiness and Airport Transfer
P&L	Profit and Loss
PBB	Passenger Boarding Bridges
PBT	Profit Before Tax
PIDS	Perimeter Intrusion Detection System
PLF	Passenger Load Factor
PMC	Project Management Consultancy
PMO	Prime Minister's Office
PSF	Passenger Service Fee
PTB	Passenger Terminal Building
PV	Present Value
RAB	Regulatory Asset Base
RBI	Reserve Bank of India
RFP	Request for Proposal
RFQ	Request for Quotation
rites	Rail India Technical and Economic Service
RWH	Rainwater Harvesting
SAP	Systems Applications and Products
SAR	Secondary Access Road
SCP	Second Control Period
SLA	Service Level Agreement
SLM	Straight Line Method
SPOC	Single Point of Contact
SPRH	Service Provider Right Holder Agreement
SSA	State Support Agreement
STP	Sewerage Treatment System
SWAR	South West Access Road
SWM	Solid Waste Management
TCP	Third Control Period
TDSAT	Telecom Disputes Settlement and Appellate Tribunal
UDF	User Development Fee
UPS	Uninterruptible Power Supply
VDGS	Visual Docking Guidance System
VFR	Visiting family and relatives
VHT	Vapour Heat Treatment System
VIP	Very Important Person

Abbreviation	Expansion
VUP	Vehicular Underpass
WACC	Weighted Average Cost of Capital
WC	Working Capital
WPI	Wholesale Price Index
WTP	Water Treatment Plants

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1 **BACKGROUND**

1.1 **Introduction**

- 1.1.1 Bangalore International Airport Limited (also referred as “Bangalore Airport” or “BIAL”) 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. It was formed as a joint venture of private and public sector agencies in order to develop and operate the airport. The Karnataka State Industrial and Infrastructure Development Corporation (KSIIDC), a Public sector undertaking of the Government of Karnataka (GoK) and Airports Authority of India (AAI), a Government of India (GoI) undertaking, together hold 26% equity and the strategic joint venture partners hold the remaining 74%.
- 1.1.2 The GoI signed a concession agreement (CA) with BIAL on 5th July 2004. The CA defined the terms and conditions under which BIAL, as a private company, is entitled to build and run the airport. The term of the concession is for a period of 30 years from the Airport Opening Date, i.e., 24 May 2008, extendable by a further period of 30 years at the option of BIAL. As per the CA, the activities of customs, immigration, quarantine, security and meteorological service will be performed by the relevant government agencies at the airport and the Communication, Navigation and Surveillance (CNS) and air traffic management (ATM) will be performed by AAI. BIAL shall, in consideration for the grant of concession by GoI, pay to GoI a fee amounting to four percent (4%) of the gross revenue annually.
- 1.1.3 The GoK extended a soft loan of Rs. 350 crores to BIAL as a state support for which a State Support Agreement (SSA) was executed by GoK with BIAL. Further, GoK has also provided 4008 acres of land on rent and a Land lease agreement (LLA) was also executed in this regard.
- 1.1.4 At the time of financial closure and commencement of construction, the initial phase of Bengaluru International Airport (renamed as Kempegowda International Airport on 17th July 2013) was designed for handling about 4.5 million passengers per annum and the project cost was Rs. 1411.79 crore. However, owing to significant increase in aviation traffic, BIAL redesigned the initial phase midway through the implementation of the project, increasing the capacity of the airport to 11.4 million passengers per annum and the project cost to Rs. 1930.29 crore. This was undertaken so that the airport, at the Airport Opening Date (AoD), had the requisite capacity to handle the aviation traffic at the required/ prescribed service levels. The additional cost was met by increase in debt from lenders. Subsequently, certain project extension works were taken up with a supplemental expenditure budget of Rs. 540 crores (which was funded partly by raising additional equity from the shareholders and partly by further additional debt from lenders) taking the total project cost to Rs. 2470.29 crores.
- 1.1.5 The airport commenced its operations on 24 May 2008. The shareholding pattern of BIAL as of 31st March 2021 is given below:

Table 1: Shareholding pattern of BIAL

Shareholder	Shareholding (in %)
Fairfax Holdings	54%
Siemens Project Ventures GmbH	20%
Airports Authority of India – (GoI)	13%
Karnataka State Industrial Infrastructure Development Corporation Limited (GoK)	13%
Total	100%

1.2 Tariff setting principles for BIAL

1.2.1 The legislature has provided policy guidance to the Authority regarding determination of tariff for aeronautical services under the provisions of the AERA Act. The Authority is required to adhere to this legislative policy guidance in discharge of its functions in respect of major airports. These functions are indicated in Section 13 (1) of the AERA Act, which reads as under:

- a) *“to determine the tariff for aeronautical services taking into consideration -*
 - i. *the capital expenditure incurred and timely investment in improvement of airport facilities;*
 - ii. *the service provided, its quality and other relevant factors;*
 - iii. *the cost for improving efficiency;*
 - iv. *economic and viable operation of major airports;*
 - v. *revenue received from services other than the aeronautical services;*
 - vi. *concession offered by the Central Government in any agreement or memorandum of understanding or otherwise;*
 - vii. *any other factor which may be relevant for the purposes of this Act.*

Provided that different tariff structures may be determined for different airports having regard to all or any of the above considerations specified at sub-clauses (i) to (vii);

- b) *to determine the amount of development fees in respect of major airports;*
- c) *to determine the amount of passenger service fee levied under rule 88 of the Aircraft Rules, 1937 made under Aircraft Act, 1934 (22 of 1934);*
- d) *to monitor the set performance standards relating to quality, continuity and reliability of service as may be specified by the Central Government or any authority authorized by it in this behalf;*
- e) *to call for such information as may be necessary to determine the tariff under clause 13(1)(a).*
- f) *to perform such other functions relating to tariff, as may be entrusted to it by the Central Government or as may be necessary to carry out the provisions of this Act.”*

1.2.2 Further, the Authority had issued Order No.13/2010-11 dated 12th January 2011 – “In the matter of Regulatory Philosophy and Approach in Economic Regulation of Airport Operators” (Airport Order) and “The Airports Economic Regulatory Authority of India (Terms and Conditions for determination of tariffs for Airport Operators) Guidelines, 2011” dated 28th February 2011 (Airport Guidelines). These form the guiding principles of the Authority’s tariff determination methodology for Airport Operators including BIAL.

Authority’s orders applied in tariff proposals in this Consultation Paper

1.2.3 The Authority had issued Order No. 14/ 2016-17 on Till applicable for determination of Aeronautical Tariffs. Extract of the Order is as stated below:

“... The Authority will in future determine the tariffs of major airports under "Hybrid Till" wherein 30% of non-aeronautical revenues will be used to cross-subsidize aeronautical charges. Accordingly, to that extent the airport operator guidelines of the Authority shall be amended. The provisions of the Guidelines issued by the Authority, other than regulatory till, shall remain the same...”. Accordingly, the above order No. 14/ 2016-17 was applied by the Authority in determination of aeronautical tariffs for Second Control Period and the same order is being applied for the tariff determination for the Third Control Period.

- 1.2.4 The Authority had also issued Order No. 35/2017-18 dated 12th January 2018 together with Amendment No. 01 to Order No. 35/2017-18 dated 9th April 2018 detailing the useful lives of Airport Assets. The Authority has considered this Order on depreciation for BIAL effective from 1 April 2018 in the Second Control Period. The same approach is being followed in the Third Control Period.
- 1.2.5 The Authority issued Order No. 07/2016-17 dated 06th June 2016, in the matter of Normative Approach to Building Blocks in Economic Regulation of Major Airports – Capital Costs Reg. Normative Approach Order is applicable to BIAL as it is a major airport and will be appropriately applied by the Authority in tariff determination process.

1.3 Past Tariff determination history

- 1.3.1 A brief on the timeline of events for the First Control Period is as follows:
- a) BIAL vide their letter no. BIAL/AERA/MYTP/2011 dated 14th September 2011, in compliance of Order of Hon'ble High Court of Delhi, submitted its MYTP proposal for the First Control Period starting from FY 2011-12 to FY2015-16 for tariff determination for the Authority's consideration on 14th September 2011.
 - b) Pursuant to their submission, a series of discussions / meetings / presentations were held on the proposal including discussions in respect of the financial model developed by BIAL for this purpose.
 - c) The Authority considered and analysed the views of various stakeholders on the proposals of the Authority on various building blocks in respect of determination of aeronautical tariff for BIAL and determined the aeronautical tariff vide its Order No. 08 /2014-15 dated 10th June 2014 in the matter of Determination of Aeronautical Tariff in respect of BIAL for the First Control Period (1st April 2011 – 31st March 2016).
- 1.3.2 A brief on the timeline of events for the Second Control Period is as follows:
- a) BIAL made its initial MYTP submissions in March 2016 under Single Till and 30% Hybrid Till. BIAL had subsequently responded to certain queries by the Authority during the period November 2016 to January 2017. During January 2017, BIAL had submitted that BIAL was in the process of updating its Business Plan consequent to changes in design space of the proposed Terminal 2 building.
 - b) BIAL had submitted the updated Business plan in April 2017. Subsequently, BIAL was requested to submit complete details relating to the proposed Capital Expenditure project, which was submitted by BIAL in June 2017 – July 2017.
 - c) Clarifications were received from BIAL on the Business plan in January 2018 – February 2018. BIAL had submitted additional updates and submissions relating to proposed capital expenditure on 27th February 2018, 13th March 2018 and 21st March 2018. BIAL has also submitted details of accelerated / additional depreciation in April 2018.
 - d) The time period of MYTP submission and evaluation between 2016 and 2018 is due to changes in Management at BIAL in March 2017, changes made in Business Plan due to changes in Terminal sizing and other assets, further updates provided by BIAL on Capital Expenditure, time taken for review of the Capital Expenditure proposals by Consultant and related items.
 - e) Pursuant to their submission, a series of discussions/ meetings/presentations were held on the proposal including discussions in respect of the financial model developed by BIAL for this purpose;
 - f) Based on the Stakeholder Consultation and submissions of all stakeholders, BIAL submissions to Consultation Paper and response to stakeholder comments, the Authority passed the Tariff Order vide

Order No. 18/2018-19 dated 31st August 2018 for Second Control Period. AERA vide corrigendum dated 4th September 2018, issued a revised tariff card.

- g) BIAL filed an appeal against Order No. 18/2018 – 19 in Hon'ble TDSAT vide appeal No. 8 of 2018 dated 14th March 2019. BIAL had also filed an interlocutory application, M.A. No. 449/2018 requesting for interim relief by way of staying operation of certain portion of the Order No. 18/2018 – 19 and for permitting BIAL to collect charges as per the rate card of the First Control Period.
- h) Hon'ble TDSAT passed an interim order on 14th March 2019 ("Hon'ble TDSAT Interim Order"), permitting BIAL to collect UDF of First Control Period for a limited period of four months – from 16th April 2019 to 15th August 2019.

1.4 Hon'ble TDSAT directions with regards to decisions taken by AERA

1.4.1 Pursuant to BIAL's appeal against Order No. 18/2018 – 19, Hon'ble TDSAT has issued its order on 16th December 2020 for BIAL. The matters for the first and the Second Control Period raised by BIAL under its appeal and the judgement passed by Hon'ble TDSAT with regards to the same is given below.

1.4.2 AERA has looked at Hon'ble TDSAT directions and have applied the directions as applicable under the various regulatory building blocks towards tariff determination for the Third Control Period.

1.4.3 The major decisions of Hon'ble TDSAT are described below:

- a) The dual/hybrid Till model for Bangalore Airport is as per request made by BIAL and accepted by AERA on the basis of directives of MoCA. Demand of FIA for single Till cannot be accepted because the directives are under Section 42 of the Act.
- b) The claim of BIAL that there is additional land beyond the airport precincts and therefore, beyond the tariff determination power of the Authority cannot be accepted. Income from such land has been correctly treated as non-aeronautical revenue.
- c) The claim for pre-Control Period losses as determined in various parts of Para 5 of the first tariff order and virtually reiterated in the next tariff order are set aside and the claim is remitted back to AERA for fresh consideration on its own merits and in accordance with law.
- d) The claim of BIAL for 21.66% equity IRR is not found acceptable as it is not promised or guaranteed in terms of any agreement between the concerned parties.
- e) The decision to impose 1% penalty by way of reduction of the value of the Terminal II Building from ARR is just, proper and within the jurisdiction of the Authority because the word 'penalty' has been used differently in a peculiar context.
- f) The order that BIAL should offer explanation if the cost incurred exceeds 10% of the cost approved by the Consultant suffers from no error and is within the powers of the Regulator.
- g) Grant of 10% as tax cost by way of estimate made subject to truing up does not require interference but the Authority has to be cautious that the availability of adequate cash flow also has to be kept in mind in a holistic manner.
- h) Decision of the Authority in excluding Rs. 69.45 crores from the opening RAB of the First Control Period suffers from no error.
- i) Challenge by BIAL to the decision of AERA to grant uniform exemption to all transit/transfer passengers transiting within 24 hours, from the payment of UDF does not merit acceptance.
- j) The decisions of AERA in respect of allocation of assets as well as of expenses as aeronautical and non-aeronautical needs no interference.

- k) The decision of the Authority to consider interest income as non-aeronautical revenue is correct and BIAL's claim to exclude such income altogether is not found acceptable.
- l) The direction of the Authority in both the tariff orders requiring BIAL to ensure service quality at the Airport is in conformity with the performance standards as indicated in the Concession Agreement is within the jurisdiction of the Authority and requires no interference.
- m) The decision of the Authority to not allow CSR expenditure as a cost of the Airport Operator is not proper and is set aside. The Authority shall pass consequential orders so as to prevent loss of or reduction in the determined fair return to the equity holders. Necessary true-up exercise shall be done accordingly.
- n) The treatment by the Authority in respect of Lease Rentals and Infrastructure Recovery is proper and requires no interference.
- o) Issues raised by BIAL in respect of cost of debt do not require any interference with the impugned tariff orders.
- p) The plea for light touch regulation has rightly not been accepted by AERA. A preliminary issue raised by BIAL as to maintainability of appeal by FIA is found to be without merits.
- q) As held earlier, the plea of FIA for single Till approach cannot be accepted.
- r) Due to delay in the first tariff order the recovery period got shrunk to 21 months causing unnecessary burden on the users. This needs to be avoided by AERA but for this reason the tariff order does not require any interference.
- s) The grievances raised by FIA against the decisions in respect of initial RAB have no merits.
- t) The decision of AERA to allow in the peculiar facts depreciation up to 100% of the value of the assets suffers from no error.
- u) Allowing bad debts to be recovered as operating expenses is a bad precedent and should not be followed in future because users should not be put to penalty for no fault of theirs. However, for pragmatic reasons such decision for the First Control Period is not set aside.
- v) The practice approved by AERA permitting different treatment to Airlines in respect of landing and taking-off charges and parking charges is discriminatory and impermissible. However, since it has not been carried on during the Second Control Period, hence again for practical reasons alone, the decision is not being reversed. But AERA is requested to be more cautious in such matters in the future.

1.5 Tariff submission by BIAL for 3rd Control period

- 1.5.1 BIAL submitted its MYTP proposal dated 24th July 2020 to AERA for the 3rd control period (FY 2022 – FY 2026).
- 1.5.2 The Authority has examined the MYTP submitted by BIAL and verified the data with reference to Balance Sheet and P&L account from audited financial statements of BIAL, examined the projections for the Third Control Period and raised queries / sought clarifications on the information provided by BIAL for finalizing this consultation paper.
- 1.5.3 BIAL has submitted the MYTP for the Third Control Period from FY 2022 to FY 2026, the document is available on the AERA website along with the Consultation Paper.

1.6 Studies commissioned by Authority

- 1.6.1 The Authority conducted the following studies for the purpose for its current assessment:

- a) Study on allocation of Assets between Aeronautical and Non-Aeronautical Assets (refer Annexure I for summary of the report and Appendix II for the report)
- b) Study on efficient Operation and Maintenance Costs (refer Annexure II for summary of the report and Appendix III for the report)
- c) Study on determination of Cost of Equity (refer Annexure III for summary of the report and Appendix IV for the report)

1.7 Construct of the Consultation Paper

- 1.7.1 The background of the Authority's tariff determination is explained in this Chapter. Chapter 2 lists out BIAL's submissions regarding pre-control period as part its submission for the Third Control Period. The Authority has summarized its earlier analysis and decision as per the Order of Second Control Period against each point submitted by BIAL regarding true up of the First Control Period. This is followed by the Authority's current examination and proposals regarding the true up for First Control Period as part of current tariff determination process.
- 1.7.2 Chapter 3 lists out BIAL's submissions regarding true up for the Second Control Period with respect to specific issues followed by a summary of the Authority's analysis and decisions regarding the various building blocks for the Second Control Period as per the Second Control Period Tariff Order pertaining to those specific issues. This is followed by Authority's current examination and proposals on the specific issues regarding the true up for the Second Control Period. This chapter also discusses the assessment and the outcome of the studies conducted by the Authority regarding asset allocation ratios between aeronautical and non-aeronautical assets and efficient cost segregation between aeronautical and non-aeronautical operating expenses. The summary of these reports is given under appendices to this consultation paper and the reports have been appended separately to the consultation paper.
- 1.7.3 Chapter 4 - 13 discuss BIAL's submissions and the Authority's examination of BIAL's submissions along with its proposals with respect to various building blocks pertaining to the Third Control Period.
- 1.7.4 The summaries of the reports are given under appendices. The detailed reports have also been appended separately to the consultation paper.
- 1.7.5 Chapter 13 presents the revised Aggregate Revenue Requirement as determined by the Authority based on the proposals and proposed adjustments in tariff considered by the Authority for the Third Control Period.
- 1.7.6 Chapter 14 summarizes the Authority's proposals regarding each of the building blocks.
- 1.7.7 The Authority invites views of the stakeholders regarding proposals put forward for tariff determination for the Third Control Period in the consultation paper.

2 REVIEW OF PRE-CONTROL PERIOD

2.1 True-up of Pre-control period

- 2.1.1 Pre-control period refers to the period from Airport Opening Date (AoD) to the start of First Control Period, that is, 1 April 2011.
- 2.1.2 The Authority in its analysis for the pre-control period has referred to the following documents:
- a) Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till (1 April 2011 to 31 March 2016)
 - b) Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till
 - c) Order no. 08/ 2014-15 dated 10th June 2014 for BIAL in determination of aeronautical tariffs for First Control Period
 - d) Consultation Paper no. 05/ 2018-19 dated 17th May 2018 for determination of aeronautical tariffs of BIAL for the Second Control Period (1 April 2016 to 31 March 2021)
 - e) Order no. 18/ 2018-19 dated 31st August 2018 for BIAL in determination of aeronautical tariffs for Second Control Period
 - f) BIAL's letter to MoCA dated 12th November 2007 for sanction of UDF
 - g) MoCA's letter to BIAL dated 3rd April 2008 for ad-hoc International UDF
 - h) MoCA's letter to BIAL dated 9th January 2009 for ad-hoc Domestic UDF
 - i) BIAL's letter to MoCA dated 23rd January 2009
 - j) BIAL's letter to MoCA dated 18th February 2009
 - k) MoCA's letter to AERA dated 6th October 2009
 - l) BIAL's letter to AERA dated 22nd January 2010

Background on Pre-control Period as per previous Consultation Paper/ Orders for BIAL

First control period

- 2.1.3 The Authority noted the sequence of events related to pre-control period from Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till and Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till of First Control Period as given below:
- a) BIAL requested MoCA for sanction of UDF on domestic and international passengers at Rs. 675 per departing domestic passenger and Rs. 955 per departing international passenger respectively. Refer to Annexure I.A.
 - b) MoCA in response granted ad-hoc UDF of INR 1070 on international passengers and ad-hoc UDF of INR 260 on domestic passengers. The Authority noted that certain information was awaited from BIAL at the time of issue of these charges. Refer to Annexure I.B.
 - c) BIAL in response requested MoCA for revision in domestic UDF stating "... we consider an interim adhoc UDF amount of INR 375/- as reasonable and justifiable, pending final approval by the Ministry / Regulator...". Refer to Annexure I.C.

- d) BIAL later reiterated its request by stating “for a revision in the domestic adhoc UDF to at least INR 375/- per departing passenger (on par with that of Hyderabad International Airport Limited) ...”. Refer to Annexure I.D.
- e) In response to BIAL’s letter dated 18th February 2009 seeking revision in the approved UDF, MoCA forwarded the request for increase in UDF to AERA. Refer to Annexure I.E.
- f) The Authority requested BIAL to submit requisite information and later followed up on the same. BIAL vide its letter dated 22nd January 2010 informed AERA that “...as you may be aware, GVK has taken over the management of BIAL w.e.f. 19th January 2010. Whereas there is definitely a need for increase of UDF, BIAL would like to understand in detail the parameters for sanction of UDF in the process of being finalized by AERA. Once the parameters are understood, BIAL will submit the appropriate information at the earliest possible...”. Refer to Annexure I.F.
- g) The Authority followed up on the matter and sent a reminder to BIAL on 21st September 2010 to BIAL, requesting for the submission, to which BIAL responded that:
- “Kindly note that as mentioned in BIAL letter dated 22nd January 2010, BIAL would like to understand in detail the parameters of sanction of UDF. Further BIAL is in advanced stages of finalizing the Master Plan for expansion of Terminal One and construction of Terminal 2. Also, AERA is yet to come up with the guidelines for Economic Regulation in the airport. In view of the above, you would appreciate that it would be appropriate for BIAL to submit the revised computation of UDF once AERA comes up with the regulatory philosophy and guidelines for regulated charges as well as BIAL completes the Master Plan.”*
- h) The Authority noted that when BIAL made a submission of UDF of INR 375 per pax to MoCA, BIAL would have undertaken certain methodology to compute the proposed UDF. The Authority expected BIAL to submit the information on computation of UDF for its evaluation even if the regulatory philosophy of the Authority was not finalized.
- i) The Authority in its analysis of Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till and Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till also noted the following:
- Schedule 6 of the Concession agreement provided BIAL the right to charge Landing and Parking charges which could be the higher of AAI tariff effective 2001 duly increased with inflation index up to the Airport Opening Date or the then prevailing tariff at other AAI airports, BIAL had adopted the then prevailing tariff at other AAI airports, without any increase.
 - Authority also noted from the contents of BIAL’s letter to MoCA dated 12th November 2007 wherein BIAL had agreed to keep landing, parking charges and PSF charged unaltered in the first year of operations, as well as use non – aviation revenues to compensate (short term) deficits of the aviation segment. Refer to Annexure I.A for details.
- j) The Authority also noted that under the Concession Agreement dated 5th July 2004 entered between the Government of India (GoI) and BIAL wherein the definition of UDF stated that “...BIAL will be allowed to levy UDF, w.e.f Airport Opening Date...”. Refer Annexure I.G for the relevant details.
- k) Accordingly, the Authority in Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till had considered pre-control period for the period commencing from the date of commercial operation of the airport by BIAL (24th May 2008) till the commencement of the First Control Period (31st March 2011).

- l) The Authority had not considered any pre-Airport Opening Date (AoD) demand submitted by BIAL and had given the appropriate reasons in Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till
- m) The Authority had made the necessary changes to BIAL's submission (refer Annexure I.A) as given in Table 8 of Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till and calculated the Pre – control period shortfall claim as INR 33.17 cr. in Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till (Refer Annexure I.H).
- n) The Authority had also analysed the Balanced sheet of BIAL for the pre – control period and noted that BIAL had made profits in the years 2009-10 and 2010-11 and the Authority had noted that these profits are sufficient to wipe out the losses of its first year of operation namely 2008-09.
- o) BIAL in Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till submitted its revised computation of pre-control period losses under single till and 30% shared till amounting to INR 178.7 and INR 496.64 respectively.
- p) The Authority in Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till noted the report of EIL and accordingly reduced INR 69.45 cr. from the value of the asset capitalized by BIAL in FY2009.
- q) Making the necessary adjustments, the Authority had calculated the pre – control period shortfall as INR 1.88 cr. in Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till (Refer Annexure I.I for the computation).
- r) The Authority had noted the response from stakeholders on pre-control period as well as the clauses in the AERA Act (Some responses and relevant extracts from AERA Act are produced in Annexure I.J).
- s) Accordingly, the Authority considered only the period from 1st September 2009 till 31st March 2011 i.e. the period during which the Authority had been given the powers of determining tariffs for Aeronautical Services including UDF. Since, BIAL did not post any loss in FY2010 and FY2011, the Authority had proposed that no pre-control losses be reckoned in case of BIAL in Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till (addendum to Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till).

2.1.4 Based on the above discussion, the Authority came out with its decision in the First Control Period order as given below:

“The Authority decides not to consider any Pre-control period losses to be reckoned in computation of Aeronautical Tariffs for the current control period.”

Second Control Period

2.1.5 The relevant discussion / submissions in the Second Control Period are summarized below for the easy reference of stakeholders:

- a) BIAL in its MYTP submission for the Second Control Period submitted a pre – control period shortfall of INR 1,611 cr. under recovery till the beginning of FY 2017 and computed the ARR of pre – control period under 30% shared till amounting to INR 1415.25 cr. BIAL also considered the pre – Airport opening Date losses as part of operating expenditure for the first year of pre – control period.

- b) The Authority reviewed the approach followed in the First Control Period and decided to take ARR approach instead of losses into account on a 40% hybrid till considering expansion needs of BIAL and ensuring similar treatment with HIAL and giving effect to other adjustments and computed the over – recovery as INR 141.55 cr. as given in Annexure I.K.
- c) The Authority also noted the stakeholder’s comments based on the Authority’s approach and gave relevant reasons for the same. Stakeholders comments as well Authority’s responses are produced in Annexure I.L.
- d) Accordingly, the Authority had decided the following in para 5.6.9 and 5.6.10 of the Second Control Period order:
- “Normally the Authority should confine its tariff determination process to the Control Period
 - In case an airport operator claims that there were losses in the pre-control period, the Authority may take into consideration any shortfall in revenues from the ARR from the time of its formation i.e. 1st September 2009.
 - The Authority shall consider the shortfall in revenues and not the losses as in the books of accounts.
 - In case there is no shortfall, the Authority shall limit its tariff determination process only to the control period.
 - This approach will imply that the over recovery as assessed for the period from September 2009 for the Second Control Period will not be clawed back and that the decision taken by the Authority in the First Control Period will be allowed to stand.
 - The Authority notes that this matter is sub-judice and the Authority would take a suitable view in accordance with the orders of the Appellate Tribunal in this matter”

Analysis of Third Control Period

BIAL’s Third Control Period MYTP submission w.r.t. pre-control period

2.1.6 BIAL in its submission for the Third Control Period has requested the Authority to consider the pre-control period shortfall and accordingly has submitted the following computation together with the carrying cost as at the beginning of Third Control Period as follows:

Table 2: Pre – control period shortfall with carrying cost as submitted by BIAL in its MYTP submission for Third Control Period under 30% shared till

Particulars	FY 2009*	FY 2010	FY 2011	Total
Average RAB	1,667.44	1,615.27	1,504.85	
Fair Rate of Return	9.46%	10.19%	11.20%	
Return on RAB	134.87	164.61	168.59	
WC interest	0.51	0.79	0.68	1.98
Depreciation	104.59	123.58	123.80	351.97
Opex	176.87	136.83	141.17	454.87
Tax	0.81	0.00	0.12	0.93
Less: 30% of non-aero revenues	(40.01)	(52.12)	(62.04)	-154.17
Add: Concession fee	6.82	11.73	13.37	31.92
ARR	384.46	385.42	385.69	1,155.57
Actual collections	170.58	293.15	334.24	797.97
(Under)/ Overrecovery	(213.88)	(92.27)	(51.44)	-357.59

Particulars	FY 2009*	FY 2010	FY 2011	Total
(Under)/ Over recovery with indexation	(257.98)	(101.67)	(51.44)	-411.09
(Under)/ Over recovery till beginning of CP1				-411.09
(Under)/ Over recovery till beginning of CP3				-1,573.22

*FY2009 – 24th May 2008 to 31st March 2009

Authority's analysis of pre-control period

- 2.1.7 The Authority has carefully analysed the submissions of BIAL relating to pre-control period and the judgment given by Hon'ble TDSAT dated 16th December 2020.
- 2.1.8 The Authority has reviewed the pre-control period submission of BIAL and verified the data in reference to the audited financial statements of BIAL.
- 2.1.9 The Authority has reproduced below paras 46 and 47 of the Hon'ble TDSAT judgement dated 16 December 2020:

“Para 46 - The contention advanced on behalf of BIAL appears to have merit, especially in view of decision of this Tribunal in the case of DIAL wherein facts and figures of earlier period were considered by the AERA for tariff determination and the same was approved by taking a pragmatic view that even if the matter was to be remitted back to MoCA, the exercise of tariff determination by an expert body like AERA would be more reliable and useful. On a careful perusal of discussions made in various sub-paragraphs of Para 5 of the tariff order for the First Control Period, it is evident that the Authority was aware that MoCA had granted only ad hoc UDF charges but has further noted that since it was fixing tariff for the period from 01.04.2011, it would consider the loss, if any, only from 01.09.2009 to March 2011 when factually there was no loss. In Paras 5.29 and 5.30 it decided against the claim for a review of financial results of BIAL for the period since commencement of operations to 31.03.2011. It has declined to consider the claim for the pre-control period mainly for the two reasons which have been highlighted and challenged on behalf of BIAL.

Para 47 - In the considered opinion of this Tribunal, it will not be proper to hold that in the exercise of its statutory powers to provide for a purposeful and good tariff order, the AERA should depend upon a direction from MoCA to look into facts relating to ad hoc rates and resultant loss, if any. Similarly, for the lapses of MoCA, if any, it will not be proper now to refer the task of looking into deficiencies in tariff formulation for the period prior to First Control Period to MoCA. The relevant facts, figures and accounts for the earlier period should have been gone into by AERA to find out whether there was any merit in the claim of BIAL. Since that has not been done, the claim for pre-control period losses as determined in various parts of Para 5 of the tariff order for the First Control Period and virtually reiterated in the next tariff order are set aside for the purpose of remitting the claim back to AERA for fresh consideration on its own merits and in accordance with law and this order.”

- 2.1.10 The Authority understands that Hon'ble TDSAT has directed AERA to take a fresh view on pre-control period losses. The Authority has further noted that the role of the regulator which was performed by MoCA before the formation of AERA has been taken over by the Authority upon its formation. As MoCA had only approved the ad hoc UDF tariff for BIAL from 24th May 2008 onwards (Airport Opening Date) without undertaking the detailed tariff determination process for BIAL, hence, in compliance with the Hon'ble TDSAT judgement, the Authority proposes to consider the shortfall/ over-recovery of the pre-control period starting from the airport opening date, i.e., 24th May 2008 till the start of the First Control Period, i.e., 31st March 2011.

2.1.11 The Authority noted that BIAL has included an amount of INR 53.3 cr. for the period prior to the Airport Opening Date (AoD). The Authority proposes to not consider the pre-Airport Opening Date losses (i.e. INR 53.3 cr.) based on the following:

- a) BIAL being a greenfield airport, the airport was under construction/ trial run prior to 24 May 2008. Thus, the investment/ expenditure in regulatory building blocks by BIAL were not available for utilization to users/ passengers. Therefore, the users/ passengers cannot be asked to pay before availing the services offered by the airport. Further, the operational losses prior to the airport becoming operational has no logic.
- b) Schedule 6 of the Concession Agreement is given below:

“BIAL will be allowed to levy UDF, w.e.f Airport Opening Date, duly increased in the subsequent years with inflation index as set out hereunder, from embarking domestic and international passengers, for the provision of passenger amenities, services and facilities and the UDF will be used for the development, management, maintenance, operation and expansion of the facilities at the Airport. ”

The Authority has reviewed the Schedule 6 of the concession agreement which states that BIAL's UDF shall be applicable only from the airport opening date. Further, the Authority noted that the investment in the aeronautical RAB will get capitalized from the airport opening date and consequently, the users should start paying from that date onwards. Therefore, the Authority proposes that the determination of airport charges for the pre-control period shall be determined from the airport opening date.

- c) The Authority proposes to compute WACC considering the shareholders' fund and the reserves and surplus, if positive, that is, without reducing the negative reserves and surplus on account of the accumulated losses for FY 2009. Hence, the Authority proposes not to allow accumulated losses as of airport opening date in the shortfall computations.

2.1.12 The Authority noted that it had computed the pre-control period losses in the Consultation Paper no. 05/ 2018-19 dated 17th May 2018 of BIAL for the Second Control Period on 40% shared till and the Authority had not revised the computation in the Second Control Period order of BIAL. The Authority has noted that MoCA has issued a directive to the Authority to adopt 30% shared till in case of HIAL. Accordingly, the Authority had adopted 30% shared till for pre-control period and First Control Period of HIAL. The Authority, hence, considering similarity of BIAL and HIAL in terms of concession agreements proposes to adopt 30% shared till for the computation of pre-control period ARR of BIAL.

2.1.13 In line with the treatment followed by the Authority for the regulatory building blocks in the Second Control Period order, the Authority proposes to make changes to the computation of ARR submitted by BIAL for the pre-control period. These changes have been summarized in the table below:

Table 3: Changes proposed by the Authority to BIAL's computation of ARR for pre-control period

Particulars	Claim by BIAL	Proposed changes by Authority
Duration of pre-control period	Consider shortfall incurred from inception of BIAL to the start of First Control Period.	Consider the pre-control period from airport opening date (24 th May 2008) to 31 st March 2011 (start of First Control Period) as per the provisions of the concession agreement
Cost of Equity	23.61%	Cost of Equity is proposed as 16% which is same as the cost of equity approved for the first and Second Control Period.
Opening P&L Shortfall	Opening accumulated losses as of 1 st April 2008 – Rs. 53.3 cr. has been claimed as shortfall in FY09	The Authority proposes to compute WACC considering the shareholders' funds and the reserves and surplus, if positive.

Particulars	Claim by BIAL	Proposed changes by Authority
CGF	Consider CGF as non-aeronautical	CGF revenues considered as aeronautical as per the AERA Act, 2008, AERA guidelines, the concession agreement of BIAL and Hon'ble TDSAT judgement dated 16 th December 2020.
Waivers and bad debts	Included as part of opex	Waiver and bad debts excluded from the operating expenditure for computation of ARR. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.
Adjustment to RAB as per EIL report		To adjust the opening RAB of FY 2009 as per EIL report. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.
Bifurcation of assets		To bifurcate the asset block into aeronautical and non-aeronautical with the approach similar to the First Control Period
Utility recoveries from non-aero concessionaires		Consider utility recovery from non-aero concessionaires as non-aeronautical revenues. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.
Real estate revenue	Not considered as part of non-aeronautical revenues	To consider real estate revenue as part of non-aeronautical revenue based on the AERA Act, 2008, AERA guidelines, concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020.
Rental income on land		Rental income considered for land given on lease to airport hotel
Interest income	Not considered as part of non-aeronautical revenues	Interest income considered fully, without excluding interest from cash received from Hotel as Deposit. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.
Rent and land lease		Rent and land lease from aeronautical concessionaires to be considered as aeronautical revenue. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.
Taxation	30% non-aeronautical revenues added to revenues while computing aero tax	Not considered the addition of 30% non-aeronautical revenues to the aeronautical revenues while computing aero tax (refer para 3.8.6, 3.8.7, 3.8.8 and 3.8.9)
Till		To compute ARR for the pre-control period on 30% shared till

2.1.14 Based on the above changes, the Authority proposes to evaluate the shortfall/ over-recovery in pre-control period as per the table below:

Table 4: Pre-control ARR and (Under) / Over recovery basis 30% shared till proposed by the Authority

Particulars	FY 2009*	FY 2010	FY 2011	Total
Average RAB for calculating ARR	1,563.78	1,515.38	1,412.49	
Fair Rate of Return	8.73%	9.52%	9.91%	
Return on Assets	116.63	144.20	139.93	
WC interest	0.51	0.79	0.68	1.98
Depreciation	97.81	116.05	116.27	330.13

Particulars	FY 2009*	FY 2010	FY 2011	Total
Opex	123.36	132.43	141.59	397.38
Estimated IT reimbursement	0.00	2.24	9.15	11.39
Total gross ARR	338.31	395.72	407.61	1,141.64
Less: 30% of non-aero revenues	-29.07	-32.63	-42.74	-104.44
Add: Concession fee on regulated charges	9.21	15.16	17.26	41.63
Net ARR	318.45	378.25	382.13	1,078.83
Actual revenues	230.19	378.96	431.57	1,040.72
Over/ (Under) Recovery	-88.26	0.71	49.44	-38.11
Factor till beginning of CP1	1.19	1.10	1.00	
Over/ (Under) Recovery from 24 May 2008 till 31 March 2011 as on 31 March 2011	-105.09	0.78	49.44	-54.87
Factor till 31 March 2016 (5 years) considering FRoR of 10.97%				1.68
Over/ (Under) Recovery from 24 May 2008 till 31 March 2011 as on 31 March 2016 considering FRoR of 10.97%				-92.33
Factor as on 31 March 2022 (6 years) considering FRoR of 11.74%				1.95
Over/ (Under) Recovery from 24 May 2008 till 31 March 2011 as on 31 March 2022 considering FRoR of 11.74%				-179.73

*FY2009 – 24th May 2008 to 31st March 2009

2.1.15 The Authority proposes to include the shortfall/ over-recovery during the pre-control period while computing the ARR for the Third Control Period.

2.1.16 The Authority understands that some stakeholders may seek legal remedy against the proposal of the Authority related to pre-control period losses for BIAL. This proposal of AERA is thus subject to the outcome of any such litigation.

2.2 Authority's proposal regarding pre-control period

Based on the material before and its analysis, the Authority proposes:

2.2.1 To consider the pre-control period from airport opening date (24 May 2008) till the start of the First Control Period (31 March 2011)

2.2.2 To undertake the changes proposed in Table 3 while computing the under/ over-recovery of the pre-control period.

- 2.2.3 To carry forward the under/ over-recovery amount computed in Table 4 for the pre-control period to the 3rd control period.

3 TRUE UP FOR THE SECOND CONTROL PERIOD

3.1 Issues raised by BIAL pertaining to true up for the Second Control Period

- 3.1.1 BIAL has raised the following issues relating to the Second Control Period for true up as part of their MYTP submission:
- a) Regulatory Asset Base
 - b) Weighted Average Cost of Capital
 - c) Aeronautical Depreciation
 - d) Operational expenses
 - e) Treatment of various items under non-aeronautical revenues
 - f) Aeronautical taxes
- 3.1.2 For each of the issues raised by BIAL, the Authority has looked at the decisions taken at the time of tariff determination for the Second Control Period and has then proceeded to examine the same as part of the tariff determination for the current Control Period.
- 3.1.3 The Authority proposes to examine the true up for Second Control Period, issue wise, in the following manner:
- a) Recording and understanding of the true-up as put forth by BIAL in its submission
 - b) Recap of decision taken by the Authority for each item of true-up at the time of tariff determination for the Second Control Period
 - c) Authority's examination and proposal regarding each item of true-up as part of tariff determination for the current control period.

3.2 Authority's analysis of true up for Second Control Period

3.3 True up of Regulatory Asset Base (RAB)

BIAL's submission for true up of regulatory asset base

- 3.3.1 The Authority had approved a capital expenditure of INR 9,307 cr. as part of tariff determination order of BIAL for 2nd control period (Order no. 18/2018-19 dated 31 August 2018). BIAL has submitted that, the expansion projects cost estimates submitted in the Second Control Period MYTP by BIAL & reviewed by RITES includes the capitalization of certain projects in FY22, that is, beyond Second Control Period and the same was not covered in Table 27 of Order 18/2018-19 dated 31 August 2018, however these details are covered in Table 25 of Order 18/2018-19 dated 31 August 2018 by the Authority.
- 3.3.2 BIAL has submitted the breakup of total infrastructure cost amounting to INR 9,307 cr. as approved by the Authority in the Second Control Period order. The break-up of this capex cost is detailed below:

Table 5: Reconciliation of Table 25 with Table 27 of Second Control Period Order No. 18/2018-19 dated 31 August 2018 as per BIAL

S no	Particulars	Amount (in INR cr.)
1	Expansion projects approved on the basis of RITES report and savings submitted by BIAL	8167
2	GST @ 4% included to the Project cost	327
3	Total Expansion project cost including GST	8,493
4	Sustaining capex – I & II, Terminal refurbishment & Forecourts	310
5	Special repairs & refresh capex	1,219
6	Total cost	10,023
7	Expansion projects excluded in Table 27 of Order 18/2018-19 as the same is getting capitalized after Second Control Period	715
8	Total capex cost approved by AERA to be capitalized in Second Control Period	9,307

- 3.3.3 BIAL has submitted the estimated cost at completion for expansion projects which includes projects getting capitalized after the Second Control Period.
- 3.3.4 The approved costs submitted by BIAL includes 4% GST amounting to INR 327 cr. and approved expansion projects amounting to INR 8,167 cr. totaling INR 8,493 cr.
- 3.3.5 Some projects which were approved in the SCP order have been deferred by BIAL. BIAL has not proposed these projects in TCP. These are accordingly been reduced from the approved cost by BIAL. The details of these projects are given below:

Table 6: Details of projects which were approved in SCP order by Authority but deferred by BIAL

S no	Particular	Description	Amount (in INR cr.)
1	South parallel taxi extension to eastern boundary and Aircraft Maintenance	<i>As a long-term strategy, BIAL had identified land for MRO on the East parcel of the airport along with associated infrastructure i.e. taxiway connecting to the land parcel. However, based on the demand from airlines and MRO service providers, it was decided that this MRO/Hanger facility will be located in the Western side of the airport, adjacent to existing cargo buildings. Hence, the decision was taken to not execute this project in the current control period.</i>	56
2	Taxibots Infrastructure & Additional GSE Parking	<i>Timely availability of Taxibot was an issue considering the fact that it is being manufactured by very few vendors internationally and there is no production line in India yet. Hence, this Project could not be implemented in Second Control Period.</i> <i>Originally, GSE parking (approx. 4 acres) was identified during 2017 along with Taxibots requirement. It was felt that GSE parking area was not adequately covered in the original scope and hence an additional approx. 8000 sqm was added. However, upon reassessment now, the requirement is being deferred.</i>	63
3	Airport maintenance	<i>The expansion of Airport maintenance facilities is required to support NSPR and it is segregated into three functional areas - airside facility, landside facility and the E&M yards (i.e.</i>	98

S no	Particular	Description	Amount (in INR cr.)
		central warehouse/storage).The Airside and Landside facilities are located adjacent to the South ARFF and existing CISF barrack and E&M yards (i.e. central warehouse/storage) are located on the north-west portion of KIA. However, due to weak demand arising out of COVID-19 outbreak, BIAL has decided to accommodate landside maintenance facility temporarily inside T2 basement. Hence, this has been decided not to be executed in this current control period.	
4	Airport & Airline Administration Building	AAI (Air Navigation Service provider) had requested for additional staffing space for second runway related operations. As per the earlier Master Plan, an annexure building was proposed adjacent to the existing Admin building (Alpha 1). However, it was decided that BIAL would hand over the Admin building (Alpha 2) to accommodate AAI staffing requirement and BIAL would temporarily shift into another facility until the construction of the "New Airline and Admin building" (Alpha 4).	61
	Total		278

3.3.6 The adjusted AERA approved cost as per BIAL after excluding deferred projects is given in the table below:

Table 7: Adjusted AERA approved capital expenditure as submitted by BIAL for the SCP after excluding deferred projects

Project	Approved amount by AERA after apportioning contingency (3%), tax and site preliminaries (1%) for all projects in SCP	Projects deferred by BIAL as per Table 6	Net amount approved for SCP
	A	B	C = C-B
New south airfield development works	2,066	-56	2,011
T2 Apron 1	448	-63	385
Terminal 2 - Phase 1	3,607	-	3,607
Forecourts, roadways and landside development	1,216	-	1,216
Aircraft maintenance and Airport maintenance	141	-98	42
Rescue and Fire Fighting	7	-	7
Fuel storage & Distribution - Phase 1	-	-	-
Airport and Administration offices	62	-61	0
Utilities Phase 1	106	-	106
Existing Runway, Taxiway improvements	298	-	298
Site Preliminaries	-	-	-
Sub-Total	7,951	-278	7,673
Design/ PMC 5%	386	-	386
Contingency 3%	-	-	-
Add: Pre-Operating Expenses	156	-	156

Project	Approved amount by AERA after apportioning contingency (3%), tax and site preliminaries (1%) for all projects in SCP	Projects deferred by BIAL as per Table 6	Net amount approved for SCP
ORAT	-	-	-
Total	8,493	-278	8,215

3.3.7 Based on the above, the EAC for the projects approved by AERA as per BIAL in the Second Control Period is as follows:

Table 8: Comparison of adjusted AERA approved capital expenditure with estimated capital expenditure for SCP projects as submitted by BIAL

Project	Net Amount approved for SCP	Estimated capex as per BIAL	Difference Over-run / (Under-run)	Variance %	Reason for variation
	A	B	C = B-A	D = C/A	
New south airfield development works	2,011	1,980	-30	-2%	
T2 Apron 1	385	428	43	11%	<p>The major reason for the increase in costs is on account of having additional rainwater harvesting ponds. In order to meet the water requirement through sustainable additional 3 rainwater harvesting ponds are added on the landside. The total capacity of the ponds added is 227 ML. Construction of these ponds involve earthworks, pond lining, pump rooms and piping works. The cost towards this is Rs. 22.50 crores.</p> <p>The apron construction works were planned to be carried out using the Ground Support Equipment (GSE) tunnel or the Eastern Connectivity Tunnel (ECT). However, due to security reasons, approval from BCAS/CISF is awaited for using the tunnels for movement of men, materials and equipment for construction activities on 24x7 basis. This non-availability of the tunnels has resulted in a significantly longer lead of approx. 20 kms for movement of men, material and equipment. This has</p>

Project	Net Amount approved for SCP	Estimated capex as per BIAL	Difference Over-run / (Under-run)	Variance %	Reason for variation
					<i>contributed to the balance overrun to be incurred.</i>
Terminal 2 - Phase 1	3,607	3,566	-41	-1%	
Forecourts, roadways and landside development	1,216	1,875	659	54%	<i>Deviation in cost is on account of the major facilities which have got added to the project cost as follows:</i> <i>a) Development of Multi modal transport hub (MMTH) contributing INR 481.12 cr.</i> <i>b) Additional Landside Facilities contributing INR 177.44 cr.</i>
Aircraft maintenance and Airport maintenance	42	41	-1	-3%	
Rescue and Fire Fighting	7	7	-0	-1%	
Fuel storage & Distribution - Phase 1	-	-	-	0%	
Airport and Administration offices	0	-	-0	0%	
Utilities Phase 1	106	104	-2	0%	
Existing Runway, Taxiway improvements	298	217	-81	-27%	<i>Based on the revised masterplan finalized in 2019, it is noted that the planned traffic capacity as submitted for CP-2 can still be</i>

Project	Net Amount approved for SCP	Estimated capex as per BIAL	Difference Over-run / (Under-run)	Variance %	Reason for variation
					<i>achieved even without executing the south parallel taxiway and the two connecting taxis (connecting existing taxiway and runway). Savings are on account of cancellation of these works which will not affect the planned airside design capacity.</i>
Site Preliminaries	-	-	-	0%	
Sub-Total	7,673	8,218	545	7%	
Design	386	354	176	46%	
PMC		208			
Contingency 3%	-		-	0%	
Add: Pre-Operating Expenses	156	356	200	158%	
ORAT	-	46	46		
Total	8,215	9,183	968	12%	

3.3.8 With regards to the sustaining capex, BIAL has submitted that INR 354 cr. was considered as part of the sustaining capex for the construction of 220 KVA substation which has been deferred to the 4th control period, only INR 25 cr. was incurred in minor modifications in the Second Control Period.

3.3.9 Due to deferment of projects to the Third Control Period, the total asset addition for the Second Control Period is much lower than the capital expenditure approved by AERA in the Second Control Period order. Total asset additions proposed by BIAL for the Second Control Period is given in the table below:

Table 9: Total asset additions and aeronautical asset additions as per BIAL for the Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Total additions during the year as per BIAL	225.70	170.30	160.99	2,122.41	1,920.20	4,599.61
Aero additions during the year	213.38	135.99	132.06	2,087.23	1,779.85	4,348.51

3.3.10 Considering the above, RAB submitted by BIAL for the Second Control Period is given below:

Table 10: RAB submitted by BIAL for true-up of the Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Opening RAB	2,271.65	2,286.45	2,220.60	2,009.18	3,856.12	
Aero additions during the year	213.38	135.99	132.06	2,087.23	1,779.85	4,348.51
Aero depreciation during the year	198.58	201.84	343.48	240.28	317.94	1,302.12
Closing RAB	2,286.45	2,220.60	2,009.18	3,856.12	5,318.03	
Average RAB	2,279.05	2,253.52	2,114.89	2,932.65	4,587.08	

Recap of decision taken by the Authority for projects approved for the Second Control Period at the time of tariff determination for the Second Control Period

- 3.3.11 The Authority had appointed RITES Limited to undertake the study on determination of efficient capex of BIAL for 2nd control period. RITES had submitted the report to AERA with project-wise efficient capex for 2nd control period.
- 3.3.12 RITES had allowed a fee of 5% as design and PMC cost which was approved by AERA in the Second Control Period order. The Authority had also decided to review and true-up the project management cost after the project is commissioned based on the study of the actual cost incurred and its reasonableness.
- 3.3.13 The Authority had decided in para 9.2.11 of the Second Control Period, that the pre-operative amount of Rs. 150 crores will be considered for the purpose of estimating the costs and capitalization for Second Control Period order. The Authority had also decided that it would review and true-up the same after the projects are commissioned based on a study of the actual cost incurred and its reasonableness.
- 3.3.14 Based on the RITES report, the Authority decided to consider the capital expenditure as per Table 27 Para 9.6.12 of the Second Control Period order for BIAL.
- 3.3.15 The Authority had decided that BIAL shall submit detailed explanation and justifications, should the cost incurred exceeds 10% over the cost approved by the consultant (RITES).
- 3.3.16 The Authority had also decided to impose a penalty/ adjustment of 1% of the cost of Terminal-2 Phase 1, if BIAL fails to commission and capitalize Terminal 2 Phase 1 by March 2021. Further, The Authority decided to not consider any additional interest during construction (IDC)/ financing allowance if the project is delayed beyond 31 March 2021.
- 3.3.17 After the order was issued, AERA vide letter no. F. No. AERA/20010/MYTP/BIAL/CP-II/2016-17/Vol-V dated 13th September 2018 clarified that if the delay in completing the project is beyond the control of BIAL and is properly justified, the same would be considered while truing up IDC and PMC however, under no circumstances adjustment of 1% will be waived. Extract from the letter is given below: *“3. It is clarified that in case there is delay in completion of project beyond March 2021, due to any reason beyond the control of BIAL or its contracting agency and is properly justified, the same would be considered by the Authority while truing up the actual cost at the time of determination of tariff for the 3rd control period in respect of IDC and PMC. However, there will be no waiver of penalty in case Phase 1 of Terminal 2 project is delayed beyond 31 March 2021 under any circumstances.”*
- 3.3.18 The Hon’ble TDSAT judgement dated 16 Dec 2020 for BIAL has not altered the decision of AERA on levy of adjustment for delay in commissioning of Terminal 2 Phase 1. Relevant extract from Hon’ble TDSAT judgement has been given below:

“53. On the basis of claim that the Terminal II Building would be completed by March 2021 as estimated by BIAL, the Authority agreed to treat the capitalization year for Terminal II-Phase 1 as 2020-21. This advantage to BIAL would be totally undeserved if the claim of BIAL that it will complete Terminal II-Phase 1 by end of March 2021 is not found correct. Hence, as a balancing exercise for allowing capitalization on the assurance of BIAL such a penalty which is nothing but reduction of ARR has been provided to ensure that such promise does not cause loss to the users and undue advantage to BIAL if the claim as to the time of completion is ultimately found incorrect.

54. Learned counsel for AERA has further submitted that in spite of the clarification that this penalty will not be relaxed in any situation, if a convincing case is made out for any reasonable delay, the

Authority agrees to examine the same on its own merits and may vary or waive the penalty proposed but only for good reasons. This stand of the Authority appears just and proper and does not require further scrutiny except to point out that the stand of BIAL as to the jurisdiction of the Authority is not justified in view of provisions in Section 13(1)(f) read in conjunction with the obligation to determine the tariff under Section 13(1)(a) by taking into consideration the capital expenditure incurred and timely investment in improvement of airport facilities; the service provided, its quality and other relevant factors and the cost for improving efficiency. Section 14(4) of the Act vests the Authority with the power to issue such directions to monitor the performance of the service providers as it may consider necessary for proper functioning. Section 15 also grants power to issue certain directions. Clause 9.2.9 of the Concession Agreement also vests the independent regulator with the power to frame regulations for monitoring of performance standards which could earlier be done by the Government of India as per various sub-clauses of Article 9.2 of the Concession Agreement. Hence, the agreement also respects the power of the regulator to review, monitor and set standards and penalties and regulate such related activities at the Airport with corresponding duties upon the BIAL to comply with all such regulations of the Authority. In any case, the facts justify the limitation set by the Authority through penalty upon the gains of BIAL due to acceptance of its assurance and plea for capitalization of Terminal II-Phase 1 during Second Control Period itself. The Preamble of the Act discloses that besides regulating tariff and other charges, the Authority is “to monitor performance standards of airports and for matters connected therewith or incidental thereto”. Monitoring of timely completion of vital projects like a terminal building has intrinsic relationship with performance of airports”.

- 3.3.19 The Authority had decided to exclude the capital expenditure for the enabling works for the Eastern Connectivity Tunnel.
- 3.3.20 The Authority had decided to consider the allocation between Aeronautical Area and Non-Aeronautical Area of Opening RAB as per Authority's analysis detailed in FCP order, considering 88.52% of Opening RAB and 87.70% of Terminal Area Expansion works as aeronautical.
- 3.3.21 Further, the Authority had decided to consider the allocation of 88% towards aeronautical area for Terminal 2. The Authority had decided to consider aeronautical to non-aeronautical gross block ratio of 91% to 9% for allocation of common assets into aeronautical and non-aeronautical proposed for capital additions in the Second Control Period.
- 3.3.22 The Authority had decided to carry out a study on the allocation of assets between aeronautical and non – aeronautical and use the results of the study to true-up RAB during the next control period (Third Control Period).
- 3.3.23 The Authority noted the RAB approved in the Second Control Period order is as follows:

Table 11: RAB approved by the Authority as per the Second Control Period Order No. 18/2018-19 dated 31 August 2018

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Opening RAB	2,224.29	2,249.05	2,376.22	3,197.94	5,318.60	
Additions during the year	213.20	326.58	1,215.78	2,425.90	5,229.58	9,411.04
Depreciation during the year	188.44	199.40	394.07	305.24	451.05	1,538.20
Closing RAB	2249.05	2376.22	3197.94	5318.60	10,097.14	
Average RAB	2,236.67	2,312.63	2,787.08	4,258.27	7,707.87	

- 3.3.24 The Authority had decided to true-up the RAB at the end of the control period based on actuals at the time of determination of tariffs for the next control period.

Authority's examination and proposal for regulatory asset base (RAB) as part of tariff determination for the current control period

3.3.25 The Authority has carefully examined the submissions of BIAL relating to Regulatory Asset Base (RAB).

Approved projects of Second Control Period deferred to the next control period

3.3.26 The Authority notes that BIAL in its submission has included FY 2022 capital expenditure for comparison with the approved RAB for the Second Control Period since some of the projects have been deferred from FY 2021 to FY 2022. The Authority proposes to consider capital additions proposed till FY 2021 as part of RAB for the Second Control Period.

3.3.27 The capital addition projects deferred to the next control period are as follows:

- Terminal 2 – Phase I
- Terminal 2 - Apron
- South runway – Phase II
- Forecourts, roadways & landside development – Phase 1b
- Aircraft maintenance & airport maintenance facilities
- Utilities Phase I

3.3.28 Since, many of the projects are deferred to the next control period including the Terminal 2, the discussion and the Authority's proposal regarding the cost overrun with respect to RITES recommended cost, penalty/ adjustment, asset allocation, etc. on these deferred capital expenditure projects have been provided in the Regulated Asset Base and Depreciation for the Third Control Period chapter.

Comparison of the AERA approved capital cost with the estimated actual cost for the projects proposed to be capitalized in the Second Control Period

3.3.29 The Authority noted that RITES had recommended the revised project cost for the projects forming part of the Second Control Period. The Authority had decided in the Second Control Period order to ask BIAL to submit detailed explanation and justifications should the cost incurred exceeds 10% over the cost approved by the consultant (RITES).

3.3.30 The Authority asked BIAL to submit an auditor certificate for the proposed project-wise capital expenditure capitalized from FY17 to FY20 with its break-up into project cost, design, PMC, pre-operative expenses and IDC. BIAL in its response dated 4 June 2021 submitted the auditor certificate for the project-wise capitalization from FY17 to FY20. The Authority has considered the project-wise capitalization as per the auditor certificate for its analysis.

3.3.31 Since the Authority had approved the cost of the entire project while BIAL has only capitalized some part of the project, for comparison purposes, entire block cost including the FY22 capex is compared with the Authority approved cost in the Second Control Period. Below table provides the comparison of the estimated actual cost submitted by BIAL and approved capex by the Authority for the Second Control Period:

Table 12: Comparison of the asset addition approved by the Authority in the Second Control Period and the estimated actual addition to RAB as per BIAL

S no.	Project	Net amount approved by Authority in SCP order	Proposed capitalization as per BIAL ^ in SCP	Approved amount carried forward to the TCP
		A	B	C = B-A
1	New south airfield development works	2,011	1613	398*
2	Forecourts, roadways and landside development	1,216	89	1,127
3	Rescue and Fire Fighting	7	7	0
4	Existing Runway, Taxiway improvements	298	217	81
5	Other projects proposed to be capitalized in the next control period – T2 Phase 1, T2 Apron, South Runway Phase II, etc.	4,143	0	4,143
	Sub-Total	7,673	1,926	5,747
6	Design and PMC [#]	386	56	330
7	Pre-Operating Expenses [#]	156	77	79
	Sub-Total	8,215	2,059	6,156
8	IDC[#] and FA as per BIAL		148	
A	Projects Sub-Total		2,208	
B	Sustaining capex (BIAL has included express cargo and Eastern Tunnel Connectivity (ECT) project under sustaining capex)	1,548	1,162	
	Total (C = A+B)		3,370	

^ proposed capitalization is based on the auditor certificate submitted by BIAL on 4 June 2021; # refer Annexure 4 for project wise break-up of the design, PMC, pre-operative expenses and IDC; * refer 5.2.35 for details of works carried forward to the Third Control Period

3.3.32 The Authority noted from the above table that the capital expenditure for the projects proposed by BIAL to be commissioned in the SCP does not exceed the approved capital expenditure for these projects as per SCP order of the Authority.

3.3.33 With regards to the sustaining capex, the Authority noted that BIAL had deferred the INR 354 cr. construction of 220 KVA substation to the 4th control period and it has incurred INR 25 cr. in minor modifications in the Second Control Period.

3.3.34 The Authority noted that the sustaining capex incurred by BIAL is less than the sustaining capex approved in the SCP order.

Design, PMC and pre-operating expenses of the capitalized assets in the Second Control Period

3.3.35 The Authority noted that while the Design and PMC cost of all projects approved in 2nd Control Period is estimated to be higher than 5% by BIAL, only a portion of this cost has been capitalised in 2nd control period. The Design and PMC cost as a percent of cost for the proposed capitalization in the Second Control Period (FY17 to FY21) is 3% which is less than the 5% approved by the Authority in the Second Control Period. The Authority proposes to consider the design and PMC cost proposed to be capitalized in the Second Control Period for true-up of the Second Control Period. The treatment of Design and PMC cost for other assets yet to be capitalised is provided in subsequent chapters.

3.3.36 The Authority further noted that the pre-operative expenses proposed to be capitalized in the Second Control Period is INR 77 cr. The Authority noted that the pre-operative expenses includes the cost of employees involved in undertaking the capital expenditure in Second Control Period and other miscellaneous administrative expenses. The Authority has already accounted the design and PMC cost for the capital expenditure in the Second Control Period and is of the view that the pre-operative expenses are redundant cost. The Authority proposes to exclude the pre-operative expenses from the asset additions of the Second Control Period.

Allocation of assets into aeronautical and non-aeronautical assets

3.3.37 The Authority in its Second Control Period order had decided to undertake a study on the allocation of assets between aeronautical and non-aeronautical and use the results of the study to true-up the RAB. The Authority has considered the opening RAB of FY17, capital addition and corresponding depreciation based on the results of the study on asset allocation (refer Annexure I for summary of the report and Appendix II for the report)

3.3.38 The asset allocation study reviewed the various asset categories and developed a basis for segregation of various assets into aeronautical, non-aeronautical and common. Based on the same, the Authority has reclassified some portion of assets.

Table 13: Summary of asset re-segregation in Second Control Period as per the asset allocation study

S. No	Details of asset	Observation	Adjustment in aero asset additions of 2 nd control period (INR cr.)
1	Electrical and power house equipment	<p>Allocation as per BIAL: Aeronautical</p> <p>Issue: Power supply infrastructure at an airport provides power to air side, roads, terminal building and forecourts. These equipment include the DG sets, UPS, substations, power distribution board, low tension switchboards, high tension cables, etc. Since, these assets serve both the aeronautical assets as well as the common assets, bifurcation based on the usage is required.</p> <p>Revised asset allocation: Accordingly, the asset allocation study has recommended that the electrical and power house equipment assets serving the terminal building, forecourts, entire airport and those not identifiable are classified as common assets.</p>	-4.69
2	BIAL – App (Thoughtworks project)	<p>Allocation as per BIAL: Aeronautical</p> <p>Issue: Asset allocation study noted that the mobile application (BIAL App) provides the flight information and also the details of the retail, F&B outlets, car parking, etc. Thus, the application provides information of both aeronautical and non-aeronautical services at the airport. Further, BIAL has classified its BIAL Public Portal – www.bengaluruairport.com as a common asset. BIAL App is also assumed to be a similar asset to BIAL public portal.</p> <p>Revised asset allocation: Accordingly, the costs associated with Thoughtworks project for development of mobile app are proposed to be classified from aeronautical to common assets as per the asset allocation study.</p>	-0.59
3	Landscape in real estate area	<p>Allocation as per BIAL: Aeronautical</p> <p>Issue: Landscaping is undertaken by the airport to provide enhanced passenger experience while also meeting the environment sustainability goals of the</p>	-0.14

S. No	Details of asset	Observation	Adjustment in aero asset additions of 2 nd control period (INR cr.)
		airport. However, BIAL has considered the landscaping undertaken around the airport hotel as aeronautical. Revised asset allocation: Since, the assets forming part of the commercial real estate development are considered as non-aeronautical assets, the capital expenditure for landscaping in and around the commercial real estate development is also considered as non-aeronautical as per the asset allocation study.	
4	Car park related assets	Allocation as per BIAL: Aeronautical Issue: Car park related assets are non-aeronautical assets as per past orders of AERA. However, these assets have been considered as aeronautical by BIAL. Revised asset allocation: Accordingly, the costs associated with car park and advertising related assets are classified as non-aeronautical assets as per the asset allocation study.	-0.17
5	Water harvesting assets	Allocation as per BIAL: Aeronautical Observation: BIAL has developed water harvesting ponds/rain sumps to store rain water for use at the airport. It is noted that these rain water sumps serve both aeronautical and non-aeronautical assets. Revised asset allocation: Accordingly, the costs associated with water harvesting ponds/ rain sumps are classified as common assets.	-13.29
	Total		-18.88

3.3.39 BIAL has submitted the terminal area ratio of 86.31% in FY17 and FY18 while for FY19 and FY20 the terminal area ratio submitted by BIAL is 85.34%. Due to the change of terminal area ratio from FY18 to FY19, there is an impact of aeronautical asset addition of FY19. The study has applied a consistent terminal area ratio throughout the Second Control Period on the common assets to determine the aeronautical asset addition. The revised terminal area ratio of 85.73% is computed based on the average terminal area ratio of the Second Control Period (assuming FY21 terminal area ratio equal to FY20 terminal area ratio, that is, 85.34%). There is an impact on the aeronautical asset addition on account of change in terminal area ratio. Such adjustment has been shown in Table 14.

Financing allowance

3.3.40 The Authority has noted that BIAL has funded the asset through debt and equity. However, the financing allowance has been computed by BIAL considering a return equivalent to cost of debt during the period in which the assets were still in CWIP irrespective of whether it was funded by equity or debt. This has led to addition of the financing allowance over and above the capitalized assets in the books of account of BIAL. The Authority noted that financing allowance is a notional allowance and different from the actual investment incurred by BIAL which includes only the interest during construction (IDC) among other things. Therefore, the Authority proposes that only the IDC that gets capitalized would be considered as part of RAB.

3.3.41 As per the Second Control Period order for BIAL, the Authority proposes to adjust the opening RAB on account of EIL report. Depreciation on excluded assets given in the EIL's report is subtracted from

the total depreciation. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.

3.3.42 The Authority has proposed the following changes to the FY21 asset additions submitted by BIAL:

- a) The Authority had asked BIAL to submit the current status of the projects proposed in FY21. BIAL, in its response, has submitted that the completion for T2 Apron Phase II (INR 465 cr. as per BIAL) and South Runway – Phase II (INR 478 cr. as per BIAL) has been delayed and expected completion is revised from Mar 2021 to Aug 2021. Accordingly, the Authority has excluded both these projects from the FY21 capital expenditure.
- b) Enabling works capex of Eastern connectivity tunnel (INR 80 cr.) – Excluded as per 2nd control period order for BIAL.
- c) T2 ORAT related expenses (~INR 23 cr.) in special repairs in FY21 – Excluded since ORAT expenses included separately in the capital expenditure proposed to be capitalized in FY22 by BIAL (BIAL has confirmed exclusion through its response to queries)
- d) In line with AERA's decisions of treating revenues from CGF as aeronautical as per the AERA Act, 2008, AERA guidelines, the concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020, the Authority has considered express cargo capex (INR 80 cr.) as 100% aeronautical instead of BIAL's treatment of express cargo capex as non-aeronautical.
- e) Gross block ratio is a composite ratio and a weighted average of aero, common and non-aero assets. Hence, the Authority notes that the gross block ratio should be applied on entire capex addition irrespective of it being aero, common or non-aero instead of BIAL's approach of applying it selectively on common assets. Common assets have been segregated by BIAL in its asset register based on terminal area ratio and therefore, the Authority proposes to apply the same ratio (85.73%) for common assets. Based on the above, the Authority proposes to revise bifurcation ratio for FY21 capex of airport offices, ITI project and sustaining capex from 91% to terminal area ratio of 85.73%.
- f) Revised actual WPI in FY20 (3.64% to 1.7%) to apply on the special repairs cost of FY21 given in FY19 prices

3.3.43 Below table provides the summary of the adjustment to the asset additions of the Second Control Period:

Table 14: Aeronautical asset addition proposed by the Authority from FY17 to FY21 based on the asset allocation study

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Total investments in fixed assets during Second Control Period as per BIAL (A)	225.7	170.3	160.99	2,122.41	690.90	3370.30
Aeronautical asset addition to RAB as per BIAL* (B)	213.92	135.99	132.02	2,087.23	576.21	3145.37
Adjustments to aeronautical asset addition to RAB by the Authority						
Adj - Exclusion of written off amount in FY20 as per IGAAP audited accounts (disposal of assets not accounted by BIAL)(C)				-38.93		-38.93

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Adj – Exclusion of Financing Allowance over capitalized amount by the Authority as per para 3.3.40(D)				-41.07		-41.07
Proposed adjustment to RAB due to change in segregation logic as per asset allocation study, for reasons below (E):	-3.85	-0.92	-0.71	-13.4		-18.88
Electrical and Power House Equipment (E.1)	-3.19	-0.60	-0.70	-0.20		-4.69
BIAL App (E.2)	-0.27	-0.32	0	0		-0.59
Landscape in real estate area (E.3)	-0.14	0	0	0		-0.14
Car park related asset (E.4)	-0.17	0	0	0		-0.17
Water harvesting assets (E.5)	-0.08	0	-0.01	-13.2		-13.29
Adj – Impact due to terminal area ratio change as per asset allocation study (F)	-9.23	-0.14	15.71	0.15		6.49
Adj. - Exclusion of pre-operative expenses (G)	0.00	-1.78	0.00	-70.34	-4.90	-77.03
Adj. – FY21 aero adjustment					-13.50	-13.50
Total adjustments (H=C+D+E+F+G)	-13.08	-2.84	15.00	-136.04	-18.40	-182.92
Aeronautical asset additions to RAB as per the Authority (I=B+H)	200.86	133.16	147.02	1923.64	557.82	2962.49

* refer Table 15 in the Study on allocation of assets between aeronautical and non-aeronautical assets given in Appendix II of this Consultation Paper

3.3.44 Based on the changes suggested above, the RAB proposed by the Authority for true-up of the Second Control Period is given in the table below:

Table 15: RAB considered by the Authority for true-up of Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021 [#]	Total
Opening RAB*	2,224.29	2,237.97	2,181.31	2,052.18	3,782.97	
Additions during the year (refer Table 14)	200.86	133.16	147.01	1,923.64	557.82	2,962.49
Depreciation during the year (refer Table 26)	187.19	189.82	276.14	192.86	249.71	1,095.72
Closing RAB	2,237.97	2,181.31	2,052.18	3,782.97	4,091.07	
Average RAB	2,231.13	2,209.64	2,116.74	2,917.57	3,937.02	

*Opening RAB of FY17 is taken equal to closing RAB of FY16, # forecasted

3.4 True up of Traffic

BIAL's submission for true up of traffic

3.4.1 BIAL has submitted the Passenger traffic, ATMs and cargo traffic in the Second Control Period as follows:

Table 16: BIAL's submission for true up of traffic for Second Control Period

Traffic as per BIAL	UoM	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Domestic Pax	Mn	19.28	23.10	28.83	27.78	7.41	106.40
International Pax	Mn	3.60	3.81	4.48	4.58	0.59	17.06
Total Pax	Mn	22.88	26.91	33.31	32.36	8.00	123.46
Domestic ATM	Nos	154,095	172,665	211,795	202,055	68,926	809,536
International ATM	Nos	24,022	24,665	28,456	28,996	9,472	115,611
Total ATM	Nos	178,117	197,330	240,251	231,051	78,398	925,147
Domestic Cargo	MT	119,878	128,504	144,130	150,088	81,927	624,527
International Cargo	MT	199,466	219,899	242,650	224,093	171,400	1,057,508
Total Cargo	MT	319,344	348,403	386,780	374,181	253,327	1,682,035

Recap of decision taken by the Authority for traffic at the time of tariff determination for the Second Control Period

3.4.2 The Authority had decided to true-up the passenger, ATM and cargo traffic at the time of tariff determination for the Third Control Period, based on the actual numbers during the Second Control Period.

3.4.3 The traffic projections considered by the authority at the time of tariff determination for the Second Control Period is shown in the table below:

Table 17: Traffic considered by the Authority as per tariff order for the Second Control Period

Traffic approved by AERA	UoM	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Domestic Pax (mppa)	Mn	19.28	23.10	26.57	30.55	35.13	134.63
International Pax (mppa)	Mn	3.60	3.81	4.27	4.78	5.35	21.81
Total Pax (mppa)	Mn	22.88	26.91	30.84	35.33	40.48	156.44
Domestic ATM	Nos	154,095	172,665	194,521	217,780	243,842	982,903
International ATM	Nos	24,022	24,665	28,567	31,050	33,846	142,150
Total ATM	Nos	178,117	197,330	223,088	248,830	277,688	1,125,053
Domestic Cargo (MT)	MT	119,878	128,504	139,990	151,579	164,296	704,247
International Cargo (MT)	MT	199,466	219,899	238,953	258,215	278,934	1,195,467
Total Cargo	MT	319,344	348,403	378,943	409,794	443,230	1,899,714

Authority's examination and proposal for traffic as part of tariff determination for the current control period

3.4.4 The Authority compared the traffic as submitted by BIAL for the period FY 2017 – FY 2021 with the actual traffic as given by AAI on its website. The comparative analysis is provided below:

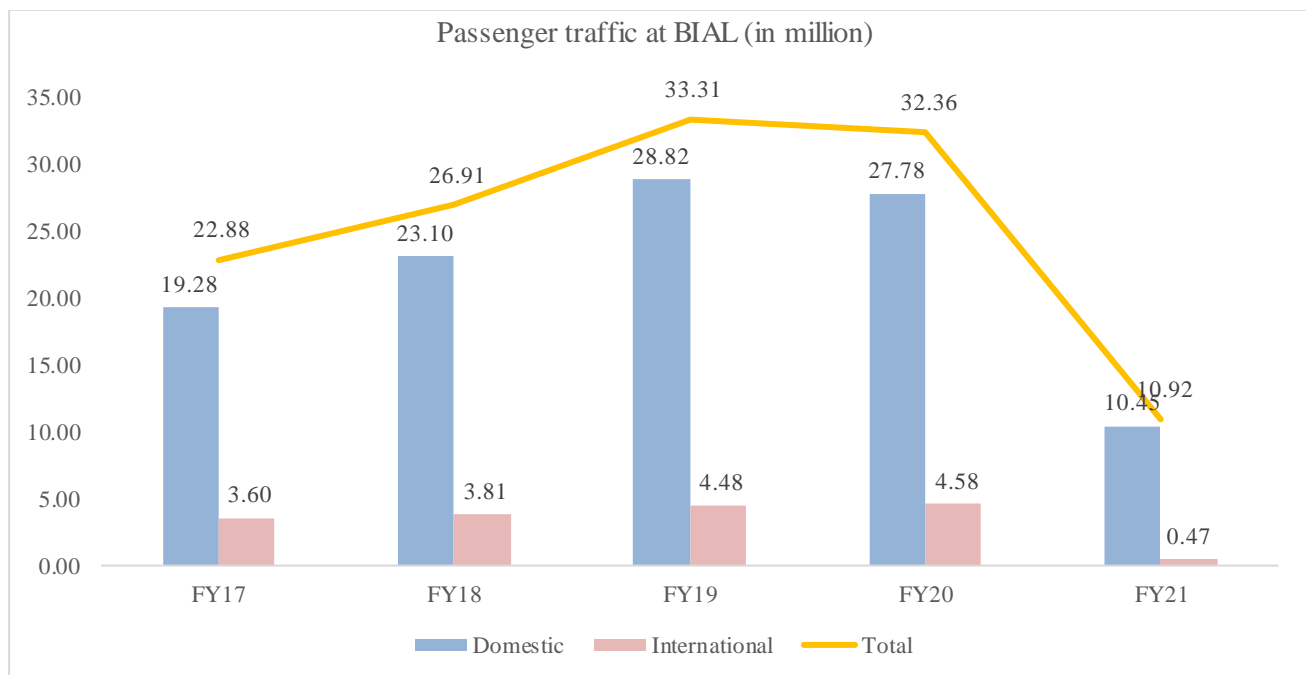
Table 18: Comparison of traffic as per actuals and as per data on the AAI website

Traffic	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Domestic Pax- BIAL (mppa)	19.28	23.10	28.83	27.78	10.45	109.44
AAI traffic news (mppa)	19.28	23.10	28.82	27.78	10.45	109.43
Difference – Domestic (mppa)	0.0	0.0	0.0	0.0	0.0	0
International Pax – BIAL (mppa)	3.60	3.81	4.48	4.58	0.47	16.94
AAI traffic news (mppa)	3.60	3.81	4.48	4.58	0.47	16.94
Difference – International (mppa)	0.0	0.0	0.0	0.0	0.0	0
Domestic ATM - BIAL	154095	172665	211795	202055	102801	843411
AAI traffic news	153249	170539	209584	200048	102459	835879
Difference - Domestic	-846	-2126	-2211	-2007	-342	-7532
International ATM - BIAL	24022	24665	28456	28996	11192	117331
AAI traffic news	24022	26021	29811	30311	11192	121357
Difference - International	0	1356	1355	1315	0	4026
Domestic Cargo – BIAL	119878	128504	144130	150088	119125	661725
AAI traffic news	119878	128504	144223	150009	119104	661718
Difference – Domestic	0	0	93	-79	-21	-7
International Cargo – BIAL	199466	219899	242650	224093	207518	1093626
AAI traffic news	199466	219899	242626	224053	207568	1093612
Difference	0	0	-24	-40	50	-14

3.4.5 It is observed that the traffic submitted by BIAL for the period FY 2017 – FY 2021 is approximately equal to AAI traffic report. The Authority proposes to consider the traffic data uploaded by AAI till FY21 on its website for true-up of the Second Control Period.

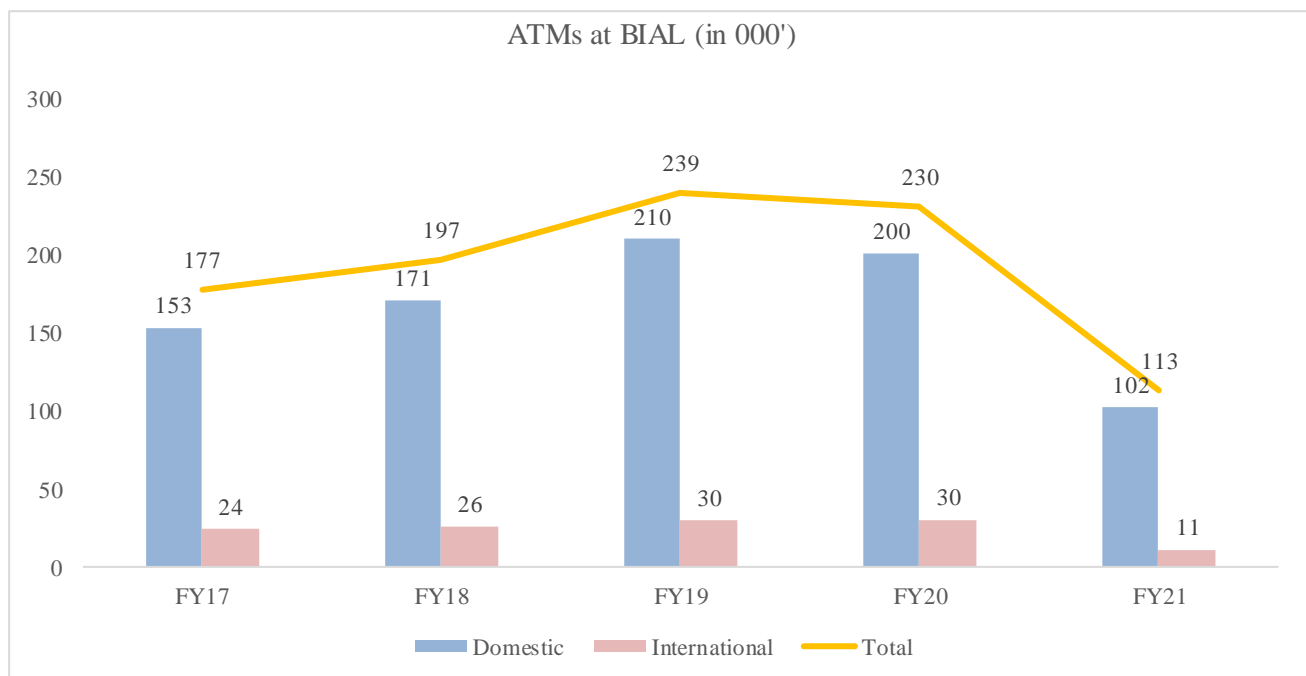
3.4.6 The trends for passenger traffic, ATMs and cargo at BIAL can be seen in the graphs below:

Figure 1: Passenger Traffic at BIAL (FY 2017 – FY 2021)



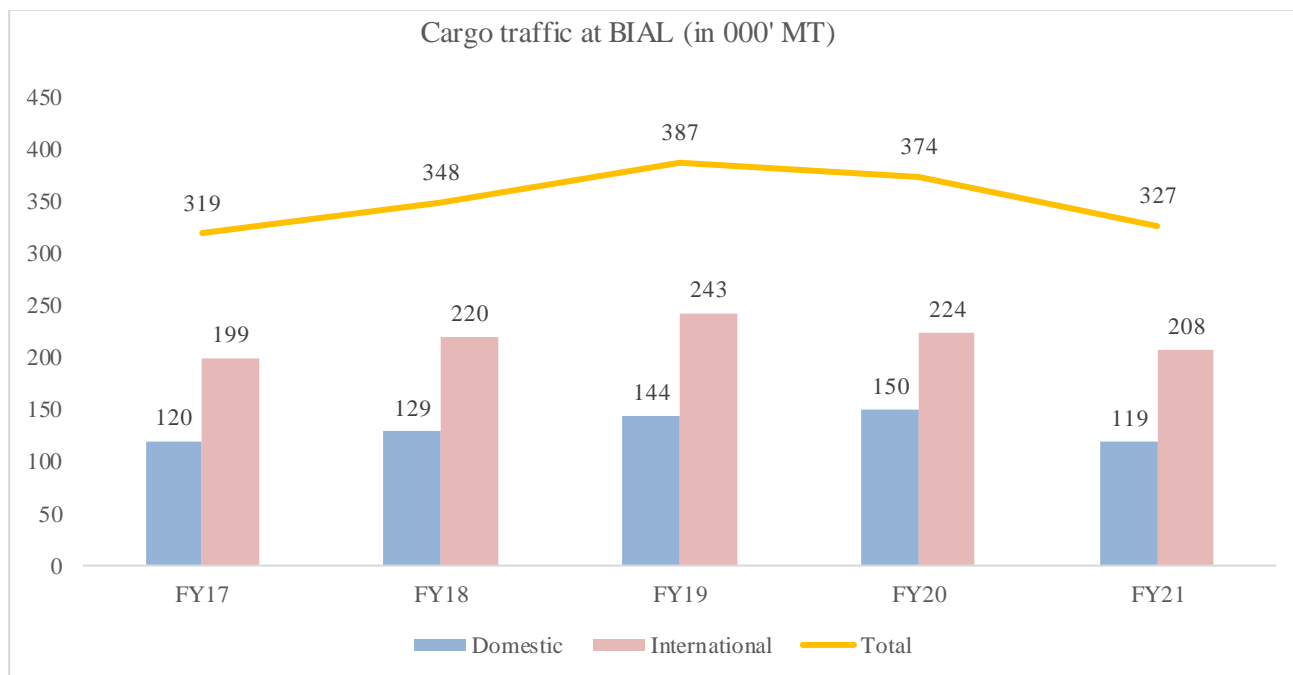
Source: AAI

Figure 2: ATMs at BIAL (FY 2017 – FY 2021)



Source: AAI

Figure 3: Cargo traffic at BIAL (FY 2017 – FY 2021)



Source: AAI

3.4.7 Based on the above, the traffic considered by the Authority for true-up of the Second Control Period is as follows:

Table 19: Traffic considered by the Authority for true-up of the Second Control Period

Revised traffic for BIAL	UoM	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Domestic Pax	Mn	19.28	23.1	28.82	27.78	10.45	109.43
International Pax	Mn	3.6	3.81	4.48	4.58	0.47	16.94
Total Pax	Mn	22.88	26.91	33.31	32.36	10.91	126.36
Domestic ATM	Nos	153,249	170,539	209,584	200,048	102,459	835,879
International ATM	Nos	24,022	26,021	29,811	30,311	11,192	121,357
Total ATM	Nos	177,271	196,560	239,395	230,359	113,651	957,236
Domestic Cargo	MT	119,878	128,504	144,223	150,009	119,104	661,718
International Cargo	MT	199,466	219,899	242,626	224,053	207,568	1,093,612
Total Cargo	MT	319,344	348,403	386,849	374,062	326,672	1,755,330

3.5 True up of WACC

BIAL's submission for true up of WACC

- 3.5.1 BIAL has considered the cost of equity as 23.61% for the computation of WACC of the Second Control Period basis the report prepared by CRISIL Risk and Infrastructure Solutions Limited.
- 3.5.2 BIAL has considered the actual cost of debt for the computation of WACC for the Second Control Period.
- 3.5.3 Considering the above, BIAL has submitted the WACC as 15.53% for the Second Control Period. The details are as follows:

Table 20: WACC submitted by BIAL as part of current MYTP submission

Particulars (In %)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Cost of Equity	23.61%	23.61%	23.61%	23.61%	23.61%
Cost of SS	0.00%	0.00%	0.00%	0.00%	0.00%
Cost of Debt	9.22%	9.22%	9.22%	9.22%	9.22%
Weighted average gearing of Equity	47.67%	47.67%	47.67%	47.67%	47.67%
Weighted average gearing of SS	5.92%	5.92%	5.92%	5.92%	5.92%
Weighted average gearing of debt	46.40%	46.40%	46.40%	46.40%	46.40%
Fair rate of return (FRoR)/ WACC	15.53%	15.53%	15.53%	15.53%	15.53%

Recap of decision taken by the Authority for WACC at the time of tariff determination for the Second Control Period

- 3.5.4 The Authority had considered cost of equity as 16% in the Second Control Period order of BIAL. AERA had decided to commission a study on cost of equity and consider the results of the same at the time of true up of Second Control Period.
- 3.5.5 The Authority had decided to exclude "net investment" made by BIAL on Projects other than airport as a reduction from equity deployed for airport project, for computing gearing (used to calculate the Fair Rate of Return). This includes the net invested value in BAHIL after adjusting the deposits received from Hotel and the investments proposed in other non-aeronautical subsidiaries.
- 3.5.6 The Authority had also decided to true up cost of debt based on any changes to interest rates and to true up WACC based on changes to the gearing between equity and debt considering actual position for the control period, at the time of determination of tariff for the next control period.
- 3.5.7 The WACC estimated by the Authority was 11.93% for the Second Control Period.

Authority's examination of WACC as part of tariff determination for the current control period

- 3.5.8 The Authority has looked at BIAL's submission with regards to the Weighted Average Cost of Capital. The Authority had at the time of the determination of WACC for the Second Control Period had indicated that WACC shall be trued-up based on changes in gearing between equity and debt, cost of debt shall be trued-up based on changes to interest rates and commission study on cost of equity.
- 3.5.9 The Authority has carefully examined the funding options used by BIAL in the Second Control Period. An analysis of the funding options and the approach taken by the authority is described in the tables below:

Table 21: Equity considered by the Authority for true-up of the Second Control Period

Average equity (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
As per BIAL	1,565	2,249	2,921	3,339	3,310
Change to equity amount by AERA	To exclude "net investment" made by BIAL on projects other than airport as a reduction from equity deployed for a airport project				
Considered for true up	1,419	2,034	2,689	3,102	3,165
Difference	-145	-216	-232	-237	-145

- 3.5.10 The Authority had asked for the statutory auditors' certificate for the cost of debt from FY17 to FY20 and accordingly, BIAL had submitted the required certificate. The Authority noted that the cost of debt has been revised by BIAL in the statutory auditor's certificate and the Authority proposes to consider the cost of debt as per the statutory auditor certificate. Further, the Authority had asked BIAL to submit

details of the cost of debt prevalent for the FY 2021. BIAL submitted that in August 2020, the interest rate has been reset to 7.85% from 8.75%. Accordingly, the Authority proposes to consider the weighted average cost of debt of 8.40% for the FY 2021 which will be true-up based on actuals.

- 3.5.11 The Authority also noticed that the actual cost of debt for the Second Control Period as 9.11% is considerably lesser than the 10.39% which is the weighted average cost of debt as considered by the Authority for the Second Control Period. The Authority understands that the reduction in the cost of debt is on account of the reduction of rates by RBI. The Authority has hence considered the cost of debt at actuals at 9.11% p.a. for true up of WACC for the Second Control Period.
- 3.5.12 As per the decision in the Second Control Period order, the Authority had decided to consider 16.00% as the cost of equity. Accordingly, the Authority has proposed to consider the cost of equity as 16.00% for the purpose of true up of WACC for the Second Control Period.
- 3.5.13 Based on the above, the revised WACC considered for true-up of the Second Control Period is given in the table below:

Table 22: Recomputed WACC considered by Authority for true-up of the Second Control Period

Particulars (In %)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Cost of Equity	16.00%	16.00%	16.00%	16.00%	16.00%
Cost of State Support	0.00%	0.00%	0.00%	0.00%	0.00%
Cost of Debt	9.11%	9.11%	9.11%	9.11%	9.11%
Average equity	1,419	2,034	2,689	3,102	3,165
Average State Support	333	333	333	333	333
Average debt	1,461	1,554	1,604	2,720	5,332
Weighted average gearing of Equity	46.40%				
Weighted average gearing of SS	6.22%				
Weighted average gearing of debt	47.38%				
Fair rate of return (FRoR)/ WACC	11.74%				

3.6 True up of Depreciation

BIAL's submission for true up of depreciation

- 3.6.1 With reference to AERA order No. 35 / 2017 – 18 in matter of determination of useful life of airport assets dated 12th January 2018 and amendment No. 01 to the order dated 9th April 2018, BIAL has considered a one-time impact of INR 148.7 cr. for the purpose of tariff determination.
- 3.6.2 BIAL has submitted the following depreciation for true-up of the Second Control Period:

Table 23: Depreciation for Second Control Period as submitted by BIAL

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Depreciation	198.58	201.84	343.48	240.28	317.94	1,302.13

Recap of decision taken by the authority for depreciation at the time of tariff determination for the Second Control Period

- 3.6.3 The Authority had proposed to consider land development works that had been considered by BIAL to have a useful life of 20 years to 50 years based on the lease period available to BIAL.
- 3.6.4 BIAL had considered the design life for the existing runways and taxiways as 20 years. Since the design of the runway and taxiway was similar to that of other airports, the Authority decided to revise the useful life of the asset to 30 years starting 1st April 2018 as per Companies Act.

- 3.6.5 The Authority vide its decision number 7a (ii) of SCP order had decided to true up depreciation at the time of determining aeronautical tariffs in the Third Control Period based on actual date of capitalization of assets as well as based on Order No. 35/ 2017-18 on useful lives.

Authority's examination and proposal for depreciation as part of tariff determination for the current control period

- 3.6.6 The Authority proposes to revise the useful life of the assets based on the Order no. 35/ 2017-18 applicable from 1 April 2018 onwards. The Authority's observation in this regard are given below:

- a) Asset Class – Plant and Machinery (Aerobridges, Airport Communication, Baggage Handling, Escalators/ Elevators, HVAC Equipment, Other Airport Equipment and Security/ Safety Equipment) - The Authority has examined the below submission of BIAL in its letter to AERA dated 25 April 2018 on considering a lower useful life of 7.5 years for certain airport specific assets falling within Plant and Machinery due to extra shift operations:

"KIA is a fast growing airport and has witnessed rapid passenger growth and high air traffic movement. Airport specific equipment such as aero bridges, baggage handling system, escalators, elevators, travellite, HVAC equipment, cargo ASRS, ETV Equipment, X Ray machine, RT Set, DFMD, HHMD, security equipment are continuously used and need higher maintenance. Being used in triple shift, these equipments undergo wear and tear and this reduces their useful life. BIAL wishes to submit they it would adopt lower useful life for certain assets used 24/7 on triple shift basis based on technical justification."

The Authority noted that the useful life of assets related to Plant and Machinery is 15 years as given in the AERA's order No. 35 / 2017 – 18 in matter of determination of useful life of airport assets dated 12th January 2018 and amendment No. 01 to the order dated 9th April 2018. The useful life prescribed in AERA's order has considered the typical usage of these assets for an airport and there appears to be no reason for the usage of these assets to vary from the typical usage for BIAL. Further, the Authority notes that it provides BIAL with adequate maintenance expenditure to enable the airport to maintain the assets in good working conditions during the life of the assets. Therefore, the Authority proposes to not consider the lower useful life submitted by BIAL for the Plant and Machinery assets.

- b) Asset Class – Buildings – The Authority has noted that BIAL has considered a lower useful life for assets under Canopy, New Project Office building, and Nursery Unit under Building category. The Authority notes that all these assets are part of the building. AERA's Order no. 35/ 2017-18 does not provide for reducing the life of assets under Asset Class Buildings. The Authority has noted that BIAL has not given the rationale for lower useful life in its technical justification for these assets. The Authority has issued Order no. 35/ 2017-18 as part of its normative approach to various Building Blocks in the Economic regulation of Major Airports where it has stated that *"The Authority has been of the considered view, that it would be preferable to have as far as practicable, a broad year to year consistency in what Depreciation is charged by the companies as certified by the relevant statutory auditors and what the Authority would take into account in its process of tariff determination. Issue of a notification will ensure this objective."* Therefore, the Authority proposes that the useful life for these assets should be same as building assets class.
- c) Asset Class – Runway and Taxiway– The Authority has noted that BIAL has considered a lower useful life of 20 years for assets under Runway and Taxiway and a useful life of 5 years for runway top layer of the New South Parallel Runway (NSPR). The Authority has noted that BIAL has not given the rationale for lower useful life in its technical justification for these assets. Since the Authority has allowed the upgradation of runway to be amortized over the balance period of the useful life of the

original runway, which addresses the requirement of upgrades required for the runway, the Authority proposes to not consider the shorter useful life for runway, taxiway and runway top layer.

- d) Other asset classes – The Authority proposes to revise the useful life of the other asset classes (IT equipment, furniture and fixtures, other roads, etc.) based on the useful life given in the Order no. 35/2017-18.

3.6.7 Additionally, the Authority proposes to undertake the following changes to the submission of BIAL relating to depreciation:

- The Authority had considered a useful life of 50 years for land development capital expenditure in its 2nd control period order based on the available lease period. BIAL has commissioned the land development capex in FY20 and therefore has considered the useful life as 48.5 years based on the available lease period. However, while projecting the depreciation for FY21, BIAL has considered the useful life of land development capex as 30 years. Based on the useful life in FY20, the Authority proposes to consider the same useful life of 48.5 years for land development capex in FY21.
- Adjustment of depreciation of the assets excluded as per EIL study
- Adjustment of depreciation on the pre-operative expenses excluded from the RAB

3.6.8 The Authority proposes to consider the below useful life from 1 April 2018 onwards for the true-up of the Second Control Period.

Table 24: Useful life considered by the Authority from 1 April 2018 onwards for true-up of depreciation for the Second Control Period

Asset type	Useful life (years)
Earthwork	48.5
Terminal, utility, office and other buildings	30
Runway, taxiway and apron	30
Water management system	30
Roads	5
Roads (Trumpet)	20
Baggage handling, aerobridges, HVAC equipment, other airport equipment	15
Electrical fittings	10
Security/ safety equipments	15
IT Equipment	6
Software	5
Furniture and fixtures	7
Vehicles	8
Office equipment	5
Intangibles (agreements)	30

3.6.9 The Authority noted the one-time depreciation charge submitted by BIAL for FY19 is on account of the note no. 2 of the Order no. 35/2017-18 wherein it is stated that the book value of the asset as on 1 April 2018, after retaining the residual value, shall be recognized in the opening balance of the retained earnings where the remaining useful life of an asset is nil. For the assets with nil remaining life as on 1 April 2018 as per the Order no. 35/2017-18, BIAL has computed the one-time depreciation amount of INR 148.7 cr. Based on the changes to the useful life for canopy, airport communication and other

airport equipment proposed by the Authority in para 3.6.6, the revised one-time depreciation amount proposed by the Authority is given in the table below.

Table 25: One-time adjustment for depreciation as proposed by the Authority

Asset Sub-category	Existing useful life before 1 April 2018	Revised useful life as per BIAL's technical evaluation	Revised life as per Authority	One-time impact (INR cr.)*
Total one-time depreciation as per BIAL				148.7
Adj. - Canopy	30	9	30	-21.9
Adj. - Airport Communication	10	7.5	15	-0.3
Adj. - Other airport equipment	10	7.5	15	-0.5
Total one-time depreciation as per Authority				125.9

*difference is due to rounding off

3.6.10 The Authority had conducted an independent study on the asset allocation of the Second Control Period for BIAL (refer Annexure I for summary of the report and Appendix II for the report). The Authority proposes to apply the proportion of the aeronautical assets as per the study on total depreciation, recomputed based on the revised useful life of assets, to determine the depreciation on aeronautical assets. The Authority noted that the proportion of the aeronautical assets is varying from year-on-year basis since BIAL has undertaken expansion of the airport facilities. Therefore, the Authority proposes to apply the proportion of the aeronautical assets of a particular year to the depreciation amount of the respective year.

3.6.11 Based on the changes suggested above, the depreciation proposed by the Authority for true-up of the Second Control Period is given in the table below:

Table 26: Depreciation considered by the Authority for true-up of Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Total depreciation	213.83	217.54	238.51	262.70	339.26	1,271.83
Adj. - Change in useful life, revision in asset addition			-42.62	-50.37	-60.71	-153.70
Add - One time depreciation impact			125.92			125.92
Adj. - EIL assets	-4.19	-3.92	-11.34*	-0.90	-0.90	-21.24
Adj. - Depreciation on excluded pre-operative expenses	0.00	-0.03	-0.06	-1.27	-2.48	-3.84
Total adjusted depreciation	209.64	213.59	310.40	210.16	275.16	1,218.96
Aeronautical proportion as per asset allocation study	89.29%	88.87%	88.96%	91.77%	90.75%	

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Aeronautical depreciation as per the Authority	187.19	189.82	276.14	192.86	249.71	1,095.72

*amount adjusted on account of one-time depreciation charge on the furniture related assets

3.7 True up of Operating Expenditure

BIAL's submission for true up of operating expenses

3.7.1 BIAL has submitted the following aeronautical operating expenses for true up of the Second Control Period:

Table 27: Operating expenses (Aero) submitted by BIAL for the Second Control Period

Operating expenses	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	116.01	118.27	146.58	186.17	203.47	770.50
O&M	83.92	98.84	99.15	117.12	120.27	519.29
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utilities	37.72	42.64	34.68	36.45	33.08	184.58
Insurance	1.60	2.26	1.97	3.19	7.70	16.72
Rates & taxes (other than IT)	8.72	6.53	9.36	8.90	9.16	42.68
Marketing & Advertising	8.09	9.25	15.31	19.88	15.61	68.14
CSR	3.72	4.81	16.00	19.51	16.42	60.46
General admin costs	26.59	33.65	28.69	32.74	36.01	157.68
Total operating expenses - Aero	299.37	329.67	365.58	438.20	456.40	1,889.23
Less: Disallowance - Interest/hotel cost						-
Concession fee	32.67	37.06	29.29	22.95	7.80	129.76
Waiver and bad debts	-	0.60	11.15	2.74	-	14.49
Total Operating Expenditure – Aero	332.05	367.33	406.02	463.89	464.20	2,033.48

3.7.2 The submissions of BIAL relating to opex for the Second Control Period are as follows:

- Waiver and bad debts - BIAL has considered waiver and bad debts as part of operational expenditure.
- CSR expenditure – BIAL has considered CSR as part of operational expenditure.

3.7.3 BIAL has submitted a certificate from Sreedar Mohan and Associates on the allocation of operating expenses into aeronautical and non-aeronautical for the Second Control Period. The ratio of allocation of operating expenditure into aeronautical and non – aeronautical as per the certificate is given below:

Table 28: Aeronautical ratio for operating expenses as per BIAL

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Personnel Expenses	94%	94%	93%	92%	92%
Operations & Maintenance	89%	89%	88%	89%	89%
Concession Fee	Revenue ratio	Revenue ratio	Revenue ratio	Revenue ratio	Revenue ratio
Lease Rent	100%	100%	100%	100%	100%
Utilities	100%	100%	100%	100%	100%
Insurance	91%	90%	90%	90%	90%
Rates & Taxes (other than IT)	100%	100%	100%	100%	100%
Collection Cost	100%	100%	100%	100%	100%

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Other Marketing costs	95%	90%	88%	86%	86%
Waivers & Bad Debts	100%	100%	100%	100%	100%
CSR	100%	100%	100%	100%	100%
Total General Administration Costs	99%	98%	95%	91%	91%

Recap of decision taken by the Authority for Operating expenses at the time of tariff determination for the Second Control Period

3.7.4 The Authority notes the following operating expenses considered at the time of tariff determination for the Second Control Period vide decision number 9a (i):

Table 29: Operating expenses as considered by the Authority at the time of tariff determination for the Second Control Period

Operating expenses	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	107.77	128.73	146.7	164.6	193.92	741.72
O&M	82.73	95.14	109.41	125.82	144.69	557.79
Lease Rent	13.03	13.42	13.83	14.24	14.67	69.19
Utilities	40.64	42.77	48.88	51.4	60.32	244.01
Insurance	3.54	4.54	4.81	6.08	8.86	27.83
Rates & taxes (other than IT)	8.72	8.8	8.87	8.96	9.4	44.75
Marketing & Advertising	7.58	8.69	9.83	11.12	12.58	49.80
CSR	0	0	0	0	0	-
General admin costs	19.66	10.56	23.79	26.17	28.78	108.96
Total Operating expenses - Aero	283.67	312.65	366.12	408.39	473.22	1,844.05
Less: Disallowance - Interest / Hotel cost	-0.2	-0.28				
Concession fees	39.89	44.89	29.48	35.2	42.03	191.49
Total Operating expenditure - Aero	323.36	357.26	395.6	443.59	515.25	2035.54

3.7.5 The key decisions of the authority relating to operating expenditure in the Second Control Period order is summarized in the table below:

Table 30: Key decisions of the authority relating to operating expenditure for BIAL

Particular	Reference in Order	AERA's Decisions	Reference in Hon'ble TDSAT Order	Hon'ble TDSAT's Order
Bad debts	18.36.2 (FCP Order) and 12.3.31 (SCP Order)	Consider INR 47.51 cr. of actual bad debts (Kingfisher airlines) written off during FY 2013 as part of operational expenditure. Authority proposed to not consider write off of any bad debt other than Kingfisher, as the airport operator is expected to recover the same in normal course of business.	Para 112	<i>"Allowing bad debts to be recovered as operating expenses is a bad precedent and should not be followed in future because users should not be put to penalty for no fault of theirs. However, for pragmatic reasons such decision for the First Control Period is not set aside."</i>

Particular	Reference in Order	AERA's Decisions	Reference in Hon'ble TDSAT Order	Hon'ble TDSAT's Order
Utility charges	12.7.5	Similar to considering lease rentals from aeronautical concessionaires as aeronautical revenue, the Authority has considered infrastructure recoveries for utilities from aeronautical service providers as aeronautical and has considered this as deduction from utility cost.	Para 83	<i>"...The claim of BIAL to treat infrastructure recoveries from net cost of utilities realized from concessionaries providing aeronautical services as non-aeronautical revenue cannot be accepted..."</i>
CSR expenses	12.3.33	Being not related to airport activity, the Authority proposed to not allow CSR expenditure for First Control Period and Second Control Period.	Para 81	<i>"The decision of the Authority to not allow CSR expenditure as a cost of the Airport Operator is not proper and is set aside. The Authority shall pass consequential orders so as to prevent loss of or reduction in the determined fair return to the equity holders. Necessary true-up exercise shall be done accordingly."</i>
Lease Rentals	12.3.19	The Authority understood that usage towards non – aero / non – airport would be a small percentage of the total land lease and hence decided to not allocate any cost to non – aeronautical services		

3.7.6 Additionally, the Authority had decided to true-up operating expenses for the Second Control Period at the time of determination of tariff for the Third Control Period considering the results of the study on allocation of expenses between aeronautical and non-aeronautical services.

Authority's examination and proposal for operating expenses as part of tariff determination for the current control period

3.7.7 The Authority has commissioned a study to determine efficient aeronautical operation and maintenance costs for true-up of the Second Control Period for BIAL (refer Annexure II for summary of the report and Appendix III for the report).

3.7.8 The Authority noted that the study has bifurcated operations and maintenance costs into aeronautical, non-aeronautical and common costs based on the provisions of the AERA Act, 2008 and the guidelines issued from time to time.

3.7.9 The Authority noted the below bifurcation methodology of the personnel cost, operation and maintenance cost, general administration cost, marketing and advertising cost (except collection charges which are considered as aeronautical expense) is undertaken as per below:

- These major expenses are sub-divided into sub-cost centres
- Each sub-cost centre is categorized into aeronautical, non-aeronautical and common and the expenses within that sub-cost centre are also categorized accordingly

- c) These common costs except for marketing and advertisement expenses have been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses within the major cost head). Marketing and advertisement expenses are bifurcated based on 85:15 ratio which is the average for previous years
- d) Sub-cost centres whose allocation is changed from aeronautical to common include quality management, corporate affairs, terminal operations, ops, planning and project co-ordination, innovation lab, landside maintenance – special equipment, utilities – water supply, utilities – power supply, corporate communication, chief operations officer, customer engagement and service quality and president – airport operations.

3.7.10 In the study, the Authority noted that the forecast for FY 2021 is revised based on the data available till December 2020. Therefore, the impact in the FY 2021 is a combination of this revision and the revised segregation logic.

3.7.11 The details of the various adjustments proposed, and its corresponding impact are shown in the table below:

Table 31: Efficient O&M cost adjustment as per the study for the Second Control Period

S. No	Details of Expense	Observation
1	Personnel costs	<p>Segregation by BIAL: BIAL has segregated the personnel expenses into various departments / cost centres and categorized under aeronautical, non – aeronautical and common.</p> <p>Observation: The personnel costs have been bifurcated into aeronautical, non-aeronautical and common costs based on the allocation of sub-cost centre wise expenses. These common costs have then been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses). Additionally, the numbers for FY 2021 have been revised based on revised estimates submitted by BIAL.</p>
2	Operation & maintenance expenses	<p>Segregation by BIAL: BIAL has segregated the O&M expenses into various departments / cost centres and categorized under aeronautical, non – aeronautical and common.</p> <p>Observation: The O&M costs have been bifurcated using the same methodology used for personnel costs. Some expenses related to F&B, lounges (except VIP) under the head terminal operations are classified as non-aeronautical expenses. Additionally, the numbers for FY 2021 have been revised based on the actuals submitted by BIAL till Q3 FY 2021 and Q4 is estimated by taking the average for first three quarters.</p>
3	Utilities	<p>Segregation by BIAL: BIAL had submitted estimates of utilities costs.</p> <p>Observation: The utilities cost has been adjusted for the utility's recoveries from aeronautical concessionaires as per AERA's Second Control Period order for BIAL. The net amount has been considered 100% aeronautical expenses. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to this stand. The utilities cost for FY 2021 has been revised based on the actuals submitted by BIAL till Q3 FY 2021 and Q4 is estimated by taking the average for first three quarters.</p>
4	Insurance	<p>Segregation by BIAL: BIAL has considered the asset ratio to bifurcate the insurance expenses into aeronautical and non – aeronautical.</p> <p>Observation: Insurance expenses have been bifurcated based on the adjusted gross fixed asset ratio derived from the asset allocation study. Additionally, the numbers for FY 2021 have been revised based on revised estimates submitted by BIAL.</p>

S. No	Details of Expense	Observation
5	Marketing & Advertising	<p>Segregation by BIAL: BIAL has bifurcated the expenses department wise into 100% aeronautical, 100% non-aeronautical and common expenses. The common expenses are allocated into aeronautical and non-aeronautical on the ratio of 85:15, which is the average ratio of the previous years.</p> <p>Observation: The marketing and advertisement expenses (other than collection charges) are bifurcated department wise into aeronautical, non-aeronautical and common. The common costs are then apportioned in the ratio of 85:15 which is the average of the previous years. Collection charges are considered as aeronautical expense. Additionally, the numbers for FY 2021 have been revised based on the actuals submitted by BIAL till Q3 FY 2021 and Q4 is estimated by taking the average for first three quarters.</p>
6	CSR	<p>Segregation by BIAL: BIAL has considered CSR expenses as 100% aeronautical.</p> <p>Observation: CSR expense has been considered as operational expenditure as per the directions of the Hon'ble TDSAT judgement dated 16 Dec 2020. These are categorized as common and computed based on the aeronautical profit before tax for BIAL. Additionally, the numbers for FY 2021 have been revised based on revised estimates submitted by BIAL.</p>
7	General admin expenses	<p>Segregation by BIAL: BIAL has segregated the general admin expenses into various departments / cost centres and categorized under aeronautical, non – aeronautical and common.</p> <p>Observation: The general administrative costs have been bifurcated into aeronautical, non-aeronautical and common costs based on the allocation of sub-cost centre. These common costs have then been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses). Donations have been considered as non – aeronautical while provision for doubtful debts have been excluded from General administrative costs. Additionally, the numbers for FY 2021 have been revised based on revised estimates submitted by BIAL.</p>
8	Waivers and bad debts	Waivers and bad debts have been excluded from the operational expenses. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to this view.

3.7.12 Based on the result of the study, the allocation ratio for operating expenses considered by the authority for true-up is given below:

Table 32: Revised segregation logic for O&M costs proposed to be considered by the Authority for Second Control Period

Operating expenses	Cost allocation % as considered by authority in Second Control Period	Cost allocation % proposed to be considered by the Authority in Second Control Period as per the independent study				
		2017	2018	2019	2020	2021
Personnel Expenses	90%	90.44%	91.05%	89.71%	88.94%	88.94%
Operations & Maintenance	Based on asset ratio	83.62%	84.78%	82.66%	84.49%	89.65%
Lease Rent	100%	100%	100%	100%	100%	100%

Operating expenses	Cost allocation % as considered by authority in Second Control Period	Cost allocation % proposed to be considered by the Authority in Second Control Period as per the independent study				
		2017	2018	2019	2020	2021
Utilities (Net)	100%	100%	100%	100%	100%	100%
Insurance	91%	89.29%	88.87%	88.96%	91.98%	90.93%
Rates & Taxes (other than IT)	100%	100%	100%	100%	100%	100%
Collection cost	100%	100%	100%	100%	100%	100%
Marketing and Advertising	85%	89.82%	83.60%	85.17%	84.80%	84.80%
Total General Administration Costs	90%	95.10%	91.27%	63.34%	59.03%	90.00%

3.7.13 The aeronautical concession fee for BIAL is computed as 4% of the aeronautical revenues. The Authority proposes to consider CGF revenues as part of aeronautical revenues as per the AERA Act, 2008, AERA guidelines, the concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020, for computing the aeronautical concession fees.

3.7.14 Based on the above changes, the revised aeronautical operational expenditure considered for the true-up of the Second Control Period as per the study is given below:

Table 33: Proposed aeronautical operating expenditure by the Authority for the Second Control Period

Operating expenses adjustments	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	107.37	110.43	137.41	174.29	187.78	717.27
O&M	83.03	98.97	96.93	117.09	120.09	516.11
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utilities	36.45	41.92	34.86	34.22	23.41	170.86
Insurance	1.57	2.22	1.94	3.25	5.64	14.62
Rates & taxes (other than IT)	8.72	6.55	9.36	8.90	8.29	41.82
Marketing & Advertising	7.90	9.02	12.93	10.77	6.07	46.69
CSR	2.14	4.22	6.98	6.85	5.21	25.41
General admin costs	23.40	27.34	17.28	19.90	24.09	112.02
Total operating expenses - Aero	283.59	314.08	331.52	389.51	395.26	1713.97
Concession fee	39.63	44.62	38.11	32.85	13.21	168.42
Waiver and bad debts	0.00	0.00	0.0	0.0	0.0	0.0
Total operating expenditure - Aero	323.22	358.70	369.63	422.36	408.47	1882.38

3.7.15 The Authority notes that in order to determine the efficient O&M costs, following is presented in the study (refer Annexure II for summary of the report and Appendix III for the report):

- a) The study has given the details of BIAL's budgeting and review process, cost reduction measures undertaken by BIAL.
- b) The study has undertaken trend analysis of the various components of the inflation adjusted operational expenditure cost for the period from FY17 to FY20. The study has noted that due to increase in the passenger traffic and addition of new facilities such as new south parallel runway, the operational expenditure cost has increased over this period. The study has noted that the trend in costs with respect to growth in traffic and capacity augmentation indicate that BIAL has maintained the efficiency in operational costs during the Second Control Period.
- c) The Authority has noted that report includes the analysis of BIAL's O&M costs with respect to its performance (Internal benchmarking) and its competitors (external benchmarking). It is observed from internal benchmarking that for the period FY12 – FY21, the inflation adjusted costs per pax at BIAL has decreased for major heads except O&M which has shown a marginal increase due to the increase in capacity at the airport. It is noted that the overall (total) operational expenditure incurred by BIAL for the period FY 2017 – FY 2020 appears reasonable in range of other private airports in India.

3.7.16 The Authority proposes to consider the aeronautical operating expenditure as per Table 33 for the purposes of true-up of the Second Control Period.

3.8 True up of Aeronautical taxation

BIAL's submission on taxation

- 3.8.1 BIAL is entitled to a tax holiday for 10 years in the period of first 15 years of operations. During this period, BIAL is required to pay the Minimum Alternative Tax (MAT) on the book profits of the company. BIAL has availed this tax holiday from FY 2013 for a period of 10 years.
- 3.8.2 BIAL has computed the tax for true-up considering 30% non-aeronautical revenues as part of Aeronautical P&L in line with the approach followed in the Consultation Paper for DIAL.
- 3.8.3 The tax outflow submitted by BIAL for the Second Control Period is as follows:

Table 34: Tax reimbursement proposed by BIAL for the Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
IT Reimbursement	55.53	80.38	42.92	0.00	0.00	178.83

Recap of decision taken by the Authority for taxation at the time of tariff determination for the Second Control Period

- 3.8.4 The Authority vide decision number 12.a had decided to consider tax outflow estimate (MAT) for computation of tax for BIAL for the Second Control Period.
- 3.8.5 The Authority notes the following tax considered at the time of tariff determination for the Second Control Period vide decision number 12a (i):

Table 35: Tax considered by the Authority at the time of tariff determination for the Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
IT Reimbursement	71.34	97.04	0.00	0.00	0.00	168.38

Authority's examination and proposal for taxation as part of tariff determination for the current control period

- 3.8.6 The Authority noted that BIAL has considered the 30% of non-aeronautical revenues to compute the aeronautical tax. The fact that a part of non-aeronautical revenues is used for cross-subsidization as per the hybrid till mechanism does not change the nature of such revenues to aeronautical. Cross-subsidization as per hybrid till mechanism is done in order to reduce tariff pressure on passengers and to incentivize the airport operator to make effective investments in non-aeronautical revenue generating sources.
- 3.8.7 The consideration of 30% non-aeronautical revenues for computation of aeronautical tax will increase tax reimbursement beyond the requirement pertaining to aeronautical services leading to an artificial tax benefit. The same could lead to the effective cross subsidy benefit being passed on to the airport user being less than 30% to the extent of the artificial tax benefit the airport operator receives in the event of considering 30% non-aeronautical revenues as part of revenue from aeronautical services.
- 3.8.8 Therefore, the Authority is of the view that:
- 30% non-aeronautical revenues should not be treated as a subsidy for the airport operator as the airport operator has already earned it from non-aeronautical services and is meant as a cross subsidy to the airport user.
 - Consideration of 30% non-aeronautical revenues as part of revenues from aeronautical services would result in undeserved enrichment to the airport operator effectively reducing the cross-subsidy benefit to the airport user from the present 30% of non-aeronautical revenues.
 - Further, this issue has been decided by the Authority and the details may be seen in Chapter 8 of DIAL Tariff Order No. 57/2020-21 dated 30 December 2020 for the Third Control Period.
- 3.8.9 The Authority, in line with its decision for other airports, proposes to not consider 30% of non-aeronautical revenues while computing aeronautical taxation for the true-up of the Second Control Period.
- 3.8.10 As per the Second Control Period order, the Authority proposes to allow actual aeronautical MAT as passthrough for true-up of the Second Control Period. The Authority noted that BIAL has paid MAT at effective tax rate of 19.10%, 19.19%, 19.40% and 16.94% from FY17, FY18, FY19 and FY20 respectively by dividing MAT payment by the Profit before Tax (PBT) for the respective years. Tax forecasted for FY21 is nil due to negative PBT.
- 3.8.11 The Authority has noted that BIAL has not considered the one-time depreciation charge in the P&L while computing aeronautical taxation. BIAL, in its response to queries, has submitted that the one-time depreciation charge would have been charged to P&L account and since there is a regulatory override in Note no. 2 of Order no. 35, the same is adjusted in retained earnings. Since, one-time depreciation is allowed in the computation of the ARR, the Authority proposes to consider the one-time depreciation charge while computing the aeronautical Profit Before Tax (PBT).
- 3.8.12 Based on the above changes, the Authority proposes to determine the aeronautical tax by considering the effective tax rate on the aeronautical PBT as given below:

Table 36: Proposed taxation for the Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
MAT paid by BIAL	115.94	153.92	131.04	71.75	0.00	

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Aero revenues	996.05	1,121.69	959.27	828.51	332.64	4,238.17
30% of non-aero revenues	0.00	0.00	0.00	0.00	0.00	0.00
Aero operational expense	-323.22	-358.70	-369.63	-422.36	-408.49	-1,882.40
EBITDA	672.83	762.99	589.64	406.16	-75.85	2,355.77
Aero Depreciation	-187.19	-189.82	-276.14	-192.86	-249.71	-1,095.72
Interest expenses	-143.97	-106.48	-93.71	-118.22	-162.14	-624.48
PBT	341.67	466.69	219.79	95.08	-487.69	635.58
Effective tax rate	19.13%	19.20%	19.42%	17.04%	0.00%	
Aero tax	65.35	89.62	42.69	16.20	0.00	213.83

3.9 True up of non-aeronautical revenue

BIAL's submission on non – aeronautical revenue

3.9.1 The non-aeronautical revenue submitted by BIAL for the true-up of the Second Control Period is given below:

Table 37: NAR submitted by BIAL for true up of Second Control Period

Particulars (In INR crore)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Non – Aviation Revenues (A)						
Car park	63.3	75.4	88.7	90.3	18.7	336.4
Terminal Entry/Miscellaneous Income	0.0	0.0	0.0	0.0	0.0	0.0
Retail	105.3	118.5	143.4	160.9	15.5	543.6
Food & Beverage	31.9	41.1	57.0	69.1	11.9	211.0
Advertising & Promotions	71.8	77.9	77.6	75.2	19.9	322.4
Rents and Land Leases	28.2	30.7	34.7	39.3	43.1	175.9
Lounge Revenues	19.9	26.9	33.5	38.8	5.2	124.4
Utility Charges	5.7	5.6	5.8	5.8	5.6	28.6
Flight Catering	9.1	9.9	12.7	11.7	5.6	48.9
Non-Aviation Revenues - Others	5.9	8.0	9.9	14.3	7.8	45.8
Misc. Income (Including entry)	0.2	0.1	0.0	0.0	0.0	0.3
Total non – aviation revenues	341.3	394.0	463.2	505.3	133.3	1837.2
Aviation Concessions (B)						
Cargo	41.8	43.9	47.2	44.3	30.7	207.8
Fuel Farm	74.9	81.9	90.4	74.9	2.5	324.7
Ground Handling	5.0	6.0	8.0	38.8	22.7	80.4
ICT	16.9	18.0	17.4	17.5	16.1	85.9
Common Infrastructure Charge	34.5	38.9	56.7	67.0	18.6	215.8
Total Aviation Concessions	173.2	188.7	219.6	242.6	90.6	914.6
Total non – aeronautical revenue (A+B)	514.5	582.7	682.8	747.9	223.9	2751.8

3.9.2 BIAL has given the following submissions relating to non – aeronautical revenues:

- **Treatment of CGF** - BIAL has considered revenues from CGF as non – aeronautical revenues

- **Income from real estate and Interest** – BIAL has not considered income from real estate and interest for the computation of ARR.
- Reasons for increase in non – aeronautical revenues till FY 2020:
- **Land side traffic** - Increase on account of app taxi providers like Ola & Uber
- **Retail** - Increase on account of opening of “Quad” which is a retail and F&B plaza opposite arrivals and increase in number of F&B outlets and award of new tenders on the kerb side
- **Lounge Revenue** - Increase on account of award of contract to new operator in 2019
- Reasons for reduction in non – aeronautical revenues for FY 2021:
- Reduction in passengers and low customer sentiments affecting sales per pax due to COVID19
- Waiver of MAG by BIAL across all concessionaires for the period March to October 2020.
- Reduction in revenue share by 15 – 20% for all outlets to sustain business operations

Recap of decision taken by the Authority for Non – aeronautical revenue at the time of tariff determination for the Second Control Period

3.9.3 The Authority notes the following non – aeronautical revenues considered at the time of tariff determination for the Second Control Period vide decision number 10a (i):

Table 38: Non – aeronautical revenue as considered by the Authority at the time of tariff determination for the Second Control Period

Particulars (In INR crore)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Car park	63.3	71.3	80.2	90.2	101.5	406.5
Terminal Entry/Miscellaneous Income	0.2	0.2	0.2	0.2	0.2	1
Retail	108.3	121.9	137.1	154.2	173.5	695
Food & Beverage	31.9	35.9	40.4	45.4	51.1	204.7
Advertising & Promotions	71.8	78.0	81.9	86.0	90.3	408
Rents and Land Leases	18.2	23.0	24.4	25.8	27.6	119
Lounge Revenues	19.8	22.2	25.0	28.1	31.7	126.8
Utility Charges	2.2	2.2	2.2	2.2	4.3	13.1
Flight Catering	8.5	9.5	10.7	12.0	13.5	54.2
Non-Aviation Revenues – Others	5.9	17.9	5.9	5.9	5.9	41.5
Real Estate	0	0	0	0	0	0
Total Non-Aero Revenues	330.0	382.0	407.9	450.1	499.5	2069.5
Add: Revenue considered for land lease hotel	9.3	9.3	9.3	9.3	9.3	46.5
Add: Interest income on estimated cash	21.4	42.2	18.0	11.1	5.3	98
Total considered for computing 30% adjustment	360.7	433.5	435.1	470.5	514.0	2213.8

3.9.4 The decisions of the Authority relating to non–aeronautical revenue for BIAL is given in the table below:

Table 39: Key decisions of the authority relating to non – aeronautical revenue for BIAL

Particular	Reference in Order	AERA's Decisions	Reference in Hon'ble TDSAT Order	Hon'ble TDSAT's Order
Rent & Land lease	4.5.22	Rentals received from aeronautical service providers will be considered as aeronautical revenue.	Para 83	<i>"The treatment by the Authority in respect of Lease Rentals and Infrastructure Recovery is proper and requires no interference."</i>
Utility charges	13.6.10	Revenues from aeronautical concessionaires to be considered as recoveries and reduced from utility cost (operating expenditure) and consider net costs of utilities as aeronautical.	Para 83	<i>"The treatment by the Authority in respect of Lease Rentals and Infrastructure Recovery is proper and requires no interference."</i>
CGF, ICT, Aerobridge, fuel throughput and Common Infrastructure Charges (CIC)	4.5.16	Consider revenue from CGF, ICT, Aerobridge, fuel throughput and Common Infrastructure Charges (CIC) as aeronautical revenue	Para 31	<i>"... The determination of tariff by the impugned order by taking into consideration CGF revenues as aeronautical revenues is also found to be in order requiring no interference..."</i>
Interest income	13.6.8	Consider interest income as part of non – aeronautical revenue	Para 73	<i>"The decision of the Authority to consider interest income as non-aeronautical revenue is correct and BIAL's claim to exclude such income altogether is not found acceptable."</i>
Hotel subsidiary – BAHIL	13.6.11 and 13.6.13	<ol style="list-style-type: none"> 1. Consider notional land lease rent for the area given on lease to the hotel operator in the absence of land lease agreement between BIAL and BAHIL. 2. Interest income earned on deposit received from hotel project as non-aeronautical revenue. Other income interest includes income from interest on security deposit from BAHIL. 	Para 71 and Para 73	<i>"On consideration of the discussion made by the Authority in the relevant paragraphs noted above, no good reasons are found to interfere with the views of the Authority on this issue."</i>
Real estate	4.5.36	Consider revenue from real estate as non-aeronautical revenue	Para 40	<i>"The claim of BIAL that there is additional land beyond the airport precincts and therefore, beyond the tariff determination power of the Authority cannot be accepted. Income from such land has been correctly treated as non-aeronautical revenue."</i>

Particular	Reference in Order	AERA's Decisions	Reference in Hon'ble TDSAT Order	Hon'ble TDSAT's Order
Cargo Village	8.19 (FCP Order)	Revenue from cargo village assets to be treated as non-aeronautical revenues.		

3.9.5 Additionally, AERA had decided in the Second Control Period order to review and true-up the non-aeronautical revenues on actuals, at the time of determination of tariff for the next control period.

Authority's examination and proposal for non-aeronautical revenue as part of tariff determination for the current control period

3.9.6 The Authority proposes to undertake the following changes to the submission of BIAL relating to non – aeronautical revenue:

Treatment of CGF, ICT, fuel throughput, Aerobridge and Common Infrastructure Charges

3.9.7 In the Second Control Period order, the Authority had considered revenue from CGF, ICT, aerobridge, fuel throughput and Common Infrastructure Charges (CIC) as aeronautical revenues as per the AERA Act, 2008, AERA guidelines and the concession agreement of BIAL. Accordingly, the Authority in line with the approach followed in the Second Control Period order proposes to consider the revenue from CGF, ICT, aerobridge, fuel throughput and CIC as aeronautical revenues for true-up of the Second Control Period as per the AERA Act, 2008, AERA guidelines, the concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020.

Treatment of lease rentals from aeronautical service providers

3.9.8 In the Second Control Period order, the Authority had decided to consider the rentals received from aeronautical service providers as aeronautical revenue. Accordingly, the Authority in line with the approach followed in the Second Control Period order proposes to consider the revenue from rentals received from aeronautical service providers as aeronautical revenues for true-up of the Second Control Period. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.

Treatment of revenues from real estate

3.9.9 In the Second Control Period order, the Authority had considered revenue from real estate as non-aeronautical revenue as per the AERA Act. Accordingly, the Authority in line with the approach followed in the Second Control Period order proposes to consider the revenue from real estate as non-aeronautical revenues based on the AERA Act, 2008, AERA guidelines, concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020.

3.9.10 The Authority had noted in the Second Control Period order that there was no agreement between BIAL and BAHF for the land leased for the hotel project. The Authority had assumed a notional annual lease rental of INR 9.26 cr. for the hotel project and assumed it as non-aeronautical revenue for the Second Control Period. BIAL has entered into an agreement with BAHF from 1 April 2019. As per the agreement between BAHF and BIAL, annual lease rent of INR 2.48 cr. with an escalation of 10% every 3 years is payable by BAHF. Accordingly, it is proposed to consider a notional lease rent of INR 9.26 cr. from FY17 to FY19 due to lack of an agreement during this period followed by the actual lease rent received by BIAL from BAHF in FY20 and FY21 as non-aeronautical revenue.

- 3.9.11 The Authority had noted that BIAL has formed a subsidiary Bengaluru Airport City Limited (BACL) in January 2020 to carry out real estate activities such as development of commercial ventures such as hotels, restaurants, conference venues, meeting facilities, business centres, trade fairs, real estate, theme parks, amusement arcades, golf courses and other sports and/or entertainment, facilities, banks and exchanges and shopping malls, as provided for in the Concession Agreement. BIAL has submitted that the revenues from BACL to BIAL is nil in FY21 and therefore it would not appear in the true-up of the Second Control Period. Accordingly, the Authority has considered nil revenues from BACL to BIAL in FY21 for true-up of the Second Control Period.
- 3.9.12 The Authority expects BIAL to work on these assets in compliance with the provisions of Land Lease Agreement, State Support Agreement and other relevant documents.

Treatment of lease rentals from AAI for office space

- 3.9.13 The Authority asked BIAL to submit the details of the lease rentals earned from the office space leased to Airports Authority of India (AAI). BIAL in its response dated 12th Feb 2021 submitted that AAI has been given 3,091 sq. m. of office in FY17 which was increased to 5,836 sq. m. in FY21 and there is no lease rental arrangement between BIAL and AAI.
- 3.9.14 The Authority is of the view that BIAL cannot have differential treatment of rental arrangement among various stakeholders at the airport. Further, the Authority notes that due to nil lease rentals from AAI, the non-aeronautical revenues proposed by BIAL for the Second Control Period are lower which leads to reduction in the cross-subsidization of the aeronautical revenues. Therefore, the Authority proposes to consider a notional lease rental for the office space leased to AAI for the Second Control Period.

Treatment of interest income

- 3.9.15 In the Second Control Period order, the Authority had decided to consider revenue from interest income as non-aeronautical revenue as per the AERA Act. Accordingly, the Authority proposes to consider the interest income as non-aeronautical revenue for true-up of the Second Control Period. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.

Treatment of utilities charges recovery

- 3.9.16 In the Second Control Period order, the Authority had decided to consider revenue from aeronautical concessionaires as recoveries and reduced from utility cost (operating expenditure) and consider net costs of utilities as aeronautical. Accordingly, only the utility charges recoveries from non-aeronautical concessionaires is considered as non-aeronautical revenues. Accordingly, the Authority proposes to consider only the utility charges recoveries from non-aeronautical concessionaires as non-aeronautical revenues for the true-up of the Second Control Period. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.
- 3.9.17 Based on the above changes, the proposed non – aeronautical revenue considered for the true-up of the Second Control Period is given below:

Table 40: Proposed NAR by the Authority for the Second Control Period

Particulars (In INR crore)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
NAR - As per BIAL	514.49	582.66	682.83	747.90	223.88	2,751.76
Adjustment to non-aeronautical revenues						
Less: Rents and Land Leases related to CGF	-6.03	-6.64	-7.50	-12.23	-18.30	-50.70
Less: Revenues from CGF, ICT, fuel throughput, Aerobridge and Common Infrastructure Charges	-173.16	-188.66	-219.59	-242.57	-90.58	-914.56

Particulars (In INR crore)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Add: Revenues from real estate	0.00	0.03	0.40	2.94	2.97	6.34
Add: Notional lease rent from BAHF from FY17 to FY19	9.26	9.26	9.26	0.00	0.00	27.78
Add: Notional lease rental for AAI office space	6.02	6.32	6.63	6.97	13.15	39.09
Add: Interest income	20.36	41.63	66.51	21.43	18.74	168.66
Less: Adjustment for utility charges recovery	-2.56	-2.53	-2.50	-3.50	-3.96	-15.05
Revised non-aeronautical revenues	368.37	442.07	536.04	520.94	145.89	2,013.31

3.10 True-up of Aeronautical revenue

BIAL's submission for true up of aeronautical revenue

3.10.1 BIAL has submitted details of aeronautical revenues (after considering cargo, ground handling and fuel services as non – aeronautical) for the Second Control Period as follows:

Table 41: Aeronautical revenue as submitted by BIAL

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
User Development Fee	501.13	577.76	461.84	399.67	82.93	2023.32
Landing Charges	303.44	334.89	259.08	165.22	99.67	1162.30
Parking Charges	2.63	3.24	2.61	1.88	0.81	11.16
Housing Charges	9.67	10.51	8.65	6.95	3.70	39.48
PSF / Spare	-	-	-	-	-	0
Total Aeronautical Revenue	816.9	926.4	732.2	573.7	187.1	3236.3

Recap of decision taken by the Authority for aeronautical revenue at the time of tariff determination for the Second Control Period

3.10.2 The Authority vide decision no. 1a (ii) of the Second Control Period order had decided to consider revenues from Cargo, Ground Handling and Fuel farm services and rentals from leasing of space to agencies for providing core aeronautical services as aeronautical revenues.

3.10.3 BIAL has submitted a revenue of INR 7.58 cr. in FY21 from express cargo in its MYTP submission. BIAL has also submitted to the Authority that the operation start date of the express cargo facility has been deferred and proposed to the Authority to consider INR 2.52 cr. in FY21 instead of the earlier submission of INR 7.58 cr. Accordingly, the Authority has proposed to consider the revised revenue from express cargo at INR 2.52 cr. in FY21 as aeronautical revenue.

Authority's examination and proposal for aeronautical revenues as part of tariff determination for the current control period

3.10.4 In line with the Authority's approach taken in the previous control periods for BIAL, the Authority proposes to consider revenue from CGF services and rentals from leasing of space to agencies for providing core aeronautical services as aeronautical revenues as per the AERA Act, 2008, AERA guidelines, the concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020. The Authority noted that the revenues from CUTE/ CUSS/ BRS charges (ICT) and Common Infrastructure Charges (CIC) has been included by BIAL as part of the Aviation Concessions revenues and the same has been taken into consideration for the computation of the aeronautical revenues by the Authority.

3.10.5 The Authority sought the information of the discounts offered by BIAL on the Authority approved tariff card during the Second Control Period. BIAL submitted that it has given the discount of INR 4.29

cr. in FY21 towards waiver of parking and housing fee during lockdown and INR 0.32 cr. in FY21 towards international recovery linked airline support scheme. The Authority proposes to consider these discounts as aeronautical revenues for the purposes of true-up of the Second Control Period.

3.10.6 The aeronautical revenues proposed by the Authority for the true-up of the Second Control Period is as follows:

Table 42: Aeronautical revenues as proposed by the Authority for true up of the Second Control Period

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Aviation revenues	816.86	926.39	732.18	573.71	219.10	3,268.25
Aviation concession (CGF) revenues	173.16	188.66	219.59	242.57	100.30	924.28
Aero land leases	6.03	6.64	7.50	12.23	13.24	45.64
Total Aeronautical Revenue	996.05	1,121.69	959.27	828.51	332.64	4,238.17
Add: Discounts offered by BIAL					4.61	4.61
Adjusted total aeronautical revenues	996.05	1,121.69	959.27	828.51	337.25	4,242.78

3.11 Revised true-up for the First Control Period

Authority' examination and proposal regarding ARR of First Control Period as part of tariff determination for the Third Control Period

3.11.1 CSR expense has been considered as operational expenditure as per the directions of the Hon'ble TDSAT judgement dated 16 Dec 2020. These are categorized as common and aero CSR expense is computed based on the minimum of actual CSR expense and CSR expense based on aeronautical PBT.

3.11.2 Accordingly, the Authority proposes the revised true-up for the First Control Period as follows:

Table 43: Adjustment to true-up of First Control Period as per the Authority

Particulars (INR cr.)	2012	2013	2014	2015	2016	Total
Aero CSR expense (A)					-1.16	-1.16
Total CSR impact (B)	0.00	0.00	0.00	0.00	-1.16	-1.16
WACC (C)	10.97%	10.97%	10.97%	10.97%	10.97%	
PV Factor (D)	1.52	1.37	1.23	1.11	1.00	
Total impact - PV as on 31 March 2016 (E = B*D)	0.00	0.00	0.00	0.00	-1.16	-1.16
Over/ (under) recovery of First Control Period as on 31 March 2016 – (as per Table 8 of the SCP order) (F)					313.62	313.62
Adjusted Over/ (under) recovery as on 31 March 2016 (G = E+F)					312.46	312.46

3.12 Revised true-up for the Second Control Period

BIAL's submission regarding true-up for the Second Control Period

3.12.1 The true-up submitted by BIAL for the Second Control Period is as shown in the table below:

Table 44: True-up submitted by BIAL for Second Control Period

Aggregate Revenue Requirement	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Average RAB	2,279.05	2,253.52	2,114.89	2,932.65	4,587.08	
FRoR	15.53%	15.53%	15.53%	15.53%	15.53%	
Return on RAB	354.03	350.07	328.53	455.56	712.56	
Depreciation	198.58	201.84	343.48	240.28	317.94	1,302.12
Operating Expenditure	299.37	330.27	376.73	440.94	456.40	1,903.71
Working Capital Interest	19.83	0.96	0.74	1.03	6.53	29.09
Tax	55.53	80.38	42.92	0.00	0.00	178.83
Less: Non – Aero Revenue	-154.35	-174.80	-204.85	-224.37	-67.16	-825.53
Add: Concession Fee	32.67	37.06	29.29	22.95	7.80	129.77
ARR	805.67	825.77	916.83	936.40	1,434.07	4,918.74
PV Factor	1.00	1.16	1.33	1.54	1.78	
PV of ARR	805.67	714.77	686.91	607.26	804.99	3,619.60
Actual/Estimated Collections	816.86	926.39	732.18	573.71	187.11	3,236.25
PV of Aero Revenue	816.86	801.86	548.57	372.06	105.03	2,644.38
Under/Over Recovery					-1,682.48	-1,682.48
Under/Over Recovery till beginning of CP3					-1,737.34	-1,737.34

Authority's estimate of Aggregate Revenue Requirement as per tariff order for the Second Control Period

3.12.2 The authority had estimated the ARR for the Second Control Period in the tariff order of Second Control Period as shown in the table below:

Table 45: ARR determined by the Authority as per tariff order for Second Control Period

Aggregate Revenue Requirement – AERA	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Average RAB	2,236.67	2,312.63	2,787.08	4,258.27	7,707.87	
FRoR	11.93%	11.93%	11.93%	11.93%	11.93%	
Return on RAB	266.73	275.79	332.36	507.81	919.18	
Depreciation	188.44	199.40	394.07	305.24	451.05	1,538.20
Operating Expenditure	323.36	357.26	395.60	443.58	515.26	2,035.06
Working Capital Interest	21.54	2.73	13.48	13.76	13.10	64.61
Tax	71.34	97.04	0.00	0.00	0.00	168.38
Less: Non – Aero Revenue	-108.19	-130.03	-130.54	-141.15	-154.20	-664.11
ARR	763.21	802.18	1,004.97	1,129.23	1,744.39	5,443.98
Add: Over recovery for previous CP	-313.62					-313.62
Total ARR recalculated by Authority	449.60	802.18	1,004.97	1,129.23	1,744.39	5,130.37
Discounted value of ARR	449.60	716.71	802.23	805.38	1,111.56	3,885.48
Actual/proposed collections	997.27	1,122.30	903.93	758.11	978.03	4,759.64
Discounted value of collections	997.27	1,002.72	721.57	540.69	623.22	3,885.47

Authority' examination and proposal regarding ARR as part of tariff determination for the current control period

3.12.3 Authority based on the examination of various building blocks based on actuals, has determined the ARR for the Second Control Period.

3.12.4 The Authority notes that Hon'ble TDSAT had passed an interim order on 14th March 2019 permitting BIAL to collect UDF of First Control Period for a limited period of four months (16th April 2019 to 15th August 2019). Accordingly, the authority had passed the order vide "Amendment to Order 18/2018-19" dated 4th April 2019 as follows:

"4.1.1. The UDF rates for Domestic and International embarking passengers shall be Rs.306 and Rs.1226 respectively instead of Rs. 139 and Rs. 558 for domestic and International embarking passengers respectively, for the ticket procured during limited period from 16th April 2019 to 15th August 2019.

4.1.2. BIAL shall maintain a separate bank account wherein the excess UDF collections, together with any income viz Interest thereon shall be deposited and maintained.

4.1.3. BIAL shall use the funds from the said bank account only for the purpose of Capital Expenditure for the expansion project and after all the other sources of funding are exhausted."

3.12.5 BIAL has collected approximately INR 101.91 cr. from higher UDF during the period from 16 April 2019 to 15 August 2019. BIAL has submitted the auditor certificate in this regard. BIAL has added the excess UDF collection to the aeronautical revenues for true up of the Second Control Period. The Authority proposes to consider the excess UDF collection to the aeronautical revenues for true-up of the Second Control Period.

3.12.6 Considering the various proposals of the Authority for the building blocks concerning Second Control Period, the true-up for the Second Control Period computed by the Authority is as follows:

Table 46: True-up proposed by the Authority for the Second Control Period

Proposed ARR (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Average RAB (A) (refer Table 15)	2,231.13	2,209.64	2,116.74	2,917.57	3,937.02	
FRoR (B) (refer Table 22)	11.74%	11.74%	11.74%	11.74%	11.74%	
Return on RAB (C = A*B)	262.00	259.47	248.56	342.60	462.31	
Depreciation (D) (refer Table 26)	187.19	189.82	276.14	192.86	249.71	1,095.72
Operating Expenditure (E) (refer Table 33)	283.59	314.08	331.52	389.51	395.28	1,713.98
Working Capital Interest (F)	19.83	0.96	0.74	1.03	6.04	28.59
Tax (G) (refer Table 36)	65.35	89.62	42.69	16.18	0.00	213.83
Gross ARR (H = C+D+E+F+G)	817.95	853.95	899.65	942.18	1,113.34	4,627.07
Less: Non – Aero Revenue (I) (refer Table 40)	-110.51	-132.62	-160.81	-156.28	-43.77	-603.99
Add: Concession Fee (J) (refer Table 33)	39.63	44.62	38.11	32.85	13.21	168.41

Proposed ARR (INR cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Over-recovery of FCP (as on 31 March 2017) (K) (refer Table 43 and note below*)	-349.15					
ARR (L = H+I+J+K)	397.93	765.94	776.95	818.75	1,082.78	3,842.35
Actual/proposed collections (M) (refer Table 42)	996.05	1,121.69	959.27	828.51	337.25	4,242.78
(Under)/ Over recovery (N = M-L)	598.13	355.75	182.33	9.76	-745.53	400.43
PV Factor (O)	1.74	1.56	1.40	1.25	1.12	
(Under)/ Over recovery as on 31 March 2022 (P=N*O)	1,042.05	554.65	254.40	12.19	-833.08	1,030.21

* Over-recovery of FCP given in Table 43 is as on 31 March 2016 which has been carried forward to 31 March 2017 for addition to the ARR of FY17; hence, the over-recovery amount of INR 349.14 has been arrived

3.12.7 The Authority notes that there is an over recovery in the Second Control Period on account of the following:

- Due to delay in capitalization of projects resulting in reduced RAB and depreciation from FY19 till FY21.
- Due to higher aeronautical revenue as compared to the forecast in the Second Control Period order, resulting in over-recovery

3.12.8 The Authority has used estimated figures for FY 2021 for various building blocks for true-up of the Second Control Period as the audited financial statements of FY 2021 were not available at the time of release of this Consultation Paper. This is done to avoid delay in the tariff determination exercise for the Third Control Period and the Authority shall use the audited financial statements of FY 2021 in the final Tariff Order.

3.13 Authority's proposal regarding True-up for the Second Control Period

Based on the material before and its analysis, the Authority proposes:

3.13.1 To consider the aeronautical RAB as per Table 15 for true-up of the Second Control Period

3.13.2 To consider depreciation as per Table 26 for true-up of the Second Control Period.

3.13.3 To consider WACC as per Table 22 for true-up of the Second Control Period

3.13.4 To consider aeronautical operating expenditure as per Table 33 for true-up of the Second Control Period

3.13.5 To consider aeronautical taxation as per Table 36 for true-up of the Second Control Period

3.13.6 To consider non-aeronautical revenues as per Table 40 for true-up of the Second Control Period

3.13.7 To consider aeronautical revenues as per Table 42 for true-up of the Second Control Period

3.13.8 To consider the adjustment to the First Control Period true-up as per Table 43 for true-up of the Second Control Period

3.13.9 To carry forward the over-recovery amount of 2nd control period of INR 1030.21 cr. as on 31 March 2022 (excluding pre-control period shortfall) as per Table 46 to the Third Control Period

4 TRAFFIC PROJECTIONS FOR THIRD CONTROL PERIOD

4.1 BIAL's submissions regarding traffic projections for the Third Control Period

- 4.1.1 BIAL in its submission on traffic for the Third Control Period has given emphasis on the impact covid-19 has had on the aviation sector as well as on the future outlook of the sector.
- 4.1.2 BIAL has given the following submission with regards to the impact of covid-19 on aviation and tourism:
- The economic slowdown caused due to lockdowns aimed at curbing the pandemic is expected to adversely impact business related travel as well as VFR (visiting family and relatives) and leisure travel.
 - Air travel demand continues to be significantly lower as compared to 2019.
 - The recovery of the sector depends on the financial conditions of the airlines.
 - The combination of economic uncertainty and fear of infection would result in low demand for leisure travelers. Work trips are also going to be impacted on the business side as meetings using video conferencing will be the new norm during the pandemic.
- 4.1.3 BIAL has also mentioned some challenges that the airports will be facing during the pandemic:
- The additional processes like temperature control on arrival and/or departure; Health certificate check, etc. have led to additional time in these processes.
 - There is increased processing time on account of additional checks / questions at check-in passport control etc., limitation of drop-off positions at security control decreasing the throughput, Delayed boarding and deboarding etc.
 - The need for adherence to social distancing has resulted in reduction of handling capacity /throughput per checkpoint, Reduction of holding capacity in gate lounges and higher load on seating areas in gate hold room with fewer passenger opting for F&B, retail areas.
 - There is changed passenger flow in the airport and the re-organization changes the passenger load on areas, entries, transportation elements etc.
- 4.1.4 As a result, BIAL submitted that a significant drop in overall traffic is expected for FY21 and a complete/strong recovery during FY22 may not be possible. Accordingly, the basis of projections of traffic submitted by BIAL in its MYTP submission is as follows:
- Traffic in FY22 will increase by over 150% and by another 36% in FY23. These assumptions are on the basis that there will be no lockdown or disruptions to scheduled air travel during these years as well as a covid-19 vaccine or cure would be available which would enable travellers to resume flying like pre-covid times.
 - Post FY23, the traffic for the remaining period of the Third Control Period is expected to grow in line with the growth trend witnessed at BIAL during FY15 to FY20 i.e. 17.4% growth for domestic traffic and 9.3% for international traffic.
- 4.1.5 Accordingly, the traffic forecast submitted by BIAL in its MYTP submission is given in the table below:

Table 47: Traffic forecast submitted by BIAL for the Third Control Period

Traffic	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Passenger Traffic (In Million)						
Domestic Traffic	18.00	23.90	28.06	32.95	38.68	141.59
International Traffic	2.63	4.09	4.47	4.88	5.34	21.41
Total Traffic	20.62	27.99	32.53	37.83	44.02	162.99
Air Traffic Movements (ATMs) (in Thousands)						
Domestic ATMs	148.07	189.97	218.42	252.02	290.88	1,099.36
International ATMs	20.85	26.22	28.56	31.30	34.27	141.20
Total ATMs	168.92	216.19	246.98	283.32	325.14	1,240.55
Cargo Traffic (in MT)						
Domestic Cargo	121,000	151,000	167,610	186,047	206,512	832,169
International Cargo	208,000	243,000	269,730	299,400	332,334	1,352,464
Total Cargo	329,000	394,000	437,340	485,447	538,847	2,184,634

4.2 Authority's examination regarding traffic projections for the Third Control Period

4.2.1 The Authority noted the submissions of BIAL related to traffic. The Authority analyzed the submissions of BIAL and noted the year on year growth rate as well as recovery w.r.t. FY20 levels (pre-covid levels) as follows:

Table 48: Passenger traffic analysis by the Authority on BIAL's submission

Traffic (In Million)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22 – FY26)
Domestic	27.78	7.41	18.00	23.90	28.06	32.95	38.68	141.59
Growth Rate		-73%	143%	33%	17%	17%	17%	
Domestic Traffic as % of FY20 domestic traffic		27%	65%	86%	101%	119%	139%	
International	4.58	0.59	2.63	4.09	4.47	4.88	5.34	21.41
Growth Rate		-87%	347%	56%	9%	9%	9%	
International Traffic as % of FY20 international traffic		13%	57%	89%	98%	107%	117%	
Total	32.36	8.00	20.62	27.99	32.53	37.83	44.02	162.99
Growth Rate		-75%	158%	36%	16%	16%	16%	
Total Traffic as % of FY20 total traffic		25%	64%	86%	101%	117%	136%	

Table 49: ATM traffic analysis by the Authority on BIAL's submission

ATMs (In 000')	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22 - FY26)
Domestic passenger ATMs	200	65	145	187	216	250	289	1087
Growth Rate		-67%	122%	29%	16%	16%	16%	

Domestic ATMs as % of FY20 domestic ATMs		33%	73%	94%	108%	125%	145%	
International passenger ATMs	26	5	16	22	24	26	29	117
Growth Rate		-82%	243%	39%	8%	9%	9%	
International ATMs as % of FY20 international ATMs		18%	62%	86%	93%	102%	111%	
Total passenger ATMs	226	70	161	209	240	276	317	1203
Growth Rate		-69%	130%	30%	15%	15%	15%	
Total ATMs as % of FY20 total ATMs		31%	71%	93%	106%	122%	141%	
Domestic cargo ATMs	3	4	3	3	3	2	2	13
International cargo ATMs	3	5	5	4	4	5	5	23
Total ATMs	231	78	169	216	247	283	325	1240

Table 50: Cargo traffic analysis by the Authority on BIAL's submission

Cargo Traffic (In MT)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22 - FY26)
Domestic	150,088	81,927	121,000	151,000	167,610	186,047	206,512	832,169
Growth Rate		-45%	48%	25%	11%	11%	11%	
Domestic cargo traffic as proportion of FY20 domestic cargo traffic		55%	81%	101%	112%	124%	138%	
International	224,093	171,400	208,000	243,000	269,730	299,400	332,334	1,352,464
Growth Rate		-24%	21%	17%	11%	11%	11%	
International cargo traffic as proportion of FY20 international cargo traffic		76%	93%	108%	120%	134%	148%	
Total cargo	374,181	253,327	329,000	394,000	437,340	485,447	538,847	2,184,634
Growth Rate		-32%	30%	20%	11%	11%	11%	
Total cargo traffic as proportion of FY20 total cargo traffic		68%	88%	105%	117%	130%	144%	

4.2.2 The Authority noted the following from the above analysis:

- BIAL has projected the domestic passenger traffic recovery (FY20 levels) sometime in FY24. The growth rate post recovery till FY26 is the 5-year (FY15-FY20) CAGR i.e. 17.4%
- BIAL has projected the international passenger traffic recovery (FY20 levels) sometime in FY25. The growth rate post recovery till FY26 is the 5-year (FY15-FY20) CAGR i.e. 9.3%
- BIAL has projected the domestic ATM traffic recovery (FY20 levels) sometime in FY24. The growth rate post recovery till FY26 is the 15.4%
- BIAL has projected the International ATM traffic recovery (FY20 levels) sometime in FY25. The growth rate post recovery till FY26 is the 9.5%

- BIAL has projected the domestic cargo traffic recovery (FY20 levels) sometime in FY23. The growth rate post recovery till FY26 is the 11%
- BIAL has projected the international cargo traffic recovery (FY20 levels) sometime in FY23. The growth rate post recovery till FY26 is the 11%

4.2.3 The Authority has forecasted the passenger, ATM and cargo traffic for the Third Control Period taking into account the historical growth, future growth prospects and impact of Covid-19 on the aviation sector.

Passenger Traffic forecast

4.2.4 The forecast for passenger traffic for the Third Control Period is based on the following:

- Passenger traffic for FY21 is based on actuals (source: AAI traffic news)
- The Authority projects the domestic passenger traffic to recover to pre-covid levels by FY23. Post recovery, the domestic passenger traffic is expected to grow at 17.4% (FY15-FY20 CAGR)
- The Authority estimates the international passenger traffic to recover to pre-covid levels by FY24 largely due to the restrictions imposed by the various countries and reduced demand considering increased risk of picking up the infection. Post recovery, the international passenger traffic is expected to grow at 9.3% (FY15-FY20 CAGR).

4.2.5 Based on the above analysis, the forecasted passenger traffic proposed by the Authority for the Third Control Period is given in the table below:

Table 51: Passenger traffic considered by the Authority for the Third Control Period

Traffic	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22 - FY26)
Domestic Passengers (In Million)								
Pax as per BIAL	27.78	7.41	18.00	23.90	28.06	32.95	38.68	141.59
Proposed traffic as per Authority	27.78	10.45	18.61	30.01	35.23	41.36	48.55	173.76
BIAL submission as % of FY20 traffic		27%	65%	86%	101%	119%	139%	
Proposed traffic as per Authority as % of FY20 traffic		38%	67%	108%	127%	149%	175%	
International Passengers (In Million)								
Pax as per BIAL	4.58	0.59	2.63	4.09	4.47	4.88	5.34	21.40
Proposed traffic as per Authority	4.58	0.47	2.63	4.09	4.58	5.00	5.47	21.76
BIAL submission as % of FY20 traffic		13%	57%	89%	98%	107%	117%	
Proposed traffic as per Authority as % of FY20 traffic		10%	57%	89%	100%	109%	119%	
Total Passengers (In Million)								
Pax as per BIAL	32.36	8.00	20.62	27.99	32.53	37.83	44.02	162.99
Proposed traffic as per the Authority	32.36	10.91	21.24	34.09	39.81	46.36	54.02	195.52

Traffic	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22 - FY26)
BIAL submission as % of FY20 traffic		25%	64%	86%	101%	117%	136%	
Proposed traffic as per the Authority as % of FY20 traffic		34%	66%	105%	123%	143%	167%	

Air Traffic Movements (ATM) forecast

4.2.6 The Authority noted that the ATM traffic is expected to recover faster than the passenger traffic as airlines will deploy the additional capacity in anticipation of the passenger traffic demand.

4.2.7 Accordingly, the forecast for ATM traffic for Third Control Period is based on the following:

- ATM traffic for FY21 is based on actuals (Source: AAI traffic news).
- The Authority has projected the ATMs based on the passenger/ ATM for passenger ATMs and cargo / ATM for cargo ATMs.
- The Authority has computed the passenger ATMs based on the Passenger Load Factor (PLF) and weighted average seating capacity as submitted by BIAL. The same is produced in the tables below for reference:

Table 52: PLF and weighted average seating capacity considered by the Authority

Particulars	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Domestic PLF (in %)	92.11%	75.27%	82.20%	84.67%	86.00%	87.32%	88.64%
International PLF (in %)	80.43%	57.39%	74.67%	83.83%	84.47%	84.47%	84.47%
Weighted average domestic seating capacity	151	151	151	151	151	151	151
Weighted average international seating capacity	219	219	219	219	219	219	219

- Accordingly, similar to domestic passenger traffic recovery, the Authority projects the domestic ATMs to recover to pre-covid levels by FY23.
- Similar to international passenger traffic recovery, the Authority projects the international ATMs to recover to pre-covid levels by FY24.

4.2.8 Based on the above, the ATM traffic projected by the Authority for the Third Control Period is as follows:

Table 53: ATM traffic considered by the Authority for the Third Control Period

Traffic	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22–FY26)
Dom ATMs (In '000)								
ATMs as per BIAL	202.06	68.93	148.07	189.97	218.42	252.02	290.88	1,099.35
Proposed ATMs as per the Authority		102.46	153.04	237.64	273.75	315.95	364.76	1,345.15
BIAL submission as % of FY20 ATMs		34%	73%	94%	108%	125%	144%	

Proposed ATMs as per the Authority as % of FY20 ATMs		51%	76%	118%	135%	156%	181%	
Int ATMs (In '000)								
ATMs as per BIAL	29.00	9.47	20.85	26.22	28.56	31.30	34.27	141.20
Proposed ATMs as per the Authority		11.19	20.85	26.43	29.40	32.22	35.27	144.17
BIAL submission as % of FY20 ATMs		33%	72%	90%	99%	108%	118%	
Proposed ATMs as per the Authority as % of FY20 ATMs		39%	72%	91%	101%	111%	122%	
Total ATMs (In '000)								
ATMs as per BIAL	231.05	78.40	168.92	216.19	246.98	283.32	325.14	1,240.55
Proposed ATMs as per the Authority		113.65	173.89	264.07	303.15	348.17	400.04	1,489.32
BIAL submission as % of FY20 ATMs		34%	73%	94%	107%	123%	141%	
Proposed ATMs as per the Authority as % of FY20 ATMs		49%	75%	114%	131%	151%	173%	

Cargo forecast

4.2.9 The Authority noted from the actual cargo traffic for FY21 for BIAL that the cargo traffic at BIAL has not been impacted by COVID-19 pandemic to the same extent as passenger and ATM traffic.

4.2.10 The forecast of cargo traffic for Third Control Period is based on the following:

- Cargo traffic for FY21 is based on actuals (Source: AAI traffic news)
- The Authority estimates the domestic cargo traffic to pre-covid levels by FY23.
- The Authority estimates the international cargo traffic to pre-covid levels by FY22.

4.2.11 Based on the above, the cargo traffic projected by the Authority for the Third Control Period is as follows:

Table 54: Cargo traffic considered by the Authority for the Third Control Period

Traffic	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Domestic Cargo (in MT)								
Cargo traffic as per BIAL	150,088	81,927	121,000	151,000	167,610	186,047	206,512	832,169
Proposed traffic as per Authority		119,104	148,880	165,257	183,435	203,613	226,010	927,195
BIAL submission as % of FY20 cargo		55%	81%	101%	112%	124%	138%	
Proposed cargo as per Authority as % of FY20 cargo		79%	99%	110%	122%	136%	151%	
International Cargo (in MT)								

Cargo traffic as per BIAL	224,093	171,400	208,000	243,000	269,730	299,400	332,334	1,352,465
Proposed traffic as per Authority		207,568	230,400	255,745	283,876	315,103	349,764	1,434,888
BIAL submission as % of FY20 cargo		76%	93%	108%	120%	134%	148%	
Proposed cargo as per Authority as % of FY20 cargo		93%	103%	114%	127%	141%	156%	
Total Cargo (in MT)								
Cargo traffic as per BIAL	374,181	253,327	329,000	394,000	437,340	485,447	538,847	2,184,634
Proposed traffic as per Authority		326,672	379,280	421,001	467,311	518,716	575,774	2,362,084
BIAL submission as % of FY20 cargo		68%	88%	105%	117%	130%	144%	
Proposed cargo as per Authority as % of FY20 cargo		87%	101%	113%	125%	139%	154%	

4.3 Authority's proposals regarding traffic projections for the Third Control Period

Based on the material before it and its analysis, the Authority proposes:

- 4.3.1 To consider the passenger traffic, ATM traffic and cargo traffic as per Table 51, Table 53 and Table 54 respectively which shall be trued up based on actuals

5 **REGULATORY ASSET BASE (RAB) AND DEPRECIATION FOR THE THIRD CONTROL PERIOD**

5.1 **BIAL's submissions regarding RAB and depreciation for the Third Control Period**

5.1.1 The capital addition projects submitted by BIAL for the Third Control Period can be divided into following:

- Capital addition projects deferred from the Second Control Period to the Third Control Period
- Capital addition projects proposed for the Third Control Period
- Sustaining capital expenditure for the Third Control Period

5.1.2 These are detailed in the same sequence in the following paras.

a. Capex deferred from Second Control Period as per BIAL's MYTP submission

5.1.3 The capital addition projects deferred from the Second Control Period to the Third Control Period as per BIAL's MYTP submission is as follows:

- Terminal 2 – Phase I
- Forecourts, roadways & landside development – Phase 1b
- Aircraft maintenance & airport maintenance facilities
- Utilities Phase I

5.1.4 BIAL has proposed to capitalize the above projects in FY22. The capital expenditure for the above projects as submitted by BIAL is as follows:

Table 55: Capital expenditure projects deferred from Second Control Period to Third Control Period as per BIAL's MYTP submission

S. No	Capital expenditure projects	Project cost	Design, PMC, Pre-operative expenses and contingency cost	Total capex (excl FA)	FA	Total amount (INR cr.)
1	Terminal 2 - Phase I	3,565.67	545.80	4,111.47	638.47	4,749.95
2	Forecourt, roadways & landside development - Phase 1b	1,786.40	157.01	1,943.41	147.81	2,091.22
3	Aircraft Maintenance & Airport Maintenance Facilities	41.16	1.18	42.33	4.41	46.74
4	Utilities	104.22	6.17	110.39	23.69	134.08
	Total	5,497.44	710.16	6,207.60	814.39	7,021.99

b. New Capex plan for Third Control Period as per BIAL's MYTP submission

5.1.5 Details of the capex plan for the Third Control Period is given below:

Table 56: New Capital expenditure proposed by BIAL in the Third Control Period

S no	Capital expenditure project	Consolidated project name; financial year of commissioning	Project cost	Design, PMC, Pre-operative expenses and contingency cost	Total capex (excl FA)	FA	Total Capex (incl FA)
1	Airside Security wall	Airfield works - Phase I; 2023	3.88	1.03	4.91	0.84	28.78

S no	Capital expenditure project	Consolidated project name; financial year of commissioning	Project cost	Design, PMC, Pre-operative expenses and contingency cost	Total capex (excl FA)	FA	Total Capex (incl FA)
2	Airside perimeter Road		18.21	4.83	23.04		
3	T1 Optimization	T1 Optimisation; 2025	249.51	66.12	315.63	30.69	346.32
4	Cycle Track along SAR / SWR / NCR plus docking stations	Landside Access and Parking - Phase Ia and Phase Ib; 2026	12.89	3.42	16.31	32.16	762.11
5	MMTH - Phase 2		268.59	71.18	339.77		
6	Airport Terminal Metro Station		156.82	41.56	198.38		
7	City Side Metro Station		97.60	25.86	123.46		
8	North west road expansion		41.13	10.90	52.03		
9	CISF Barrack Expansion and Access Road	CISF Barrack Expansion; 2026	44.79	11.87	56.66	1.87	58.53
10	BIAL Campus Parking and Canteen	BIAL Campus Parking & Canteen; 2026	69.65	18.46	88.11	2.20	90.30
11	Animal Quarantine facility	Animal Quarantine facility; 2026	3.65	0.97	4.62	0.23	4.85
12	New cargo domestic terminal including Cool Port	Refurbishment of existing cargo terminals & New Cargo terminal; 2023	101.88	27.00	128.88	2.09	281.20
13	Refurbishment of existing cargo terminals		118.76	31.47	150.23		
14	Refurbishment of catering buildings	Refurbishment of existing catering buildings; 2023	25.81	6.84	32.65	0.81	33.46
15	Water Treatment Plant	Water Treatment Plant; 2023	6.80	1.80	8.60	0.21	8.82
16	Landscape Works	Landscape Works; 2026	69.39	18.39	87.78	4.42	92.20
17	Alpha 4	Alpha 4; 2026	204.37	54.16	258.53	13.01	271.54
18	Landside Maintenance Building	Landside Maintenance Building; 2026	12.48	3.31	15.79	0.79	16.58
19	CISF Permanent Housing - Phase I	CISF Permanent Housing - Phase I; 2026	369.68	-	369.68	77.16	446.84
	Total		1,875.89	399.15	2275.04	166.49	2441.53

5.1.6 Details of key projects as submitted by BIAL is given below:

a) “Airside Security Wall and Perimeter Road Relocation at KIA

- GSE tunnel built below the east Crossfield taxiway is closed for security reasons as it was supposed to connect the Airside of Eastern side Apron. Currently the GSE tunnel is on the landside. If we convert this to Airside by realigning the security wall it reduces close to 14 kms of driving time for maintenance and security vehicles every day. Hence this perimeter wall realignment is included as part of CP3.
- To ease the vehicular movement near GSE tunnel, BIAL also intends to relocate the partial airside security fence along with perimeter road of approximately 700m in length. In addition to this, the other two locations also need relocation as the land reserved for new cargo domestic terminal and new CISF barrack on north east are on airside. Before commencement of these building construction, the parcels shall be converted to landside by relocating the existing airside security wall along with perimeter road of approximately 1.3 km in length.

b) T1 Optimization

- The existing Terminal 1 has been in operation from 2008-09. While the planned capacity was 20 Million post Terminal-1 expansion, over 32 Million passengers were handled in this Terminal in 2019-20. The existing terminal T1 is proposed to be rehabilitated to increase its operational efficiency and passenger throughput. This also includes spatial arrangements for converting the integrated terminal into only domestic terminal, once T2 phase 1 is operational.
- Some of the improvements evaluated and captured in this programme are:

Table 57: Details of works proposed by BIAL as part of the T1 optimization project

S. No.	Major activities – Replacement/ Refurbishment
1	BHS related upgradation (Redundant line for BHS during Failure of ABC line)
2	Replacement of existing system of AHUs and Chillers
3	Replacement of PTB fire hydrant MS pipeline and sprinkler MS pipeline network with DI pipeline
4	Dual plumbing systems for washrooms inside Terminal 1
5	Escalators/elevators which are over 12 years old
6	Arrival/departure carousel units over 12 years old
7	T1 BHS in BMA area has design limitation resulting in frequent damage to baggage due to steep inclination
8	Automatic doors (both landside and airside) over 12 years old
9	Wastewater discharge lines
10	Alternate / upgraded potable water supply line to address pressure drop and single source failure risk.
11	Upgradation of SWM (Solid Waste Management) infrastructure
12	Automatic Source transfer switch to be considered for critical IT loads to have a power redundancy
13	Integrate the monitoring of concessionaire HVAC equipment with existing HVAC-BMS to check HVAC operations.
14	Central monitoring system for T1 elevators and escalators to better monitor VHT systems
15	Re configuration of Security Check area
16	Addition of E-gates at boarding gates
17	Additional terminal exit gates for arrival passengers
18	Addition of staircase from level 1 to level 0 to access west bus boarding gates
19	Compliance to GOI/PMO office initiative of “Sugamya Bharat Abhiyan” for PRMs
20	Reconfiguration of D to D transfer and link with departure BHS

S. No.	Major activities – Replacement/ Refurbishment
21	Reconfiguration of clinic and pharmacy before and after SHA area
22	Reconfiguration of International area to fit domestic requirement
23	Reconfiguration and Enhancement of VIP Lounge
24	Reconfiguration and Enhancement of toilets/ washrooms
25	Enhancement of existing staff cafeteria and Other staff facilities
26	Automated emergency exits with swing display signage for evacuation (intelligent signage system)

c) *MMTH - Phase 2, Terminal Metro Station and Airport City Station*

- The Government of Karnataka (GoK) has proposed to bring metro rail link to KIA to decongest the roads. This would help thousands of air passengers who travel 30 kms by road from the city to reach the airport faster using metro transit. Hence BIAL has decided to integrate this metro rail with other modes of transport, proposed terminals and other proposed infrastructure both airside and cityside by developing a multi modal transportation hub to be located in front of T2.
- As part of this integration, BIAL has proposed two metro stations inside the campus - i) Located in terminal forecourt area to serve mainly passengers, meet/greet service providers and employees working inside the terminal. ii) Located close to first roundabout / trumpet on the west to serve both BIAL and other employees working in airport community and city side development.
- MMTH has two phases. Phase 1 is under construction and would be operational along with T2 phase 1. The phase 2 of MMTH is part of third current period project which has metro stations and other associated facilities including lagoon and arrival plaza landscape features.

d) *North west road expansion*

- To provide access to the suburban railway station and other planned support facilities on the north west, a secondary (north west) four lane access road of approximately 2.5 kms is planned as an expansion project.
- Proposed Domestic Cargo Terminal is likely to be located in the western side of Airport premise and this road expansion project will also facilitate seamless cargo vehicle movements on the Landside and may also probably provide a road rail cargo connectivity effectively.

e) *CISF Barrack Expansion and Access Road*

- A fully functional CISF Barrack is proposed to replace the existing CISF Barrack to accommodate the growing needs to CISF which includes dormitory area, office area and arms area.
- To access the new CISF barrack located on north west of KIA, a partial secondary four lane access road of approximately 1.5 kms is also planned along with the new CISF barrack development.

f) *BIAL Campus Parking and Canteen*

- The current parking facilities for BIAL and Airline employees are located adjacent to the Alpha office buildings, to the west of terminal 1 (T1). However, this land parcel is reserved for future office building (Alpha 4) which is scheduled to be implemented in the Third Control Period. Hence, it is planned to build multi-level car park in Alpha / office zone to serve all employees. This development should be taken up before commencement of Alpha 4 construction.
- Similarly, the existing canteen facility located in Alpha 2 should be relocated when the building is handed over to AAI. So, it is proposed to combine both facilities at the proposed location.

g) Cargo development related programmes

- KIA's existing cargo infrastructure has a capacity of about 0.6 million tonnes and has handled about 374,000 metric tonnes during FY20. Since the present concessionaire contracts are valid only till 2023, BIAL has engaged the services of an external consultant to develop a Strategy & roadmap for boosting Air Cargo potential at BIAL. The exercise was carried out in 2018 at a time when passenger traffic was growing at an unprecedented pace of 20%+ per annum. Based on the development plans that were expected to be carried out, the consultant has suggested that the entire cargo infrastructure can be located to the eastern side of the airport.
- In light of the reduced pace of aviation growth over the last year owing to the impact of COVID 19 pandemic on civil aviation, BIAL has reassessed the development projects proposed for Third Control Period including the investment envisaged for cargo handling capacity expansion. As part of this exercise, BIAL relooked at the factors while firming up the plan for the eastern side of airport.
- Accordingly, BIAL has proposed the following developments on the West Side (existing):
- New cargo domestic terminal at MRO 3 location
- Additional cool port building
- Refurbishment of existing cargo terminals
- The decision is to continue on Western side allowing BIAL to effectively use existing cargo terminal and not invest towards new terminals, new landside connectivity and other infrastructure without comprising on handling capacity in the medium term.

h) Water Treatment Plants (WTP) and Landscape Developments

- To meet the non-potable demand at KIA, additional water treatment plants (WTP) of 0.9 MLD and 1.6 MLD capacities are planned adjacent to existing booster pump house on the west and within the CUP premises.
 - In addition to WTPs, the second phase of landscape development includes
 - Landscape at trumpet Interchange
 - Main Access Road (MAR)
- Key elements of the Landscaping are:
- The proposals are based around creating a resilient and biodiverse landscape that is underpinned by a network of sustainable drainage. In addition to the environment systems is a network of footpaths and cycle-paths for sustainable transport. The proposals are also promoting the re-use of existing planting along the current MAR in the new design.

i) CISF Permanent housing - Phase I

- CISF has been inducted at Bangalore Airport in the year 2008 to provide security for Kempegowda International Airport & its premises. As per directions given in by the Ministry of Civil Aviation, it is the responsibility of Airport Authority of India (the operators of the Airport then) to provide township accommodation to CISF for families & Barracks.
- According to Rule 61 of CISF Rules 2001, "Normally, the undertaking where the Force has been deputed shall provide accommodation in the township itself to all supervisory officers and at the

rate of 45 percent married and 55 percent unmarried or as amended by the Central Govt from time to time, to the enrolled member of force”.

- Presently BIAL has provided bachelor accommodation for the eligible personnel at different locations i.e. near to Country Club & Ladies staff and at Raksha Nikunj for Sub-Officers on temporary basis. The construction of temporary barracks is nearing completion, however the same can accommodate only bachelor CISF personnel. Family accommodation has not been provided so far and HRA is being paid as per laid down norms. This has resulted in all the CISF staff residing at scattered locations. These arrangements cause lot of administrative and operational inconvenience besides safety and security issues.
- CISF has completed its 12 years with the BIAL since induction and providing a permanent CISF township for bachelor & married personnel will solve many of the operational and logistic problems. In light of above, it is proposed to setup a permanent Housing township with required amenities for CISF staff deployed at KIA by acquiring land in the nearby vicinity to the airport.

j) Alpha 4

- AAI (Air Navigation Service provider) had requested for additional staffing space for second runway related operations. As per the earlier Master Plan, an annexure building was proposed adjacent to the existing Admin building (Alpha 1). However, it was decided that BIAL would hand over the Admin building (Alpha 2) to accommodate AAI staffing requirement and BIAL would temporarily shift into another facility until the construction of the “New Airline and Admin building” (Alpha 4)
- In the earlier submission, the built-up area of 12,000 sqm was planned for this facility to accommodate BIAL employees in addition to the existing Alpha-2 office space available in the campus. But due to the handover of Alpha 2 to AAI and additional requirement for office space from Airlines and other stakeholders, BIAL has proposed to increase the “New Airport Administration Building” built up area to 45,000 sqm by combining the current planned plot with adjacent plot of 1.0 acre. The total plot area reserved for integrated administration building is 2.5 acres.
- Given the current scenario of COVID-19 that has impacted the traffic significantly, BIAL has accommodated its current staff at different locations across the airport on a short-term basis and decided that this facility will be executed in the latter part of Third Control Period.”

c. Sustaining capital expenditure for the Third Control Period as per BIAL’s MYTP submission

5.1.7 Apart from the projects planned in Third Control Period, BIAL submitted the following key components of the sustaining capex for Third Control Period as follows:

- a) “Replacement of Crash Fire Tender (CFT): BIAL has 4 CFTs and these were purchased in 2007-08. These CFTs would have been in use for more than 15 years during the course of the Third Control Period. Considering the safety performance requirement, it is planned to replace the CFTs in the Third Control Period in phased manner.*
- b) Escalators, Elevators and Travellators: The refurbishment of escalators, elevators and travellators are planned in 3 phases to optimise the spend across 3 financial years. Components which are in good working condition will be preserved and only the balance equipment will go for upgradation/replacement in the subsequent years to optimize the cost. This ideology is the result of technical due diligence of the need for this asset.*

- c) Passenger Boarding Bridges: While the structure will remain as it has balance life expectancy, most of the moving components, software, the cable track and hydraulic system needs to be changed. This work is also planned to be done in phases during this control period.*
- d) Automatic sliding doors: The asset has been run down over the years due to normal wear and tear and hence requires replacement. We are proposing to replace these doors during this control period in phases.*
- e) Baggage handling system: The baggage handling system, which was commissioned in 2008, requires major upgradation related to software, sensors, control logic, drive units. etc. The entire slot system in the arrival area also needs to be refurbished. These works are also proposed to be taken up in phases during the Third Control Period.*
- f) Fire alarm system: Software upgradation, changing of Fire detectors and accessories in line with technological development is proposed during this control period.*
- g) Fire Fighting system: Replacement of corroded pipe sections, replacement of valve and critical motors are proposed to be undertaken during the 3rd CP.*
- h) HVAC system: Average age of high side of the HVAC system pertaining to chillers, cooling towers, valves and pumps is over 13 years. Refurbishing/replacement/upgradation of the HVAC system including Air Handling Units with higher volume of airflow would be required to be done in Third Control Period to meet the change in terminal layout. This will also be a step towards making BIAL energy efficient.*
- i) Cleaning/sweeping equipment: Equipment like Road sweepers, ride on scooters, etc are proposed to be replaced during this Control Period in a phased manner.*
- j) Inspection Vehicle: Most of the inspection vehicles have completed 15 years of life and have run for more than 1.5 Lakhs kms. As most of the inspection vehicles are used in operational area, it is proposed to replace the vehicles in line with fuel efficiency, safety and functionality.*
- k) Civil works in airside other than Runways and taxiways: Apron joint sealing system, Perimeter road strengthening, widening of curves and relay are planned to be carried out in phases. This will be planned in such a way that there is minimal disturbance to operation by coordinating with ATC, operations and safety.*
- l) Power distribution System: Replacement of cables where insulation value is low, upgrading of SCADA system, upgrading DG synchronisation software, adding redundant / standby cables to critical system are planned during the Third Control Period.*
- m) Water distribution system: Replacement of pumps, valves, hydropneumatics system, replacement of existing pipe network, adding redundant lines, filtration system etc are the planned activities during this control period.*
- n) Sewerage treatment system: Existing STP is based on extended aeration system. As there is a need for capacity enhancement and technology upgradation, major refurbishment is planned for the STP in the Third Control Period.*
- o) Asset Management System: In the initial phases of BIAL development, SAP platform was used for maintenance also with plant maintenance system and material management system linked with finance system. With efflux of time, such software has become obsolete. Technological advancements combined with complexity of asset multiplication, effect of SAP based preventive maintenance and work order management is not very effective. This system also does not permit mobility-based work order completion. In 2019, BIAL completed the second runway project along with associated taxiways, CAT*

III lighting system, additional ARFF set up with sophisticated fire fighting vehicle, new perimeter roads, etc. In order to effectively manage the assets during its life, BIAL is focussing on implementing effective asset management system, which will use BIM based systems, using IOTs for analysis, sub-contractor management, attendance control, resource allocation, workforce management, scheduling, analytics, inventory management, mobility solutions for asset maintenance, etc. This platform will be pioneered with existing assets and scaled up to manage the increased assets. BIAL will be implementing this project in phased manner to enhance the asset life cycle and also will have reduction in operating utility cost and maintenance cost.

- p) *ICT Refresh: BIAL has also estimated ICT Refresh costs at periodic intervals in the Third Control Period.*
- q) *Operations Refresh: Sustaining Capex requirements of Operations includes requirements of ARFF, Terminal Operations, Security and Safety departments like PIDS, CCTV Cameras, Trolleys, Queue Managers, VDGS etc. ”*

5.1.8 The sustaining capital expenditure proposed by BIAL in its MYTP for the Third Control Period is as follows:

Table 58: Sustaining capital expenditure proposed by BIAL as per its MYTP submission for the Third Control Period

Capital expenditure	2022	2023	2024	2025	2026	Total
Sustaining Capital Expenditure	414.34	230.67	282.73	126.54	290.32	1,344.59

Allocation of assets into aero and non-aero as per BIAL’s MYTP submission

5.1.9 For all common assets, BIAL has submitted that it has applied the aeronautical ratio of 91% as an average of ratios of FY 2018-19 and 2019-20. BIAL has submitted that it has considered the allocation ratio for Terminal – 2 as 88% in line with the earlier control period assessment by the Authority.

Depreciation

5.1.10 BIAL has submitted the following regarding the depreciation for the Third Control Period:

- a) *“Fixed assets are considered at their original cost of acquisition less accumulated depreciation. The cost includes cost of subsequent improvements thereto including taxes, duties, freight and other incidental expenses related to acquisition and installation of the assets concerned.*
- b) *Depreciation has been provided on “Straight Line Method – (SLM)” over the useful lives of the assets. Useful lives have been aligned with Order 35 of the Authority except in cases where there it is based on technical estimate and justification of the Management of BIAL. ”*

5.1.11 The depreciation considered by BIAL in its MYTP for the Third Control Period is given below:

Table 59: Depreciation proposed by BIAL as per its MYTP submission for the Third Control Period

Particulars	2022	2023	2024	2025	2026	Total
Depreciation	541.48	726.38	752.18	760.23	797.08	3,577.35

Regulated Asset Base

5.1.12 Based on the aeronautical opening RAB, additions for the current control period, applying allocation ratio and after considering depreciation following is the aeronautical RAB for the Third Control Period as submitted by BIAL:

Table 60: RAB proposed by BIAL as per its MYTP submission for the Third Control Period

Particulars	2022	2023	2024	2025	2026	Total
Aero opening RAB (A)	5,318.03	11,443.68	11,008.28	10,581.12	10,330.34	
Add: Aero commissioned assets (B)	6,631.24	224.79	238.04	420.79	1,919.60	9,434.45
Less: Aero disposals (C)	0.00	0.00	0.00	0.00	0.00	0.00
Less: Aero depreciation (D)	505.59	660.19	665.20	671.56	704.33	3,206.87
Aero closing RAB (E = A +B- C-D)	11,443.68	11,008.28	10,581.12	10,330.34	11,545.62	
Average RAB (F = (A+E)/2)	8,380.85	11,225.98	10,794.70	10,455.73	10,937.98	

5.2 Authority's examination regarding RAB and depreciation for the Third Control Period

5.2.1 The Authority has analysed BIAL's submission as per MYTP on the capital expenditure proposed for the Third Control Period. The Authority has grouped the proposed capital expenditure for the TCP into the following for evaluation:

- A. Capex projects deferred from SCP to TCP
- B. Capex projects for TCP and
- C. Sustaining capex for TCP

5.2.2 The Authority has noted that BIAL vide its submission dated 2 February 2021, 15 February 2021 and 2 March 2021 had revised the capital expenditure for the Third Control Period.

5.2.3 The Authority noted that ~63% of the total asset additions are brought forward from the previous Control Periods. The Authority noted that BIAL has been estimating capex but not executing the said projects, in the First Control Period and Second Control Period too. The trend of non-execution of proposed spend is as follows:

Table 61: Trend of non-execution of proposed capex

Particulars (INR cr.)	Proposed capex in order	Capex which are dropped later in next control periods/ deferred to TCP	% dropped/ deferred
SCP	10,203	6,917	68%
FCP	2,227	491	22%

5.2.4 The Authority has noted that BIAL had a trend of proposing capex in one control period and postponing the same to future control periods without execution. This leads to services not being available to passengers who have paid up. This trend does not further instill any confidence in the Authority that large projects which were proposed in earlier Control Periods nor the large new projects proposed by BIAL would be completed on time. In order to discourage this trend, the Authority shall reduce 1% of the project cost from ARR/Target Revenue as re-adjustment in case any particular project is not capitalized as per approval in tariff order.

5.2.5 While analyzing the Multi Year Tariff Proposal (MYTP) of BIAL regarding capital expenditure for Third Control Period, the Authority has taken into consideration reduced traffic due to COVID-19 pandemic and has appropriately rationalized the proposed capital expenditure as given in the following paras.

A. Capital expenditure projects deferred from Second Control Period to Third Control Period

5.2.6 Following table gives the details of the capital expenditure in Group A - capex projects deferred from SCP to TCP as submitted by BIAL in its MYTP and the revised submission dated 15 February 2021:

Table 62: Capital expenditure projects deferred from Second Control Period to the Third Control Period as proposed by BIAL

Reference	Project/ Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP	Revised proposed capex as per BIAL for TCP
A	Capex projects deferred from SCP to TCP	A1	Terminal 2 - Phase I	3,565.67	3,565.67
		A2	Forecourt, roadways & landside development - Phase 1b	1,786.40	1,786.40
		A3	Aircraft Maintenance & Airport Maintenance Facilities	41.16	41.16
		A4	Utilities	104.22	104.22
		A5	T2 - Apron Phase 2		427.73
		A6	South Parallel Runway - Phase 2		362.95
		A7	Design, PMC and Pre-ops cost	710.16	830.57
		A	Capex projects deferred from SCP to TCP (sub-total)	6,207.60	7,118.69
	Financing Allowance			814.39	904.80
	Total (including FA)			7,021.99	8,023.50

5.2.7 BIAL in its submission dated 15 February 2021 had revised the list of projects deferred from the Second Control Period to the Third Control Period. BIAL submitted that the T2 – Apron Phase 2 and the South Parallel Runway – Phase 2 which was proposed to be capitalized in FY21 has been deferred and these projects are proposed to be capitalized in FY22. Based on the revised submission, the Authority noted that the following projects have been deferred by BIAL from the Second Control Period to the Third Control Period:

- Terminal 2 – Phase 1
- Forecourts, roadways & landside development – Phase 1b
- Aircraft maintenance & airport maintenance facilities
- Utilities Phase 1
- T2 – Apron – Phase 2
- South Runway – Phase 2

5.2.8 The Authority has noted that Terminal 2 will have a capacity to handle 25 mppa, taking the total terminal capacity of BIAL to 55 mppa by the end of the Third Control Period. The Authority noted that despite the COVID19 pandemic affecting the passenger traffic in the near-term, the passenger traffic

forecast for BIAL by the end of the Third Control Period is 54 mppa which would require the capacity expansion at BIAL. Based on the traffic forecast and the need for capacity expansion, the Authority proposes to consider the capital expenditure deferred from the Second Control Period in the Third Control Period.

- 5.2.9 Further, the Authority noted that it had taken the decisions on the true-up of the proposed capital expenditure of the Second Control Period in the Second Control Period order. The Authority's analysis for the above projects considering the decisions in the Second Control Period order is given in the section below.

A1 – Terminal 2 – Phase 1 - Delay in commissioning

- 5.2.10 The Authority has noted that the commissioning of the Terminal 2, which was proposed to be commissioned by 31 March 2021, has been delayed and BIAL has submitted that it will be commissioned by 31 March 2022.

- 5.2.11 Below are the relevant extracts of the decisions taken by the Authority and the judgement of Hon'ble TDSAT with respect to the Terminal 2 commissioning:

- a) The Authority in the Second Control Period order decided to impose a penalty/ adjustment of 1% of the cost of Terminal-2 Phase 1, if BIAL fails to commission and capitalize Terminal 2 Phase 1 by March 2021. Further, The Authority decided to not consider any additional interest during construction (IDC)/ financing allowance if the project is delayed beyond 31 March 2021.
- b) After the order was issued, AERA vide letter no. F. No. AERA/20010/MYTP/BIAL/CP-II/2016-17/Vol-V dated 13th September 2018 clarified that if the delay in completing the project is beyond the control of BIAL and is properly justified, the same would be considered while truing up IDC and PMC however, under no circumstances adjustment of 1% will be waived. Extract from the letter is given below: *"3. It is clarified that in case there is delay in completion of project beyond March 2021, due to any reason beyond the control of BIAL or its contracting agency and is properly justified, the same would be considered by the Authority while truing up the actual cost at the time of determination of tariff for the 3rd control period in respect of IDC and PMC. However, there will be no waiver of penalty in case Phase 1 of Terminal 2 project is delayed beyond 31 March 2021 under any circumstances."*
- c) The Hon'ble TDSAT judgement dated 16 Dec 2020 for BIAL has not altered the decision of AERA on levy of adjustment for delay in commissioning of Terminal 2 Phase 1. Relevant extract from Hon'ble TDSAT judgement has been given below:

"53. On the basis of claim that the Terminal II Building would be completed by March 2021 as estimated by BIAL, the Authority agreed to treat the capitalization year for Terminal II-Phase 1 as 2020-21. This advantage to BIAL would be totally undeserved if the claim of BIAL that it will complete Terminal II-Phase 1 by end of March 2021 is not found correct. Hence, as a balancing exercise for allowing capitalization on the assurance of BIAL such a penalty which is nothing but reduction of ARR has been provided to ensure that such promise does not cause loss to the users and undue advantage to BIAL if the claim as to the time of completion is ultimately found incorrect.

54. If a convincing case is made out for any reasonable delay, the Authority agrees to examine the same on its own merits and may vary or waive the penalty proposed but only for good reasons. This stand of the Authority appears just and proper and does not require further scrutiny."

- 5.2.12 BIAL has submitted the following justification for the delay in the commissioning of the Terminal 2:

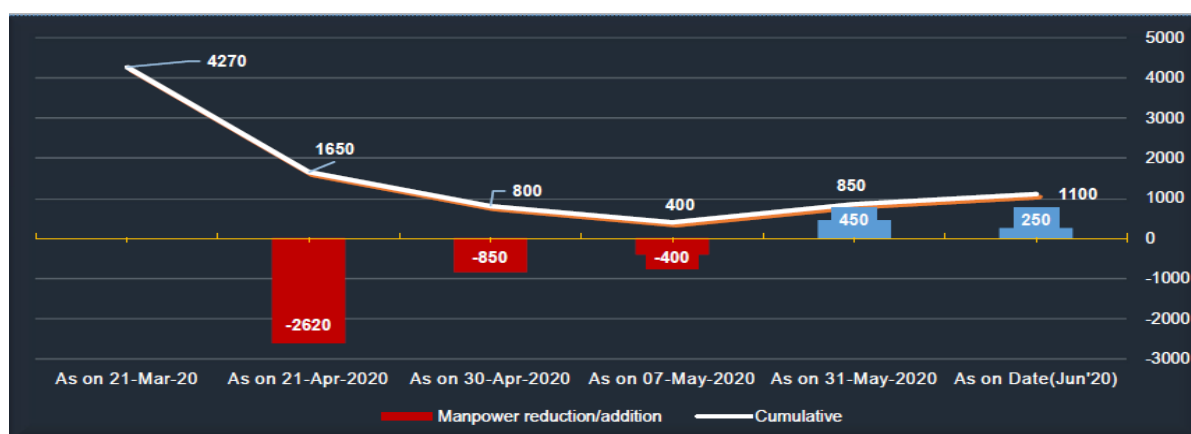
- a) "Supply chain issues on imported long lead items. Below are the details of the delay in the procurement of materials from China as per BIAL:

S.no	System	Planned % of material delivered to site by 31 st May, 2020	Actual % of material delivered to site by 31 st May, 2020	Estimated Impact on project timelines (months)	Remarks
1	Façade Double Glass Units (DGPU)	89%	6%	6.5	
2	Bamboo Ceilings and Column Wraps	98%	12%	3.7	
3	Chillers	100%	100%	3.7	Planned delivery on 05 Feb'20, Delivered on 25 May'20
4	PBB's	77%	0%	6.4	
5	Elevators	88%	70%	1.9	
6	Escalators	100%	100%	4.0	
7	Travellators	100%	100%	4.0	First Delivery was planned on 01 Feb'20, whereas delivery commenced Mid May'20

Below are the details of the delay in the procurement of materials from other countries as per BIAL:

Sl	System	Item Description	Planned % of material delivered to site by 31 st May, 2020	Actual % of material delivered to site by 31 st May, 2020	Estimated Impact on project timelines (months)	Country Of Origin
1	VHT	Goods Elevator - 3000 kg	88%	70%	1.1	Turkey
2	HVAC	EC Fans for air handling Units	100%	0%	4.0	Germany
3	HVAC	Pressure Independent Balancing Valves	70%	5%	4.0	Israel
4	HVAC	Electrochemical Water Treatment System	70%	50%	2.0	Israel
5	Electrical	Lighting Management System	100%	0%	1.0	USA
6	ICT	Active Component	30%	5%	2.0	Singapore
7	ICT	MTCS Components	30%	0%	2.1	Switzerland
8	AS	HBS - ETD Stations	100%	100%		UK
9	PA	PA Equipment	30%	0%	1.1	USA
10	BMS	BMS	40%	0%	2.1	Switzerland

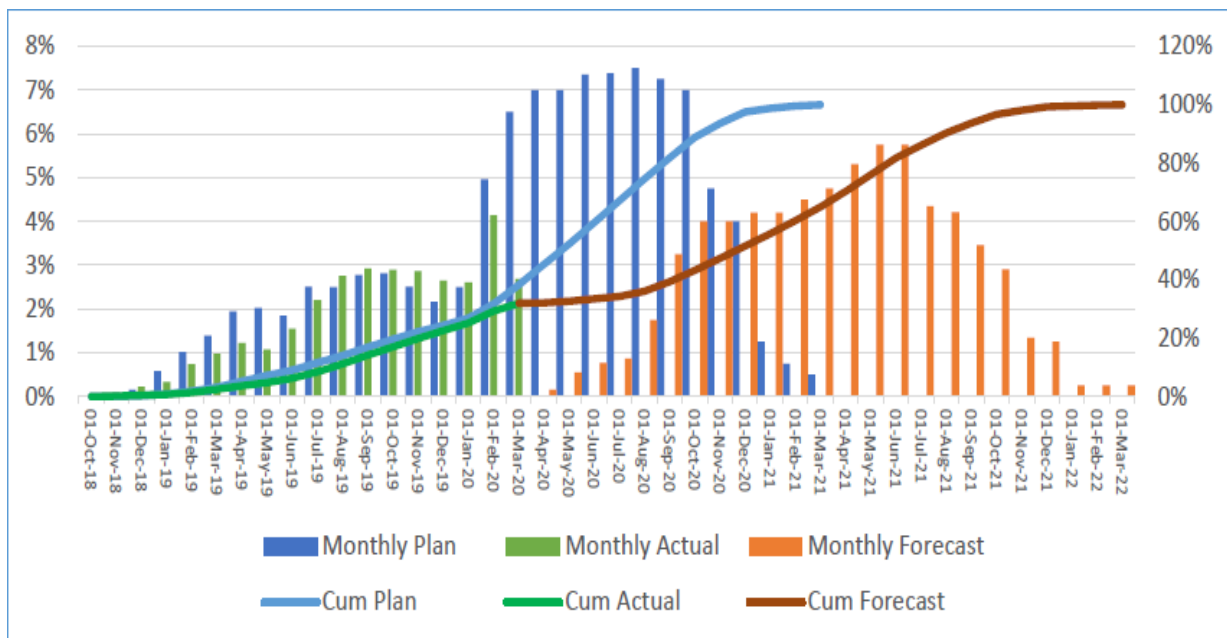
- b) Availability of labour.



- c) Supply chain issues on local procurement

- d) Design changes

BIAL has submitted the following details on the comparison between the actual and the revised timelines for the completion of T2 as follows:



- 5.2.13 The Authority has examined the submission of BIAL with respect to the delay in the commissioning of the Terminal 2.
- 5.2.14 The Authority has noted that COVID-19 has affected the Indian infrastructure projects and has led to delay in the projects. The Authority is of the view that the reasons provided by BIAL with the data on labour shortages and supply chain seems reasonable to justify that the project will get delayed beyond 31 March 2021.
- 5.2.15 Further, the Authority notes that due to disruption in traffic, this delay has not resulted in passenger inconvenience due to lack of timely capacity augmentation.
- 5.2.16 Based on these extraordinary circumstances, the Authority proposes to consider the interest during construction up to FY22 and also waive the adjustment of 1% on delay in operationalization of Terminal 2 - Phase 1 till 31 March 2022.
- 5.2.17 BIAL has submitted that the Project Management Costs for the Terminal 2 have been estimated to increase by INR 50 cr. on account of the extended period of construction till FY22. The Authority is of the view that the scope of work of PMC consultant for the Terminal 2 has remained the same despite the increase in the time period for execution of the project. Therefore, the Authority is of the view that the increase in the PMC costs is not justified and it cannot be passed on to the passengers. The Authority proposes to exclude the additional PMC costs estimated by BIAL for Terminal 2 for FY22.
- 5.2.18 The Authority proposes to levy the reduction (adjustment) of 1% in the project cost of Terminal 2 in case BIAL fails to commission and capitalize Terminal 2 Phase 1 by 31 March 2022. It is clarified that in case there is delay in completion of project beyond March 2022, due to any reason beyond the control of BIAL or its contracting agency and is properly justified, the same would be considered by the Authority while truing up the actual cost at the time of determination of tariff for the 4th control period in respect of IDC and PMC. However, there will be no waiver of penalty in case Phase 1 of Terminal 2 project is delayed beyond 31 March 2022 under any circumstances.

Cost overruns in the capital expenditure deferred from the Second Control Period to Third Control Period

- 5.2.19 The Authority had appointed RITES Limited to undertake the study on determination of efficient capex of BIAL for 2nd control period. RITES had submitted the report to AERA with project-wise efficient

capex for 2nd control period. Below table compares the estimated cost as per BIAL's MYTP submission and the approved cost by the Authority (adjusted for the contingency cost) in its Second Control Period order for BIAL.

Table 63: Comparison of adjusted AERA approved amount with estimated cost (excluding FA/IDC) as per BIAL

Refer ence	Project	Net approved amount carried forward from SCP to TCP	Proposed capitalization in TCP by BIAL	Cost Over-run/ (Under-run)	Variance %
		A	B	C = B-C	D=C/A
A1	Terminal 2 - Phase 1	3,607	3,566	-41	-1%
A2	Forecourts, roadways and landside development	1,127	1,786	659	58%
A3	Aircraft maintenance and Airport maintenance	42	41	-1	-2%
A4	Utilities Phase 1	106	104	-2	-2%
A5	T2 Apron 1	385	428	43	11%
A6	South Parallel Runway – Phase II	398	363	-35	-9%
	Sub-Total	5,665	6,288	623	11%
A7	Design and PMC	329	505	176	54%
A7	Pre-Operating Expenses and ORAT	79	325	246	311%
	Total	6,073	7,118	1,045	17%

* amount approved by Authority for SCP projects deferred to TCP is excluding the proposed capitalization of projects in Second Control Period

5.2.20 The Authority in the Second Control Period order had decided that BIAL shall submit detailed explanation and justifications, should the cost incurred exceeds 10% over the cost approved by the consultant (RITES). The Authority noted that the following projects have exceeded the approved cost:

- A2 - Forecourts, roadways & landside development – Phase 1b
- A5 - T2 Apron – Phase 2
- A7 - Design, PMC, pre-operative expenses and ORAT cost

5.2.21 BIAL has submitted along with its MYTP submission the justification for the increase in the cost. The Authority has reviewed the justification and proposed the head-wise revisions in the section below.

A2 – Forecourt, roadways & landside development - Phase 1b - Cost overruns

5.2.22 The Authority noted that the approved Forecourts, roadways & landside development cost based on the independent consultant study was INR 1,216 cr. in the Second Control Period order of BIAL while BIAL has estimated the cost as INR 1,875 cr., an increase of INR 659 cr.

5.2.23 The justification submitted by BIAL for increase in cost for Forecourts, roadways & landside development – Phase 1b is as follows:

“These projects are related to the complete landside road network that have been planned to be added or expanded to support the new Terminal 2 – Phase 1 and other new developments. A modern Multi-Modal Transport Hub (MMTH) has been designed to give the best city/airport travel customer experience, connectivity between the terminals and easy transfer between various modes of transport.

a) Development of a Multi-Modal-Transport- Hub (Rs. 481.12 crores)

- During the PAL 1 Capex submission, a basic Multi Level Car Parking (MLCP) was considered to support the Terminal 2 parking requirement. The Parking proposals made as per DPR submitted in Second Control Period MYTP proposal envisaged a T2 MLCP of approximately 64,000 Sqm with space for parking around 1800 cars for passengers and employees in the basement and at surface level. MLCP was designed to be an RCC framed (Basement + G structure). The Basement with 4m height & superstructure 3.90 m floor height was assumed. In addition to the above, provision of 6m long Boom Barriers at entry points & Parking Management System was also included.
- However, during 2017-18, based on discussions with the Bengaluru Metro Rail Corporation Limited (BMRCL), airport metro connectivity was felt necessary. Hence the forecourt and land side facilities at BIAL had to cater to this new requirement. The terminal station was to be strategically placed so as to provide best access from both the Terminals- T1 and T2. This led to the redesign of the common areas between T1 and T2. The vertical alignment of the metro in the forecourt area of T1 and T2 also underwent a thorough review and evaluation. It was finally decided that a subgrade open to sky terminal metro station would do best justice from a passenger facility and accessibility point of view along with optimum utilization of land. The concept further evolved into a Multi-Modal Transport hub, which could accommodate private vehicles, taxis, city buses and the metro rail.
- The development of the MMTH evolved on account of the following:
- MMTH to be a passenger-oriented and a focused transit node for the city. Connections between the terminals and the transportation hub are a key component of the passenger experience and overall airport vision.
- Apart from arriving and departing passengers, the MMTH would cater to the airport community as well as the visitors from the city. Thus, the services of metro, bus, app taxi, APM and bag drop became core to the MMTH.
- Metro: BMRCL would have a metro station terminating at KIA and will be the primary transportation facility within the MMTH. All passengers, regardless of terminal, could arrive at the Airport Metro Station.
- Bus: Intercity bus pick-up and drop-off would be located within the MMTH. Facilities shall include loading bays, passenger waiting areas, ticketing areas, and office facilities. On-airport shuttles may also be located at the bus kerb, either for passengers going to the terminals or employees going to various work airport locations.
- App Taxi: It is proposed that each terminal have its own app taxi loading zone. The app taxi loading zone in the MMTH would primarily serve T2 passengers as well as other passengers arriving via metro or intercity bus.
- Automatic Passenger Movement (APM): The MMTH is designed to allow for future introduction of landside APM services, connecting to existing and future facilities such as terminals, commercial areas, and passenger services (such as remote parking or rental car facilities) and the requirement is factored in the MMTH.
- Bag Drop: Bag drop facilities are required to connect to the T2 baggage tunnel. The need to reserve a baggage connection to T1 is also factored in, given that there would be a need to renovate T1 in future and allow for such a facility in future.

- Following key elements have been synthesized to optimize functionality and throughput, while creating an architectural framework which is dynamic and appealing:
- Terminal roadways entering and exiting T2
- Internal roadways connecting passenger-facing ground transport facilities, and goods flow
- Multi-Storey Car Park
- Private Car Pick-Up
- App-based taxi pick-up
- Bus Station
- Metro Concourse and Platform
- Inter-Terminal Connecting Bridge
- Inter-Terminal Transfer Facility
- Baggage check-in facilities were also planned to be provided at the terminal metro station. It was also important to have a free, seamless and safe pedestrian walkway connectivity between Terminal T2/ Metro Station / T1/CUP such that passengers/staff/other service providers can have a hassle free and safe walking experience.
- In order to meet all the above-mentioned requirements, the complete redesign of the area resulted in the following facilities:
- Baggage processing at the minus level 3 of the MMTH basement. From here, one tunnel is planned towards the T1 Terminal and the second tunnel connects the T2 Terminal.
- Two basements for car parking
- Part of the basement number one for the bus parking.
- Common services areas for the metro and the MMTH.
- A level 0 walking area connecting the Terminal 2, MMTH and Metro.
- An elevated pedestrian walkway connecting Metro & Terminal 1.
- Terminal metro station as a subgrade open to sky metro station with platform screen doors and the MMTH / Metro interfacing and enabling works.
- The rainwater harvesting ponds re-orientation

b) Landside Facilities (Rs. 177.44 crores)

- At the planned Trumpet expansion, land acquisition was to be carried out by NHAI. The Way Leave Charges towards the acquisition was borne by BIAL. The cost incurred is Rs. 8.75 crores.
- At the time of finalization of Metro Terminal Station, it was found optimum to align the road network connectivity to the Terminal 2 along with the metro vertical alignment. At the time of MYTP submission for Second Control Period, elevated road network was considered to connect to/from T2 Terminal from the existing ATC tower. In the current scheme the road network connectivity to/from T2 reaches approx. minus 6 metres at the current ATC tower and continues at minus 6 metres till it reaches T1 arrivals road. From here it again starts to ramp upwards towards

the Terminal 2. Deep drains had to be added to the list of projects due to the shift from elevated network to a -6m level network.

- Based on the development plans and further detailing to meet the connectivity requirements, there is an increase in the road development area by approx. 20% as compared to the areas that had been submitted as part of the earlier submission. This increase has resulted into an additional cost of approximately Rs 90 crores.
- A major CISF checkpoint for a 10-lane road system along with bollards are planned on the main access road to monitor and control the access to/from the terminals. This facility is to meet the security requirements. This checkpoint will be equipped with offices, checkpoints, CCTV cameras, bollards, parking spaces etc. and is designed for 24x7 operations. The estimated cost towards this entire arrangement is Rs. 12 crores.
- A Vehicular Underpass (VUP) has been added to cross beneath the main access road from the north cargo road to the southern access road. This is a 2-lane vehicular under pass and the total length of the pass is 380 metre Two tracks of the metro along with the road network to the terminals passes above the underpass. The VUP is an asphalt road, with drains, steel lighting and other road furniture. The clear width at the VUP is 10.5m and approaches have a width of 7.5m..
- A pedestrian walkway facility has been added for safe and seamless pedestrian access from the car park to T1 forecourt. This is semi enclosed facility with elevators, escalators and travellers. Landscaping has been added to the walkway. The total length of the pedestrian walkway is 450m. The breakup is elevated walkway of 240m length, 70m long bridge crossing the main access road and 140m of at-grade portion. This facility is planned to have 4 elevators, 2 escalators and 4 travellers. The estimated costs here is Rs 41.04 crores.
- Other important features of the Landside Facilities
- Curved street lighting is being considered as against the standard light poles. As regards the Elevated Roads, special architectural lights are planned. These include pier and deck girder uplights, LED lighting for the full length of the flyovers.
- A landscape plan along the main access road has been planned from start of the road network within KIA till the Terminal 2.
- Latest and modern ICT systems is planned for effective CCTV coverage and data storage for the landside.”

5.2.24 The Authority noted that the increase in the forecourts, landside and roadways cost is on account of development of a multi-modal transport hub and landside facilities.

5.2.25 Regarding the development of the multi-modal transport hub, the Authority noted that it had approved multi-level car park in the SCP order. BIAL has proposed to convert the multi-level car park into a multi-modal transport hub which integrates bus station, car park, metro station, premium car park, baggage sorting area as well as taxi/ cabs and also includes retail area as part of MMTH. The Authority notes that the MMTH has both aeronautical and non-aeronautical components. The Authority proposes to bifurcate the MMTH cost into aeronautical and non-aeronautical components based on the floor wise area usage for aeronautical and non-aeronautical activities.

Table 64: Allocation of MMTH cost into aeronautical and non-aeronautical

S no	Floor	Usage	Area (sq m)	Type (A/ NA/ C)*
1	Basement3	Baggage sorting area	6555	A

S no	Floor	Usage	Area (sq m)	Type (A/NA/ C)*
2	Basement 2	Private car parking	35722	NA
3	Basement 1.5	Bus station	14791	A
4	Basement 1	Private parking	36419	NA
5	Level 0	App taxi and premium taxi (considered NA presently as Metro expected to be operationalized in FY26)	47401	NA
6	Level 1	Passenger circulation and landscape	33704	A
	Total		174592	
	Total aero		55050	
	Total non-aero		119542	
	% non-aero ratio		68%	

5.2.26 The Authority noted that the majority of the increase in MMTH cost (68% is non-aero as per the table above) can be attributed to the non-aeronautical activities.

5.2.27 Regarding the landside facilities, the Authority noted that the additional cost in forecourts, landside and roadways is on account of the need to provide the metro connectivity to the airport which has resulted in the re-alignment of the approach roads.

5.2.28 Based on the above, the Authority proposes to consider the additional cost on account of forecourts, landside and roadways as part of the RAB.

5.2.29 Further, Phase 1 of MMTH which is proposed to be commissioned in FY22 does not include the metro station but only the enabling works for metro station and the baggage sorting area. BIAL has submitted that these assets will be capitalized in FY22. The Authority noted that the enabling works for metro station and the baggage sorting area will be put to use at the time metro commissioning its operations, that is, in FY26. The Authority is of the view that the passengers cannot be charged for the assets not available for their use and therefore, proposes to capitalize the enabling works for metro station and the baggage sorting area in the year of metro commissioning, that is, FY26.

5.2.30 Below table provides the break-up of the forecourt, roadways & landside development - Phase 1b cost as proposed by the Authority.

Table 65: Break-up of the forecourt, roadways & landside development - Phase 1b

S no	Particulars* (in INR cr.)	Proposed capex as per BIAL's MYTP submission for TCP	Proposed capex as per Authority
1	Forecourt, roadways & landside development - Phase 1b (except MMTH)	1,250.45	1,250.45
2	MMTH - Phase 1	535.94	462.51
	Total	1,786.40	1,712.96

* capital expenditure provided is excluding the design, PMC, contingency, pre-operative expenses and IDC

A5 – T2 Apron - Phase 2 - Cost overruns

5.2.31 The Authority noted that the approved T2 – Apron cost based on the independent consultant study was INR 385 cr. in the Second Control Period order of BIAL while BIAL has estimated the cost as INR 428 cr., an increase of INR 43 cr.

5.2.32 The justification submitted by BIAL for increase in cost for T2 Apron – Phase 2 is as follows:

- “The major reason for the increase in costs is on account of having additional rainwater harvesting ponds. In order to meet the water requirement through sustainable additional 3 rainwater harvesting ponds are added on the landside. The total capacity of the ponds added is 227 ML. Construction of these ponds involve earthworks, pond lining, pump rooms and piping works. The cost towards this is Rs. 22.50 crores.
- The apron construction works were planned to be carried out using the Ground Support Equipment (GSE) tunnel or the Eastern Connectivity Tunnel (ECT). However, due to security reasons, approval from BCAS/CISF is awaited for using the tunnels for movement of men, materials and equipment for construction activities on 24x7 basis. This non-availability of the tunnels has resulted in a significantly longer lead of approx. 20 kms for movement of men, material and equipment. This has contributed to the balance overrun to be incurred.”

5.2.33 The Authority had asked BIAL to submit the details of the water cost savings due to the additional rainwater harvesting (RWH) ponds. BIAL had submitted that 50% of the potable water requirement from FY23 onwards will be sourced from these RWH ponds and accordingly, the cost of procuring water from external sources will decrease. The Authority has noted the cost benefit of the RWH ponds and proposes to consider the increase in the cost of T2 Apron Phase 2 due to RWH ponds upto 22.50 cr. The Authority proposes to consider the actual cost of the RWH ponds during true-up for the next control period. Based on the asset allocation study (refer Annexure I for summary of the report and Appendix II for the report), the Authority proposes to bifurcate the RWH ponds into aeronautical and non-aeronautical based on the average terminal area ratio.

5.2.34 In the response to the Authority’s query, BIAL had mentioned that the ECT had been constructed in November 2019, however, it was not utilized due to pending BCAS approval. The Authority notes that the construction activities were limited from March 2020 onwards due to Covid-19 and BIAL has received the BCAS approval for operations in September 2020. As a result, the Authority is of the view that BIAL’s claim of increase in cost of INR 20.50 cr. is not reasonable. The Authority proposes to exclude the estimated additional cost of T2 Apron Phase 2 from RAB due to the delay in the commissioning of the ECT.

A6 – South Parallel Runway – Phase II

5.2.35 The Authority asked BIAL to submit the details of the works proposed under the South Parallel Runway – Phase II project which is proposed to be capitalized in the Third Control Period. BIAL submitted the following response:

“Certain projects which were completed in 2019-20 were capitalized and recognized as assets while some Projects which were in progress got carried over beyond 31st Mar 2020 and are estimated to be completed in the ensuing period FY 2021 and FY 2022.

Hence, for ease of reference, out of the total Estimated Cost at completion for the NSPR program (in the PAL-1 projects) submitted as part of MYTP, the projects which were carried over beyond FY2020 and planned to be completed in the subsequent years have been captured in the Business Plan as Phase II. The list of key projects for the line item “South Runway Phase II” is given below:

- Ground Support Equipment Underpass*
- North Airfield connections*
- Earthwork, asphalt & drainage along the areas - Crossfield taxiway P&Q*
- Airfield Ground Lighting (AGL) Works*
- Irrigation & utility related work*

vi. Perimeter wall related works

vii. Perimeter Intrusion Detection Works (PIDS)

We wish to clarify that no new projects are getting implemented under Phase II, beyond what was originally approved by AERA in the 2nd CP tariff order.

- 5.2.36 The Authority noted that RITES had approved a consolidated project for the new south airfield works while BIAL has proposed capitalization of the project in two parts. The Authority asked BIAL to submit the reason for bifurcating the project into two parts and the justification on whether these projects can be capitalized independently. BIAL submitted the following response:

“The complete second runway system is commissioned and is operational after obtaining necessary approvals from the Regulator – DGCA. Based on this, the statutory auditors have also approved the capitalization of the 2nd runway and the same is reflected in IGAPP FY2020 reports.

RITES has provided one consolidated cost. It may be noted NSPR is mega infrastructure project. Any mega project has subprojects which once completed can be put to beneficial occupancy. As and when each of these projects can be put into beneficial occupancy, the commissioning and operations is carried out for beneficial service to the passengers and airlines.”

- 5.2.37 The Authority has noted the above responses of BIAL on the South Parallel Runway – Phase II project which has given the details of the proposed project and explained the reason for capitalization in two parts. Accordingly, the Authority proposes to consider the capital expenditure for South Parallel Runway – Phase II in the RAB of the Third Control Period.

A7 – Design, PMC and Pre-ops cost - Cost overruns

- 5.2.38 The Authority noted that the approved Design and PMC cost based on the independent consultant study was 5% of the total project cost in the Second Control Period order of BIAL while BIAL has estimated the cost as 6.94%, an increase of 1.94%. The Authority had approved INR 150 cr. as the pre-operative expenses in the Second Control Period order of BIAL while BIAL has estimated the cost as INR 402 cr. (inclusive of ORAT cost), an increase of INR 252 cr..

- 5.2.39 The following justification is submitted by BIAL for increase in cost for Design, PMC, pre-operative expenses and ORAT cost:

- “The estimated actual cost of Rs. 354 crores includes a committed design costs of Rs. 328 crores for major designs activities which have been awarded towards the following Projects:
- Terminal 2 – Phase 1
- NSPR and associated airside works
- MMTH & landside design services
- Landscape design
- Provision for specialized design services: peer review and study, third party design checks.
- PMC has been engaged for overseeing and managing the project.
- Pre-Operative Cost:
- BIAL has undertaken an integrated large-scale Airside and Terminal development program with associated road and other infrastructure facilities comprising of more than 80 sub-projects. Such a mega scale development program has the following requirements to be adhered to:

- High safety standards (target zero)
- World class quality
- Specialized and customized construction works
- Challenging and aggressive time schedule
- Delivery to budget
- Interdependent and large-scale works undertaken at the same time across the premises – airside, terminal and landside.
- Resources required are specialized by nature for managing such large-scale expansions. Due to the above requirements, BIAL had to ensure proper staffing to achieve the quality expectation as set out in the scope and specification for a world class project delivery.
- BIAL had to work out a judicious mix of PMC (specialist and short term) staffing and own staffing (long term requirements) to meet these safety, quality, time and cost challenges.
- BIAL has an exclusive team of Planning, Design, Construction, Airport Systems, Quality, Procurement, Contract Administration, Project Control besides support services like HR and Finance. This team is totally dedicated to development of the project. Besides, specialists are also hired to support the existing project team. The salaries and office related expenses of this team are ‘Pre-Operative Expenses’. It is pertinent to submit that the team is involved from a pre-concept stage starting with design, planning and adding to that the service support teams like Procurement, QA, HSE, Project Controls etc., besides construction teams as and when required. Besides, some specialists in areas like design, airport systems etc., are being roped in from PMC agency wherever required.
- Operational Readiness and Transition (ORAT) was not provided as part of the PAL 1-Capex submissions. These are incurred towards trials, customization of the airport staff/airline community towards smooth operations of various project facilities such as the runway, terminal 2, etc., from the day of operations.
- BIAL has carried out benchmark study by engaging M/s Turner on various Airports – India and International Airports as well as other mega infrastructure projects in India and South-east Asia.
- List of Airports chosen for benchmarking:
 - Indira Gandhi International Airport, Delhi - Terminal 3 (DEL)
 - Chhatrapati Shivaji Maharaj International Airport, Mumbai – Terminal 2 (BOM)
 - Rajiv Gandhi International Airport, Hyderabad – Terminal 1 Expansion (HYD)
 - King Abdul-Aziz International Airport, Jeddah, Kingdom of Saudi Arabia - Terminal 1 (JED)
 - Tan Son Nhat International Airport, Vietnam - Terminal 1 (SGN)
- When looking at the range and average of pre-ops, PMC, and design costs based on hard cost of projects that achieve similar global rankings, cost per passenger, timeliness of construction, and LEED rated facilities in India is as follows:

Table 66: Benchmarking study submitted by BIAL

<i>S no</i>	<i>Cost head</i>	<i>Range</i>	<i>Average</i>	<i>BIAL's estimate</i>
1	Design and PMC	5.1-11.1%	8.03%	6.94%

S no	Cost head	Range	Average	BIAL's estimate
2	Pre-operative expenses	3 – 8.9%	5.63%	4.33%
	Total	10.1 – 20.0%	13.67%	11.63%

- Hence, the total soft cost for BIAL as a % of the estimated cost of 11.63% is within the soft cost benchmarked with leading airport and infrastructure project in India and globally. Further, the break-up of individual elements of soft costs (Design & PMC, Pre-Operative cost) is also well within the average levels shown above.
- The below table compares the various elements of soft costs for BIAL against the 3 projects (Indira Gandhi International Airport, Delhi - Terminal 3 (DIAL), Chhatrapati Shivaji Maharaj International Airport, Mumbai – Terminal 2 (MIAL) and Rajiv Gandhi International Airport, Hyderabad – Terminal 1 Expansion (HIAL)) and also includes data on T1 A expansion of BIAL. Project cost excluding Interest during construction has been taken as the base for computing the % depiction.

Rs in crores	DIAL	MIAL	HIAL	BIAL - T1A	BIAL - T2	
					Mar-22	Mar-21
Project cost	10,657.00	9,245.00	1,989.00	1,335.75	9,183.00	9,183.00
Design cost	286.00	818.00	50.00	75.28	354.00	354.00
PMC	203.00		92.00		209.00	159.00
Pre-operatives expenses	488.00	684.00	54.00	35.00	401.00	329.00
Total soft cost	977.00	1,502.00	196.00	110.28	964.00	842.00
Net project cost other than soft costs	9,680.00	7,743.00	1,793.00	1,225.47	8,219.00	8,341.00
% Design cost	2.95%	10.56%	2.79%	6.14%	4.31%	4.24%
% PMC	2.10%		5.13%		2.54%	1.91%
% Pre-operatives expenses	5.04%	8.83%	3.01%	2.86%	4.88%	3.94%
Total soft cost	10.09%	19.40%	10.93%	9.00%	11.73%	10.09%

- As can be seen from the above table, BIAL soft costs are comparable to the expansion projects of DIAL, MIAL and GHIAL. The essential difference being the Design costs, which is a reflection of the Detailed Design done by BIAL, prior to award of construction contracts in comparison to the Schematic Design done by the other airport operators.
- Additionally, BIAL actual completion dates have been severely impacted by COVID 19 pandemic which had resulted in a delay of 12 months in the completion of the Project.”

- 5.2.40 The Authority has examined the submission of BIAL on justification of the increase in the design, PMC, pre-operative and ORAT costs.
- 5.2.41 The Authority has decided to allow 5% of the project cost for Design and PMC costs based on the independent study undertaken by RITES Limited in the Second Control Period order. The Authority proposes to consider 5% of the project cost for Design and PMC costs for the capital expenditure deferred from Second Control Period. The Authority proposes to review and true-up the design and PMC costs after the project is commissioned and subject to its reasonableness.
- 5.2.42 The Authority has noted that the pre-operative expenses claimed by BIAL is INR 402 cr. inclusive of ORAT cost.
- 5.2.43 The Authority has noted that BIAL has submitted INR 46 cr. as Operational Readiness and Airport Transfer (ORAT) expenses as part of the pre-operative expenses to operationalize the Terminal 2. BIAL has submitted that it is undertaking the ORAT program with its own employees. Since ORAT expenses are part of the airport operations, the Authority is of the view that these costs should be part of the operational expenditure. The Authority proposes to include the ORAT expenses as part of the operational expenditure and exclude it from the RAB of the Third Control Period.

5.2.44 BIAL has submitted that it has an exclusive team for Planning, Design, Construction, Quality control, Procurement, Contract Administration, Project Control besides support services like HR, legal and Finance and this team is totally dedicated to the implementation of projects proposed in Second Control Period. The Authority has noted that the pre-operative expenses include the personnel cost and office related expenses of this team involved in the capital expenditure projects.

5.2.45 The Authority has noted that BIAL has appointed a separate Design and PMC consultants for the capital expenditure projects. Therefore, the Authority has asked BIAL to submit the justification for employing the team of BIAL for the capital expenditure projects and also the cost savings for BIAL due to this team. BIAL has submitted the following response:

- “Any Mega Program delivery essentially consists of client organization team members and specialist consultants to successfully handle the challenges that are typically encountered in such large and complex project delivery environment.
- Airport projects are complex, multiyear undertakings that involve various consultants, contractors, subcontractors, and suppliers. The Owner’s project team is required to manage large numbers of commercial agreements, along with ongoing changes, progress measurements, and other administrative challenges.
- Owner’s Project Team generally take care of the pre-construction activities, strategy development for the project delivery in-line with the vision and mission of the organization, fiduciary responsibilities, running of the procurement process for appointment of consultants & contractors, bill certification, statutory compliances, progress monitoring, safety and quality.
- Specialist consultants such as design consultants, project management consultants, construction management consultants are appointed to bring in their skills, expertise, processes, systems based on their vast experience in mega projects involving multiple international organization. The specialist input ensures the client organization is able to effectively and smoothly discharge its responsibility for achieving successful project closures. The services from the specialist consultants can be availed in various degrees and measures which have a direct bearing on the project parameters such as - control of the project development, liability being incurred, costs incurred for such services etc.
- Based on the project delivery strategy adopted by the client organization the consultancy services scope is tailored accordingly.
- The planned projects at BIAL, touch almost every aspect of civil engineering from earth retaining structures, pavements to large span buildings and water treatment facilities. These projects are challenging and at peak activity, there were more than 100 projects, minor and major, running concurrently. All projects needed to fit together like a jigsaw puzzle and be completed in time for the operationalization of Terminal 2.
- With the above background, BIAL has adopted the following strategy:

DESIGN WORKS

- Specialist design consultants have been appointed by BIAL to carry out the design services. The process and the role of the BIAL Project team during the design phase is provided in the below table. It may be noted that to carry out the below mentioned functions, a very competent and professional team needs to be in place to carry out these roles.

S No	Design Activities	Role of BIAL Project Team
1	Competent and Specialist Design Consultants appointed for providing the concept design, schematic design, detailed designs, cost estimates and technical tender documents.	Identification of the potential consultants. Preparation of the scope document for bidding purposes. Ensuring all consultants scope are properly tied-up. Technical clarifications to bidders Evaluation and Review of the documents submitted by the bidders
2	Prior to commencement of the consultancy assignment detailed interactions between BIAL Project team and the consultant team on the expectations	Discussion on the scope, the list of deliverables. Discuss and agree on the formats, standards, sequence, and timing of deliverables
3	Basis the input received; Consultant commences the work activities.	Regular progress review meetings. Provide inputs and decisions as required. Raise delay alarms and work out mitigation measures
4	At each stage the consultants submit their deliverables for review by BIAL. BIAL project head, BIAL design head, BIAL construction head along with the team members review and comment on the submissions. These comments and observations are on functionality, specifications, constructability, costs, safety and quality related matters.	In dept and detailed review of the submissions. The document is shared with other internal stakeholders (Operations, Maintenance team etc.) for their review and acceptance. All observations are noted and communicated to the consultant for incorporation in the next submissions. Value engineering solutions are identified and communicated.
5	The consultant further modifies the submission and after an interactive process the submissions are closed.	Ensure all comments are incorporated. Regular follow up to meet the completion timelines.

Areas of design work not covered by the design consultants

- Changes to the project initiated by the BIAL End User. BIAL Project team co-ordinates with the end user team (Operations Department) and arrives at a Project Brief such that the same can then be taken forward into the design stage either through consultants, BIAL or contractors' consultants.
- Review and approval of the designs/drawings submissions carried out by the Contractors.
- Design changes raised by the Contractors. The same needs to be evaluated by the BIAL's design team and suitable actions taken to approve or reject the changes.
- Explaining the designs to the Statutory Authorities (BCAS, Fire, DGCA, etc.) for receiving commencement and completion certificates.
- Clarification to Lender Engineers.

Benefits of the above approach:

- Relevant work portions carried out by world class specialists.
- Client control always ensured thus ensuring the vision and mission of the projects are safeguarded.
- Ability to effect changes as required by BIAL
- Optimal direct hiring by BIAL, thus significant cost benefits and no long-term staffing issues.

PROJECT & CONSTRUCTION MANAGEMENT WORKS

- BIAL PAL 1 Projects are a mixture of wide range of project activities which can be categorized into the following 2 major parts:
- Mega Projects - technologically advanced, multidisciplinary, international vendors, first of its kind systems, complex co-ordination and aggressive timelines
- Terminal 2 Project,
- Second Runway, Apron, AGL Lighting & Related Airside Works,
- Large, Medium and Small Project involving various different disciplines, co-ordination.
- Multimodal transport hub
- Buildings, roads, vehicular underpass, grade separators, substation, sewage treatment plant, utility network, IT network, drainage systems, huge landscaping etc.
- In order to effectively manage the entire mix of projects activities BIAL adopted a strategy wherein the PMC (project management consultant) joined as the extended arm of BIAL for delivering the mega, complex and time bound projects with active participation of BIAL Project team. With this, BIAL ensured the right and competent staff allocation for the management of these 2 large projects. For Large, Medium & Small sized projects, the project management and construction management are by the BIAL Project team. In order to have high standards of safety and quality a competent team comprising of BIAL staff and consultancy staff was formed.
- Through leveraging the skillset and expertise of a PMC that has specific personnel and processes, focused on delivering mega, complex, and time bound projects, integrated with the BIAL team limits the financial ramifications of a contractor not delivering a project at the level of quality, safety, timeliness, and costs established at the outset. Even deployment of large contractors with reputation and established track record could still result in delay of the project handover and thereon significant cost claims upon the project completion and result in significant financial impact. By engaging specialist consultants who have successfully delivered large, similar projects, together with BIAL team will help mitigate the potential negative financial impacts through such following measures:
- Developing detailed designs and specifications to provide comprehensive project information which limits contractor change orders due to ambiguity. The creation of exhaustive tenders and ultimately contract which are awarded below the established budget.
- Generating innovative construction methodologies that help expedite contractor works to recover and negate schedule slippages. Thus safeguarding the operational date.
- Providing comprehensive contractual evaluation and strategy to directly address and eliminate contractual grievances with the Contractor. Significantly minimizing contractual claims.
- Providing innovative safety measures for the contractor to comply with and strict oversight to ensure implementation. This fundamental protection of worker safety is of utmost importance from a societal, ethical, financial, and moral perspective. Projects have achieved over 25 million hours worked without a lost time incidence.
- Implementing world-class quality measures both within the contractor and through operational processes that ensure a level of quality is provided at an international standard. This directly impacts the passenger experience along with limits additional operational expenses through a reduction of reparatory maintenance expenses.

It may be noted that as part of the PAL 1 Projects, 30 key construction contracts (mega sized to medium sized) have been awarded by BIAL. The scope of works carried out by the BIAL team (Pre-Operative) are provided below:

Department	BIAL Staff Role
Design	<p>Has been explained in detail in the above Design Works.</p> <p>BIAL team primarily carries out the role of defining the scope of consultants, review and approve consultant work scope.</p> <p>Apply value engineering measures</p> <p>Incorporate latest requirements into the designs</p>
Procurement & Contract Admin	<p>Procurement team is led by BIAL and completely managed by BIAL for both Mega Project and Large, Medium & Small Projects.</p> <p>Preparation of commercial conditions for tender documents.</p> <p>Carry out the procurement process in line with the procurement policy – EOI, RFQ, RFP etc.</p> <p>Contract Administration for all Large, Medium & Small Project</p> <p>Contractual correspondence</p> <p>Raising and Closing Change Order & Change Notice</p> <p>Contractually safeguarding BIAL interest with respect to awarded contracts.</p>
Construction	<p>Large, Medium & Small sized project directly managed by BIAL team</p> <p>Construction methodology finalization</p> <p>Co-ordination with various operations stakeholders as most of the works being carried out in operational areas</p> <p>Day to day construction management</p> <p>Construction supervision and co-ordination with designer</p> <p>Site inspection, inspection reports etc.</p> <p>Progress review and mitigation measures</p> <p>Ensure safe working is being carried out.</p> <p>Ensure quality of the works are being achieved. Clear material approval sample, material inspection report</p>
Landscape	<p>Complete landscape development execution activities are taken care by the landscape team for the Mega and Large, Medium & Small Projects:</p> <p>Working level drawings</p> <p>Site works management -earth preparation, irrigation works, planting, coordination with stakeholders</p> <p>Setup and maintain nursery for the plants</p>
Support (Billing, Admin, finance, legal, etc.)	<p>BIAL team for Mega Projects and Large, Medium & Small Projects</p> <p>Bill certification and processing</p> <p>Budgetary controls</p> <p>Document management</p> <p>Legal inputs on various matters</p> <p>Office management</p>
Estimation and Costing	<p>Large, Medium & Small Projects</p> <p>Pre-feasibility estimates</p> <p>New facility estimates.</p> <p>Review of consultant cost estimates</p> <p>Value engineering and cost optimization suggestions</p> <p>Changes price negotiations finalization</p>
Project Controls	<p>Medium and Small sized projects</p> <p>Establish project schedules</p> <p>Track projects</p> <p>Prepare Progress Report – daily weekly and monthly</p>

Department	BIAL Staff Role
<i>Safety</i>	<i>Joint team by BIAL and PMC Establish HSE manual Ensure safety standards are met all project site. Round the clock supervision</i>
<i>Quality</i>	<i>Joint team by BIAL and PMC Establish and implement Quality Systems. Develop checklist to be inline with the QA plan Review and Approve method statement Site quality checks Raise and close NCRs.</i>

CONCLUSION

- It may be noted that there is no over-lapping of responsibilities between the BIAL Project team and the Consultancy staff in the above listed activities to be carried out. It would have been a costlier and an inefficient situation if either the complete design, project & construction management and direct staffing was done by BIAL alone or was handed over to Consultants only without BIAL Project team
- BIAL does not have any subsidiary company that will take care of Design and Engineering services nor does BIAL have any “shared services” arrangement with its parent, to avail the services of Procurement, Contract management, Legal, etc. Hence, all of these had to be done by in-house team that will only look at Projects and are not involved in day to day operations of the Airport
- AAI has developed a large number of specialists in almost every aspect of airport planning, construction, maintenance and operations. Project teams are specially developed to take full advantage of the central pool of specialized strengths to meet the specific requirement for each project. This advantage is not available with BIAL.
- BIAL being a SPV created for developing, operating and maintaining the KIA, does not have the AAI/other large airport developers background and organizational support and hence has to deploy dedicated Project team to perform the above-mentioned activities.

Savings in Capital Expenditure

- Owner’s project team is always required as the responsibility of ultimate delivery of the project lies with the Airport operator and not the consultant
- Projects of this magnitude will always have scope changes and change orders and hence it is the Owner who has the final say in this regard. If the approach was a 100% consultant led model, then the consultant will be responsible for all of these and this approach is impractical.
- In case of opting for a 100% Consultant led construction approach, the underlying contract with the Owner would have to incorporate potential LDs/penalties that would be payable by the Consultant, on account of non-delivery of the project within the approved timelines and cost budget. This will only increase the cost of Consultants vis-à-vis having a hybrid model wherein Owner’s team is ultimately responsible for Project delivery. It is well known that LDs/penalties can never be a true reflection of the actual loss in time and increase in costs.
- All statutory compliances and responsibility for the same, as a “primary employer” rests with the owner and not with the consultant. So, a 100% Consultant led model is not feasible to implement

- Therefore, savings in capital expenditure by avoiding Owner's team and opting for a 100% consultant led project construction model is a hypothetical analysis and we have not done such cost benefit analysis. In our view, such an approach will be costlier than the hybrid model that has been adopted by BIAL
- Most of the private sector airport projects like DIAL T3 and MIAL T2 have all been implemented by adopting this hybrid approach only. In our Summary note on Soft costs, we have compared the pre-operative costs incurred by DIAL, MIAL and GHIAL vis-à-vis BIAL Expansion project.
- Additionally, Lenders when they evaluate our project and sanction loans, clearly require us to have our own team that will coordinate, supervise and project manage the Expansion project along with specialized consultants. For the lenders, BIAL is ultimately responsible for project delivery within approved timelines and cost budget."

5.2.46 The Authority has examined the submission of BIAL with respect to the pre-operative expenses. The Authority is of the view that the tasks of the BIAL's project team are generally part of the airport's scope of work and these costs should not be capitalized. Further, the Authority notes that the magnitude of the pre-operative expenses proposed by BIAL (INR 356 cr. exclusive of ORAT costs) is not justified given the additional costs proposed by BIAL for the design and project management consultants. Therefore, the Authority proposes to exclude the pre-operative expenses on the deferred projects of the Second Control Period from the RAB of Third Control Period.

5.2.47 Based on the above proposals, the Authority proposes to Design, PMC and Pre-ops cost as per the following table:

Table 67: Design, PMC and pre-ops cost of the deferred capex of the SCP proposed by the Authority for the Third Control Period

Project*	Proposed capitalization in TCP - BIAL	Proposed capitalization in TCP – Authority
Design and PMC	504.87	350.20*
Add: Pre-Operating Expenses and ORAT	324.98	0
Total of design, PMC, pre-operative and ORAT	829.84	350.20

* difference is due to rounding off; computed such that the design and PMC cost is 5% of the total hard cost of the projects in the Second Control Period and the projects deferred to the Third Control Period

5.2.48 The Authority has noted that BIAL has proposed to fund the asset through debt and equity. However, BIAL has computed the financing allowance on the entire project cost. The Authority noted that the financing allowance is a notional amount and while true-up of the Second Control Period the Authority has allowed the interest during construction instead of the financing allowance as per para 3.3.40. Accordingly, the Authority proposes to consider the interest during construction on the project cost for the Third Control Period.

Capital expenditure proposed by the Authority for group A

5.2.49 Based on the above examination, the Authority proposes the capital expenditure of projects deferred from SCP to TCP as per the following table:

Table 68: Capital expenditure projects deferred from Second Control Period to the Third Control Period as proposed by the Authority

Reference	Project / Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP (1)	Revised proposed capex as per BIAL for TCP (2)	Proposed capex as per Authority (3)	Difference (4 = 3-2)
A	Capex projects deferred from SCP to TCP	A1	Terminal 2 - Phase I	3,565.67	3,565.67	3,565.67	0.00
		A2	Forecourt, roadways & landside development - Phase 1b	1,786.40	1,786.40	1,712.96	-73.44
		A3	Aircraft Maintenance & Airport Maintenance Facilities	41.16	41.16	41.16	0.00
		A4	Utilities	104.22	104.22	104.22	0.00
		A5	T2 - Apron Phase 2	0.00	427.73	407.23	-20.50
		A6	South Parallel Runway - Phase 2	0.00	362.95	362.95	0.00
		A7	Design, PMC and Pre-ops cost	710.16	830.57	350.20	-480.37
		A	Capex projects deferred from SCP to TCP (sub-total)	6,207.60	7,118.69	6,544.38	-574.31
	IDC*			814.39	904.80	853.78	-51.02
	Total (including IDC*)			7,021.99	8,023.50	7,398.17	-625.33

* BIAL has computed FA on its capital expenditure

B. Capital expenditure projects for the Third Control Period

5.2.50 Following table gives the details of the capital expenditure in Group B - capex projects proposed in TCP as submitted by BIAL in its MYTP and the revised submission dated 2 February 2021:

Table 69: Capital expenditure projects for the Third Control Period as proposed by BIAL

Reference	Project/ Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP	Revised proposed capex as per BIAL for TCP
B	Capex projects for the TCP	B1	Airside Security wall	3.88	3.88
		B2	Airside perimeter Road	18.21	18.20
		B3	T1 Optimization	249.51	249.51

Reference	Project/ Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP	Revised proposed capex as per BIAL for TCP
		B4	Cycle Track along SAR / SWR / NCR plus docking stations	12.89	0.00
		B5	MMTH - Phase 2	268.59	129.41
		B6	Airport Terminal Metro Station	156.82	156.82
		B7	City Side Metro Station	97.60	97.60
		B8	North west road expansion	41.13	41.13
		B9	CISF Barrack Expansion and Access Road	44.79	44.79
		B10	BIAL Campus Parking and Canteen	69.65	0.00
		B11	Animal Quarantine facility	3.65	3.65
		B12	New cargo domestic terminal including Cool Port	101.88	101.88
		B13	Refurbishment of existing cargo terminals	118.76	118.76
		B14	Refurbishment of catering buildings	25.81	25.81
		B15	Water Treatment Plant	6.80	6.80
		B16	Landscape Works	69.39	69.39
		B17	Alpha 4	204.37	204.38
		B18	Landside Maintenance Building	12.48	12.48
		B19	Design, PMC, Pre-ops cost and Contingency	399.15	340.39
		B20	CISF Permanent Housing - Phase I	369.68	369.68
		B	Capex projects for the TCP	2,275.04	1,994.57
	Financing Allowance			166.49	156.42
	Total (including FA)			2,441.53	2,150.98

5.2.51 The Authority has examined the estimated capital expenditure projects submitted by BIAL for the Third Control Period.

5.2.52 BIAL, in its submission dated 2 Feb 2021, had revised the capital expenditure projects proposed in the Third Control Period. The revisions included the following changes:

- B4 - Deferment of Cycle Track along SAR / SWR / NCR plus docking stations
- B5 - Reduction of scope in the MMTH Phase 2 project which has reduced the cost as given in the Table 69
- B10 - Deferment of BIAL Campus Parking and Canteen

5.2.53 For its analysis, the Authority has considered the capital expenditure projects for the Third Control Period based on the revised submission of BIAL.

B3 – T1 Optimization

5.2.54 The Authority has noted that T1 – Optimization is proposed by BIAL as a project instead of including it in the sustaining capex as it includes the operational repairs. The Authority had asked BIAL to provide the justification for including T1 – Optimization as a separate cost. BIAL had submitted the below response:

- a) *“The sustaining capex includes repairs and maintenance, minor projects, special repairs and facility augmentation to cater to the growth in traffic. Additionally, initiatives such as Aadhar enabled entry and biometric boarding system (“Digi Yatra”) etc. are initiatives forming part of sustaining capex. BIAL also does regulatory and safety compliance related capex which are mandated from BCAS, DGCA, MOEF etc. which form part of sustaining capex. Most of the sustaining capex are carried out with limited interruptions to existing operations.*
- b) *T1 Optimization is a list of inter related and connected projects which are in the nature of major overhaul of the Terminal T1 and is proposed to be carried out in optimum time and efficient manner once T2 Phase 1 becomes operational. Most of the existing system in Terminal T1 are being replaced on account of end of life of the asset, replaced for reliability augmentation and redundancy creation, improving operational efficiency, mandatory capex etc.”*
- c) *The T1 refurbishment works are planned in FY 2022-23, once Terminal T2 Phase 1 is operational and to avoid further degrade in targeted LoS which compromises the passenger experience and impacts the overall operational efficiency.*
- d) *Therefore, as can be seen from above, T1 refurbishment is not a part of Sustaining capex/Minor project which is only to maintain the asset, but this is to actually ensure permanent capacity to handle the increase in domestic passenger growth at KIA.”*

5.2.55 The Authority has noted from the above response from BIAL that the T1 optimization capital expenditure includes the end of life assets replacement.

5.2.56 The Authority has noted that BIAL has undertaken the Interim Terminal Improvement (ITI) works during the Second Control Period as part of the sustaining capital expenditure or special repairs. The Authority is of the view that the majority of works proposed under T1 optimization project are similar to the interim terminal improvement works. Therefore, the Authority proposes to reduce the scope of the T1 optimization project such that it includes only the one-time project cost other than the proposed sustaining capital expenditure.

5.2.57 Accordingly, the Authority proposes to consider INR 50 cr. (excl. design, PMC, contingency and IDC cost) for the T1 optimization project in the Third Control Period. The Authority proposes to true-up the actual T1 optimization project cost during the next control period based on the evaluation of its reasonableness.

B5 and B6 – MMTH - Phase 2 and Airport terminal metro station

5.2.58 The Authority has reviewed the details submitted by BIAL on the MMTH Phase 2 and Airport terminal metro station project.

5.2.59 BIAL has submitted in its MYTP submission that the MMTH Phase 2 and airport terminal metro station will be commissioned in FY26. The Authority noted that these projects can be commissioned only after the commissioning of the entire airport metro line. The Authority is of the view that the commissioning of the airport metro line might be delayed beyond FY26.

5.2.60 Therefore, the Authority proposes to exclude the cost for MMTH Phase 2 and Airport terminal metro station project from the Third Control Period. In case BIAL capitalizes the asset in the Third Control Period, the Authority proposes to true-up the actual cost of these assets during the next control period.

B7 – City metro station

5.2.61 BIAL has submitted the capital expenditure proposal of city side metro station, which serves the airport employees and airport metro station, which serves the airport passengers. However, the Authority is of the view that the city side metro station is constructed by BIAL for its employees and does not serve

the airport passengers. The Authority is of the view that in principle the airport operator cannot charge the airport users for the facility which is not used by them. Therefore, the Authority proposes to exclude the capital expenditure of city side metro station from the RAB of BIAL.

B9 - CISF Barrack Expansion and Access Road

- 5.2.62 The Authority reviewed the submission of BIAL for the CISF barrack expansion and access road project.
- 5.2.63 The Authority noted that BIAL has proposed a four lane access road for the access to the new CISF barrack. The Authority is of the view that a four lane access road will exceed the actual traffic demand and the lanes can be reduced based on the estimated traffic to optimize the cost.
- 5.2.64 Accordingly, the Authority propose to consider a reduced cost of INR 22.40 cr. (excluding design, PMC, contingency and IDC) for the CISF barrack expansion and access road project in the Third Control Period.

B12 and B13 - New cargo domestic terminal including Cool Port and Refurbishment of existing cargo terminals

- 5.2.65 The Authority noted that BIAL's existing annual cargo capacity is 600,000 tonnes and the existing cargo traffic capacity in FY 2020 is ~374,000 tonnes as per the MYTP submission of BIAL. The Authority sought a justification from BIAL regarding the need for cargo terminal capitalization by FY23. BIAL submitted the below response:

- a) *"The existing cargo terminals of AISATS and MABB are expected to reach their peak design capacity in international export non – sterile, international import sterile and domestic outbound by FY 2023."*
- b) *The cargo concessionaire contracts of AISATS and MABB are valid till May 2023 and post this, the cargo infra would be transferred to BIAL. These assets are 15 years old and most of it would need refurbishment.*
- c) *There are 2 dedicated cold chain facilities at BLR Airport i.e. AISATS Cool port and MABB's Cold Zone which have a design capacity of 60,000MT per annum which was operating at 81% utilization in FY 2020*
- d) *The stated design capacity of 570,000 MT is based on a dwell time of 24 hours. However the dwell time of international cargo varies every month there by impacting the processing and storing capacity at the cargo terminals. The average dwell time for the last 12 months for exports was 16.5 hours and 51 hrs for imports at AISATS and MABB. Because of the above, the actual utilization % is much higher for imports vs actual throughput, thereby necessitating augmentation of capacity."*

- 5.2.66 The Authority examined the justification for cargo terminal capital expenditure submitted by BIAL and has noted the utilization levels of the cold chain facilities. The Authority proposes to allow the cargo terminal capital expenditure in the RAB of BIAL.

B16 and B17 – Landscape works and Alpha 4 project

- 5.2.67 The Authority reviewed the submission of BIAL for the Landscape works and Alpha 4 project.
- 5.2.68 On the backdrop of the impact on air traffic and the entire aviation industry due to COVID-19, the Authority is of the view that there is a need to postpone the capital expenditure which is not urgent or not ongoing from the Third Control Period. This would reduce the tariff burden on the airport users.
- 5.2.69 In its MYTP, BIAL has submitted that the Alpha 4 is proposed in the later part of the Third Control Period due to the impact of COVID-19 on air traffic and its current staff are accommodated at different

locations across the airport on the short-term basis. The Authority noted that BIAL has already accommodated its employees and BIAL has also acknowledged the impact of COVID-19 on the capital expenditure plans of the airport. Therefore, the Authority is of the view that Alpha 4 is not an urgent requirement of the airport and it can be postponed to the next control period.

- 5.2.70 Similarly, the Authority noted that the landscape works are also proposed to be capitalized in the last year of the Third Control Period, that is, FY26. BIAL has proposed these landscape works through sustainable drainage along with a network of footpaths and cycle paths for sustainable transport. The Authority is of the view that these capital expenditure projects are not urgent for the airport and can be postponed to the next control period.
- 5.2.71 Accordingly, the Authority proposes to exclude the Landscape works and Alpha 4 project cost from the Third Control Period.

B19 – Design, PMC and Pre-ops cost

- 5.2.72 BIAL in its MYTP has submitted to the Authority to consider the Design and PMC costs as 10% of the project cost. The Authority in the Second Control Period order had decided to allow design and PMC cost as 5% of the project cost based on the independent consultant's study. In line with the decision of the Second Control Period order, the Authority proposes to consider the Design and PMC cost as 5% of the Third Control Period project cost.
- 5.2.73 BIAL in its MYTP has submitted to the Authority to consider the contingency costs as 10% of the project cost. The Authority in the Second Control Period order had decided to allow contingency cost as 3% of the project cost. In line with the decision of the Second Control Period order, the Authority proposes to consider the contingency cost as 3% of the Third Control Period project cost.
- 5.2.74 BIAL in its MYTP has submitted to the Authority to consider the pre-operative expenses as 5% of the project cost. The Authority has detailed its reason in section 5.2.46 to exclude the pre-operative expenses from the RAB of BIAL and accordingly, the Authority proposes to exclude the pre-operative expenses from the Third Control Period project cost.

B20 – CISF Permanent Housing – Phase I

- 5.2.75 BIAL has proposed to include the CISF quarters cost as part of the RAB of the Third Control Period.
- 5.2.76 The Authority has noted that the CISF is an integral part of the airport security. However, the funding of the quarters for the CISF staff by the airport users needs to be analysed as similar infrastructure is required at all the other major airports.
- 5.2.77 The Authority noted that BIAL has submitted the Detailed Project Report on the CISF housing project based on the requirements submitted by CISF. The Authority noted that BIAL has not undertaken its own detailed due diligence of the project requirement which includes, among other things, evaluation of the projections of the CISF staff at the airport based on the traffic forecast/ expansion at the airport and diligence of the proposed housing facilities.
- 5.2.78 The Authority also noted that the cost benefit analysis for the construction of the entire township is not submitted by BIAL. The Authority is of the view the cost benefit analysis needs to take into consideration construction cost of the entire township and the savings from reimbursement of existing house rent allowance (HRA).
- 5.2.79 The Authority proposes to exclude the proposal for CISF permanent housing project from the Third Control Period and consider it during the fourth control period after reviewing the above requirements.

Other observations of the Authority for the capital expenditure in group B

5.2.80 The Authority noted that BIAL has submitted the stage II Stakeholder Consultation and has not submitted the stage III stakeholder consultation (cost approval). BIAL has submitted that it is undertaking the detailed design for the Third Control Period projects and will submit the stage III of the AUCC once it is completed. The Authority directs BIAL to undertake the stakeholder consultation process as per the AERA guidelines for the projects proposed in the Third Control Period.

5.2.81 The Authority has noted that the study on the asset allocation (refer Annexure I for summary of the report and Appendix II for the report) has made the following suggestion to BIAL: “The fixed asset register does not provide the project-wise total capital expenditure. Therefore, it is difficult to compare the projected capital expenditure approved by AERA in its order for a particular project with the actual capital expenditure incurred by BIAL for it. BIAL should include the same terminology used by it during the submission to AERA for the asset capitalized in the fixed asset register.” The Authority directs BIAL to maintain its fixed asset register as per the above suggestion.

Capital expenditure proposed by the Authority for group B

5.2.82 Based on the above revisions the capital expenditure proposed by the Authority for the Third Control Period other than the sustaining capex and deferred projects of Second Control Period is given in the table below:

Table 70: Fresh capital expenditure proposed by the Authority for the Third Control Period

Reference	Project/Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP (1)	Revised proposed capex as per BIAL for TCP (2)	Proposed capex as per Authority (3)	Difference (4 = 3-2)	Para in the consultation paper
B	Capex projects for the TCP	B1	Airside Security wall	3.88	3.88	3.88	0.00	
		B2	Airside perimeter Road	18.21	18.20	18.20	0.00	
		B3	T1 Optimization	249.51	249.51	50.00	-199.51	5.2.57
		B4	Cycle Track along SAR / SWR / NCR plus docking stations	12.89	0.00	0.00	0.00	
		B5	MMTH - Phase 2	268.59	129.41	0.00	-129.41	5.2.60
		B6	Airport Terminal Metro Station	156.82	156.82	0.00	-156.82	5.2.60
		B7	City Side Metro Station	97.60	97.60	0.00	-97.60	5.2.61
		B8	North west road expansion	41.13	41.13	41.13	0.00	
		B9	CISF Barrack Expansion and Access Road	44.79	44.79	22.40	-22.40	5.2.64
		B10	BIAL Campus Parking and Canteen	69.65	0.00	0.00	0.00	
		B11	Animal Quarantine facility	3.65	3.65	3.65	0.00	

Reference	Project/ Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP (1)	Revised proposed capex as per BIAL for TCP (2)	Proposed capex as per Authority (3)	Difference (4 = 3-2)	Para in the consultation paper
		B12	New cargo domestic terminal including Cool Port	101.88	101.88	101.88	0.00	
		B13	Refurbishment of existing cargo terminals	118.76	118.76	118.76	0.00	
		B14	Refurbishment of catering buildings	25.81	25.81	25.81	0.00	
		B15	Water Treatment Plant	6.80	6.80	6.80	0.00	
		B16	Landscape Works	69.39	69.39	0.00	-69.39	5.2.71
		B17	Alpha 4	204.37	204.38	0.00	-204.38	5.2.71
		B18	Landside Maintenance Building	12.48	12.48	12.48	0.00	
		B19	Design, PMC, Pre-ops cost and Contingency	399.15	340.39	33.01	-307.38	5.2.72, 5.2.73 and 5.2.74
		B20	CISF Permanent Housing - Phase I	369.68	369.68	0.00	-369.68	5.2.79
		B	Capex projects for the TCP	2,275.04	1,994.57	438.00	-1556.57	
	IDC*			166.49	156.42	3.20	-153.22	5.2.48
	Total (including IDC*)			2,441.53	2,150.98	441.20	-1709.78	

* BIAL has computed FA on its capital expenditure

C. Sustaining Capital Expenditure for the Third Control Period

5.2.83 BIAL in its submission dated 2 March 2021 had proposed to defer sustaining capital expenditure of INR 239.56 cr. from FY21 to FY22. Accordingly, the sustaining capital expenditure proposed by BIAL in the Third Control Period is given in the table below:

Table 71: Sustaining capital expenditure proposed by BIAL for the Third Control Period

Reference	Project/ Group	Proposed capex as per BIAL's MYTP submission for TCP	Revised proposed capex as per BIAL for TCP
C	Sustaining capital expenditure	1,344.59	1,584.15

5.2.84 The detailed break-up of the sustaining capex proposed by BIAL in the Third Control Period is given in the Annexure 5.

5.2.85 The Authority has examined the submission of BIAL on the sustaining capital expenditure.

5.2.86 The Authority had allowed a sustaining capex to BIAL of INR 200 cr. per year from FY19 to FY21 in the Second Control Period order based on average of the sustaining capex in FY17 and FY18. The Authority has noted that the average sustaining capex is INR 197.45 cr. per year for the Second Control

Period based on the actuals from FY17 to FY20 and forecast for FY21. Below table provides the details of the sustaining capex for the Second Control Period:

Table 72: Sustaining capital expenditure of the Second Control Period

Particulars (INR cr.)	2017	2018	2019	2020	2021 (forecasted)	Total	Average
Sustaining Capex	225.70	132.11	159.51	183.41	286.50	987.23	197.45

5.2.87 Accordingly, the Authority proposes to consider the sustaining capex of INR 197.45 cr. per year in the Third Control Period for BIAL as given in the table below.

Table 73: Sustaining capital expenditure proposed by the Authority for the Third Control Period

Reference	Project/ Group	Proposed capex as per BIAL's MYTP submission for TCP (1)	Revised proposed capex as per BIAL for TCP (2)	Proposed capex as per Authority (3)	Difference (4 = 3-2)
C	Sustaining Capex for TCP	1,344.59	1,584.15	987.23	-596.92

5.2.88 The Authority proposes to consider only the sustaining capex works proposed by BIAL in the Third Control Period (refer Annexure 5) during the true-up of the next control period, that is, the Authority will not consider new sustaining capex works during the true-up of the next control period. The Authority directs BIAL to submit a work-item wise comparison between the sustaining capex submitted by BIAL as part of the Third Control Period (refer Annexure 5) and the actual sustaining capex incurred by BIAL in the Third Control Period in its MYTP submission of the next control period.

Total asset addition proposed by the Authority in the Third Control Period

5.2.89 Based on the above, the Authority proposes to consider the following total asset addition in the Third Control Period:

Table 74: Total asset addition for the Third Control Period proposed by the Authority

Reference	Project/ Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP (1)	Revised proposed capex as per BIAL for TCP (2)	Proposed capex as per Authorit y for TCP (3)	Differenc e (4=3-2)
A	Capex projects deferred from SCP to TCP	A1	Terminal 2 - Phase I	3,565.67	3,565.67	3,565.67	0.00
		A2	Forecourt, roadways & landside development - Phase 1b	1,786.40	1,786.40	1,712.96	-73.44
		A3	Aircraft Maintenance & Airport Maintenance Facilities	41.16	41.16	41.16	0.00
		A4	Utilities	104.22	104.22	104.22	0.00

Reference	Project/Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP (1)	Revised proposed capex as per BIAL for TCP (2)	Proposed capex as per Authority for TCP (3)	Difference (4=3-2)
		A5	T2 - Apron Phase 2	0.00	427.73	407.23	-20.50
		A6	South Parallel Runway - Phase 2	0.00	362.95	362.95	0.00
		A7	Design, PMC and Pre-ops cost	710.16	830.57	350.20	-480.37
		A	Capex projects deferred from SCP to TCP (sub-total)	6,207.60	7,118.69	6,544.38	-574.31
B	Capex projects for the TCP	B1	Airside Security wall	3.88	3.88	3.88	0.00
		B2	Airside perimeter Road	18.21	18.20	18.20	0.00
		B3	T1 Optimization	249.51	249.51	50.00	-199.51
		B4	Cycle Track along SAR / SWR / NCR plus docking stations	12.89	0.00	0.00	0.00
		B5	MMTH - Phase 2	268.59	129.41	0.00	-129.41
		B6	Airport Terminal Metro Station	156.82	156.82	0.00	-156.82
		B7	City Side Metro Station	97.60	97.60	0.00	-97.60
		B8	North west road expansion	41.13	41.13	41.13	0.00
		B9	CISF Barrack Expansion and Access Road	44.79	44.79	22.40	-22.40
		B10	BIAL Campus Parking and Canteen	69.65	0.00	0.00	0.00
		B11	Animal Quarantine facility	3.65	3.65	3.65	0.00
		B12	New cargo domestic terminal including Cool Port	101.88	101.88	101.88	0.00
		B13	Refurbishment of existing cargo terminals	118.76	118.76	118.76	0.00
		B14	Refurbishment of catering buildings	25.81	25.81	25.81	0.00
		B15	Water Treatment Plant	6.80	6.80	6.80	0.00
		B16	Landscape Works	69.39	69.39	0.00	-69.39
		B17	Alpha 4	204.37	204.38	0.00	-204.38
		B18	Landside Maintenance Building	12.48	12.48	12.48	0.00
		B19	Design, PMC and Pre-ops cost	399.15	340.39	33.01	-307.38
		B20	CISF Permanent Housing - Phase I	369.68	369.68	0.00	-369.68
		B	Capex projects for the TCP	2275.04	1994.57	438.00	-1,556.57
C	Sustaining capex for the TCP			1,344.59	1,584.15	987.23	-596.92
	Grand Total			9827.23	10697.41	7969.61	-2,727.80

Reference	Project/ Group	No.	Particulars	Proposed capex as per BIAL's MYTP submission for TCP (1)	Revised proposed capex as per BIAL for TCP (2)	Proposed capex as per Authorit y for TCP (3)	Differenc e (4=3-2)
D	IDC*			980.88	1,061.22	856.99	-204.23
E	Total (includi ng IDC*)			10,808.11	11,758.63	8,826.60	-2,932.04

* BIAL has computed FA on its capital expenditure

5.2.90 Following table provides the year-wise total asset addition proposed by the Authority during the Third Control Period:

Table 75: Total year-wise asset addition proposed by the Authority in the Third Control Period

Ref	Project#	2022	2023	2024	2025	2026	Total
A1	Terminal 2 - Phase I	4,355.53					4,355.53
A2.1	Forecourt, roadways & landside development - Phase 1b (except MMTH)	1,426.29					1,426.29
A2.2	MMTH - Phase 1	527.54					527.54
A3	Aircraft Maintenance & Airport Maintenance Facilities	44.92					44.92
A4	Utilities	123.58					123.58
A5	T2 Apron - Phase II	444.00					444.00
A6	South Runway - Phase II	476.30					476.30
A	Sub-Total - Deferred projects from SCP	7,398.16	0.00	0.00	0.00	0.00	7,398.16
B1	Airside Security wall		4.32				4.32
B2	Airside perimeter Road		20.25				20.25
B3	T1 Optimization				54.08		54.08
B4	Cycle Track along SAR / SWR / NCR plus docking stations						0.00
B5	MMTH - Phase 2					0.00	0.00
B6	Airport Terminal Metro Station					0.00	0.00
B7	City Side Metro Station						0.00
B8	North west road expansion					44.48	44.48
B9	CISF Barrack Expansion					24.22	24.22
B10	BIAL Campus Parking and Canteen						0.00
B11	Animal Quarantine facility					3.95	3.95
B12	New cargo domestic terminal including CoolPort		110.97				110.97
B13	Refurbishment of existing cargo terminals		129.35				129.35
B14	Refurbishment of existing catering buildings		28.57				28.57

Ref	Project [#]	2022	2023	2024	2025	2026	Total
B15	Water Treatment Plant		7.53				7.53
B16	Landscape Works					0.00	0.00
B17	Alpha 4					0.00	0.00
B18	Landside Maintenance Building					13.50	13.50
B20	CISF Permanent housing - Phase I					0.00	0.00
B	Sub-Total - Projects proposed in TCP	0.00	300.98	0.00	54.08	86.14	441.20
C	Sustaining capex	197.45	197.45	197.45	197.45	197.45	987.23
	Total	7,595.61	498.43	197.45	251.52	283.59	8,826.60

* for FY22, the asset allocation ratio for sustaining capex is 85.73%; # total asset additions includes the design, PMC, contingency and IDC

Asset allocation and aeronautical asset additions for the Third Control Period

- 5.2.91 BIAL has bifurcated the Terminal 2 assets based on the aero to non-aero floor area ratio of 88% to 12% as per Second Control Period order. The Authority has noted from the submission by BIAL on the area break-up for Terminal 2 that the proposed aero to non-aero floor area ratio is 87.7%. The Authority proposes to consider the bifurcate the Terminal 2 asset into aeronautical and non-aeronautical based on the floor area ratio of Terminal 2 of 87.7%.
- 5.2.92 BIAL has classified the broader categories of capex addition into aeronautical, non-aeronautical, Terminal 2 and common assets. BIAL has bifurcated the common assets based on average of FY19 and FY20 gross block ratio which is also 91% to 9%. The Authority notes that the gross block ratio is a composite ratio and a weighted average of aero, common and non-aero assets. Hence, the Authority notes that the gross block ratio should be applied on entire capex addition irrespective of it being aero, common or non-aero instead of BIAL's approach of applying it selectively on common assets. Common assets have been segregated by BIAL in its asset register based on terminal area ratio and therefore, the Authority proposes to apply the same ratio (85.73% based on Terminal 1 area) for common assets capitalized in FY22. Terminal 2 is proposed to be capitalized in FY22. The Authority proposes to apply weighted average terminal area ratio of 86.85% from FY23 to FY26. Based on the above, the Authority proposes to revise bifurcation ratio for common assets of the Third Control Period.
- 5.2.93 The Authority noted that BIAL has considered the refurbishment of existing cargo terminals and new cargo terminal. Based on the AERA guidelines, the Authority proposes to consider refurbishment of existing cargo terminals and new cargo terminal as aeronautical assets.
- 5.2.94 As per the discussion in section 5.2.33 on the bifurcation of the rainwater harvesting ponds, the Authority proposes to bifurcate the RWH ponds into aeronautical and non-aeronautical based on the average terminal area ratio.
- 5.2.95 The Authority proposes to consider the aeronautical asset allocation for the Third Control Period as given in the table below:

Table 76: Aeronautical capital expenditure proposed by the Authority in the Third Control Period

S no	Asset additions (INR cr.)*	Total addition	Aero Allocation ratio (%)	Aero Additions					Total aero
				2022	2023	2024	2025	2026	
A1	Terminal 2 - Phase I	4,355.53	87.66%	3,818.06	-	-	-	-	3,818.06
A2.1	Forecourt, roadways & landside development -	1,426.29	85.73%	1,222.76	-	-	-	-	1,222.76

S no	Asset additions (INR cr.)*	Total addition	Aero Allocation ratio (%)	Aero Additions					
				2022	2023	2024	2025	2026	Total aero
	Phase 1b (except MMTH)								
A2.2	MMTH - Phase 1	527.54	31.53%	166.34	-	-	-	-	166.34
A3	Aircraft Maintenance & Airport Maintenance Facilities	44.92	85.73%	38.51	-	-	-	-	38.51
A4	Utilities	123.58	85.73%	105.94	-	-	-	-	105.94
A5	T2 Apron - Phase II	444.00	99.19%	440.40	-	-	-	-	440.40
A6	South Runway - Phase II	476.30	100.00%	476.30	-	-	-	-	476.30
A	Sub-Total - Deferred projects from SCP	7,398.16		6,268.31	-	-	-	-	6,268.31
B1	Airside Security wall	4.32	100.00%	-	4.32	-	-	-	4.32
B2	Airside perimeter Road	20.25	100.00%	-	20.25	-	-	-	20.25
B3	T1 Optimization	54.08	86.85%	-	-	-	46.96	-	46.96
B4	Cycle Track along SAR / SWR / NCR plus docking stations	0.00	100.00%	-	-	-	-	-	-
B5	MMTH - Phase 2	0.00	31.53%	-	-	-	-	-	-
B6	Airport Terminal Metro Station	0.00	100.00%	-	-	-	-	-	-
B7	City side Metro Station	0.00	0.00%	-	-	-	-	-	-
B8	North west road expansion	44.48	100.00%	-	-	-	-	44.48	44.48
B9	CISF Barrack Expansion	24.22	100.00%	-	-	-	-	24.22	24.22
B10	BIAL Campus Parking and Canteen	0.00	100.00%	-	-	-	-	-	-
B11	Animal Quarantine facility	3.95	100.00%	-	-	-	-	3.95	3.95
B12	New cargo domestic terminal including Cool Port	110.97	100.00%	-	110.97	-	-	-	110.97
B13	Refurbishment of existing cargo terminals	129.35	100.00%	-	129.35	-	-	-	129.35
B14	Refurbishment of existing catering buildings	28.57	0.00%	-	-	-	-	-	-
B15	Water Treatment Plant	7.53	100.00%	-	7.53	-	-	-	7.53
B16	Landscape Works	0.00	100.00%	-	-	-	-	-	-
B17	Alpha 4	0.00	86.85%	-	-	-	-	-	-

S no	Asset additions (INR cr.)*	Total addition	Aero Allocation ratio (%)	Aero Additions					
				2022	2023	2024	2025	2026	Total aero
B18	Landside Maintenance Building	13.50	86.85%	-	-	-	-	11.72	11.72
B20	CISF Permanent housing - Phase I	0.00	100.00%	-	-	-	-	-	-
B	Sub-Total - Projects proposed in TCP	441.20		-	272.41	-	46.96	84.37	403.74
C	Sustaining capex	987.23		169.27	171.49	171.49	171.49	171.49	855.22
	Total	8,826.60		6,437.58	443.90	171.49	218.45	255.86	7,527.27

* aeronautical asset additions include the design, PMC, contingency and IDC

5.2.96 The Authority proposes to true-up the total asset addition and the aeronautical asset addition for the Third Control Period based on the actual asset addition undertaken in the next control period and subject to its reasonableness.

5.2.97 The Authority proposes to true-up the asset allocation of the assets capitalized in the Third Control Period based on the actual asset addition undertaken in the next control period and subject to its reasonableness.

Authority's examination regarding depreciation for the Third Control Period

5.2.98 The Authority proposes to revise the useful life of the assets based on the Order no. 35/ 2017-18 applicable from 1 April 2018 onwards for the Third Control Period.

5.2.99 The Authority's observation in this regard are given in section 3.6.6 of the true-up chapter. Following are the revisions proposed:

- Asset Class – Plant and Machinery (Aerobridges, Airport Communication, Baggage Handling, Escalators/ Elevators, HVAC Equipment, Other Airport Equipment and Security/ Safety Equipment) – Revised from 7.5 years to 15 years
- Asset Class – Buildings (Canopy, New Project Office building and nursery unit under Building category)– Revised to 30 years
- Asset Class – Runway and Taxiway – Revised to 30 years

5.2.100 Additionally, the Authority proposes to undertake the following changes to the submission of BIAL relating to depreciation:

- BIAL has commissioned the land development capex in FY20 and therefore has considered the useful life as 48.5 years based on the available lease period. However, while projecting the depreciation for Third Control Period, BIAL has considered the useful life of land development capex as 30 years. Based on the useful life in FY20, the Authority proposes to consider the same useful life of 48.5 years for land development capex in the Third Control Period.
- Adjustment of depreciation of the assets excluded as per EIL study
- Adjustment of depreciation on the pre-operative expenses excluded from the RAB

5.2.101 Based on the above, the Authority proposes to consider the below useful life for the Third Control Period.

Table 77: Useful life considered by the Authority for the Third Control Period

Asset type	Useful life (years)
Earthwork	48.5
Terminal, utility, office and other buildings	30
Runway, taxiway and apron	30
Water management system	30
Roads	5
Roads (Trumpet)	20
Baggage handling, aerobridges, HVAC equipment, other airport equipment	15
Electrical fittings	10
Security/ safety equipments	15
IT Equipment	6
Software	5
Furniture and fixtures	7
Vehicles	8
Office equipment	5
Intangibles (agreements)	30

5.2.102 The Authority has recomputed the total depreciation based on the revised useful life of assets and revised asset addition. The Authority proposes to apply the proportion of the aeronautical assets on total depreciation to determine the depreciation on aeronautical assets. The Authority noted that the proportion of the aeronautical assets is varying from year-on-year basis since BIAL has undertaken expansion of the airport facilities. Therefore, the Authority proposes to apply the proportion of the aeronautical assets of a particular year to the depreciation amount of the respective year.

5.2.103 Based on the changes suggested above, the depreciation proposed by the Authority for the Third Control Period is given in the table below:

Table 78: Depreciation proposed by the Authority for the Third Control Period

Particulars (In INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Total depreciation as per BIAL (A)	541.48	726.38	752.18	760.23	797.08	3,577.35
Adj. - Change in useful life, revision in asset addition (B)	-91.27	-103.81	-114.12	-129.52	-165.36	-604.08
Adj. - EIL assets (C)	-0.90	-0.90	-0.90	-0.90	-0.90	-4.48
Adj. - Depreciation on excluded pre-operative expenses (D)	-2.48	-2.48	-2.48	-2.48	-2.48	-12.41
Total adjusted depreciation (E = A+B+C+D)	446.83	619.19	634.68	627.33	628.34	2,956.38
Aeronautical proportion of gross block (F)	87.46%	87.51%	87.50%	87.49%	87.54%	

Particulars (In INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Aeronautical depreciation as per the Authority (G = E*F)	390.78	541.86	555.35	548.86	550.05	2,586.90

5.2.104 The Authority notes the depreciation will change based on the changes in the asset additions and the date of capitalization. The Authority proposes to true-up the depreciation of the Third Control Period based on the actual asset additions and the actual date of capitalization.

Regulated Asset Base

5.2.105 Based on the discussions in the previous sections on the aeronautical asset addition and the aeronautical depreciation, the Authority proposes to consider the following RAB for the Third Control Period:

Table 79: RAB proposed by the Authority for the Third Control Period

Particulars	2022	2023	2024	2025	2026	Total
Aero opening RAB	4,091.07	10,137.86	10,039.90	9,656.04	9,325.63	
Add: Aero assets capitalized (refer Table 76)	6,437.58	443.90	171.49	218.45	255.86	7,527.27
Less: Aero disposals	0.00	0.00	0.00	0.00	0.00	0.00
Less: Aero depreciation (refer Table 78)	390.78	541.86	555.35	548.86	550.05	2,586.90
Aero closing RAB	10,137.86	10,039.90	9,656.04	9,325.63	9,031.44	
Average RAB	7,114.47	10,088.88	9,847.97	9,490.84	9,178.54	

* FY22 asset addition includes the T2 Apron and South Runway –Phase 2 deferred from FY21 to FY22 which was capitalized by BIAL in its MYTP submission in FY21 and FY23 asset addition includes the cargo terminal project which was considered by BIAL as non-aeronautical and hence excluded

5.3 Authority's proposals regarding regulatory asset base and depreciation for the Third Control Period

Based on the materials before it and based on its analysis, the Authority proposes the following:

- 5.3.1 To consider the interest during construction upto FY22 and also waive the adjustment of 1% on delay in operationalization of Terminal 2 - Phase 1 till 31 March 2022
- 5.3.2 To exclude the additional PMC costs estimated by BIAL for Terminal 2 for FY22
- 5.3.3 To levy the reduction (adjustment) of 1% in the project cost of Terminal 2 in case BIAL fails to commission and capitalize Terminal 2 Phase 1 by 31 March 2022. It is clarified that in case there is delay in completion of project beyond March 2022, due to any reason beyond the control of BIAL or its contracting agency and is properly justified, the same would be considered by the Authority while truing up the actual cost at the time of determination of tariff for the 4th control period in respect of IDC and PMC. However, there will be no waiver of reduction (adjustment) in case Phase 1 of Terminal 2 project is delayed beyond 31 March 2022 under any circumstances.
- 5.3.4 To consider the increase in the cost of T2 Apron Phase 2 due to RWH ponds upto 22.50 cr. and exclude the estimated additional cost of INR 20.5 cr. in T2 Apron Phase 2 from RAB due to the delay in the commissioning of the ECT.
- 5.3.5 To bifurcate the MMTH cost into aeronautical and non-aeronautical components based on the floor wise area usage for aeronautical and non-aeronautical activities.
- 5.3.6 To capitalize the enabling works for metro station and the baggage sorting area in the year of metro commissioning, that is, FY26.

- 5.3.7 To consider 5% of the project cost for Design and PMC costs for the capital expenditure deferred from Second Control Period and the capital expenditure proposed in the Third Control Period.
- 5.3.8 To include the ORAT expenses as part of the operational expenditure and exclude it from the RAB of the Third Control Period
- 5.3.9 To exclude the pre-operative expenses on the deferred projects of the Second Control Period from the RAB of Third Control Period and the capital expenditure proposed in the Third Control Period.
- 5.3.10 To consider the interest during construction on the project cost in RAB for the Third Control Period.
- 5.3.11 To consider INR 50 cr. (excl. design, PMC, contingency and IDC cost) for the T1 optimization project in the Third Control Period. To true-up the actual T1 optimization project cost during the next control period based on the evaluation of its reasonableness
- 5.3.12 To exclude the cost for MMTH Phase 2 and Airport terminal metro station project from the Third Control Period. In case BIAL capitalizes these assets in the Third Control Period, the Authority proposes to true-up the actual cost of these assets during the next control period
- 5.3.13 To consider a reduced cost of INR 22.40 cr. (excluding design, PMC, contingency and IDC) for the CISF barrack expansion and access road project in the Third Control Period.
- 5.3.14 To exclude the capital expenditure of city side metro station from the RAB of BIAL.
- 5.3.15 To exclude the Landscape works and Alpha 4 project cost from the Third Control Period
- 5.3.16 To consider the contingency cost as 3% of the Third Control Period project cost.
- 5.3.17 To exclude the proposal for CISF permanent housing project from the Third Control Period and consider it during the fourth control period
- 5.3.18 To reduce 1% of the project cost from the ARR/ Target Revenue as re-adjustment, in case any particular capital project is not completed/ capitalized as per the capitalization schedule as per the approval in tariff order.
- 5.3.19 To bifurcate the Terminal 2 asset into aeronautical and non-aeronautical based on the floor area ratio of Terminal 2 of 87.7%.
- 5.3.20 To segregate the common assets based on terminal area ratio of 85.73% based on Terminal 1 area for common assets capitalized in FY22 and apply weighted average terminal area ratio of 86.85% from FY23 to FY26
- 5.3.21 To consider refurbishment of existing cargo terminals and new cargo terminal as aeronautical assets.
- 5.3.22 To bifurcate the RWH ponds into aeronautical and non-aeronautical based on the average terminal area ratio.
- 5.3.23 To bifurcate the MMTH Phase 1 cost based on 68% to 32% as bifurcation ratio between non-aeronautical to aeronautical assets as given in Table 64
- 5.3.24 To consider the total asset addition and aeronautical asset addition given in Table 75 and Table 76 respectively for the Third Control Period
- 5.3.25 To true-up the total asset addition and the aeronautical asset addition for the Third Control Period based on the actual asset addition undertaken in the next control period and subject to its reasonableness.
- 5.3.26 To true-up the asset allocation of the assets capitalized in the Third Control Period based on the actual asset addition in the next control period

- 5.3.27 To consider the aeronautical depreciation given in Table 78 for the Third Control Period
- 5.3.28 To true-up the depreciation of the Third Control Period based on the actual asset additions and the actual date of capitalization
- 5.3.29 To consider the aeronautical RAB given in Table 79 for the Third Control Period.

6 **WEIGHTED AVERAGE COST OF CAPITAL (WACC) FOR THE THIRD CONTROL PERIOD**

6.1 **BIAL's submission regarding WACC for the Third Control Period**

Cost of equity

- 6.1.1 BIAL had appointed CRISIL Risk and Infrastructure Solutions Limited to carry out a study on evaluating Cost of Equity applicable to BIAL. Based on the CRISIL study, BIAL has considered the cost of equity for BIAL at 23.61%.
- 6.1.2 BIAL submitted the following assumptions for estimating the cost of equity:
- Risk free rate is calculated by taking 10-year average yield on a daily basis for 10-year government securities.
 - Rate of market return is estimated by taking last 40 years data of BSE Sensex using Geometric Mean method and adding Dividend Yield based on longest available data on BSE Sensex.
 - Asset beta is taken as average of developing countries' asset beta. The asset beta for developing countries under consideration is 0.75.
 - D/E ratio is taken based on the normative approach and standard adopted by regulators across various infrastructure sectors in India and is computed to be 2.33.

Table 80: Cost of equity computation submitted by BIAL

Parameter	Value
Risk free rate	7.62%
Market Return	16.04%
D/E ratio	2.33
Equity beta	1.9
Cost of equity	23.61%

Cost of debt

- 6.1.3 BIAL submitted that cost of debt assumed for the Third Control Period is 10%. BIAL has given the following basis for arriving at 10%:
- Based on the report of the RBI on Lending Rates of Scheduled Commercial Banks for the month of June 2020, following interest rates were submitted by BIAL:

Table 81: Interest rate as per RBI as submitted by BIAL

Average Interest Rate (as per RBI publication Jun 20)	PSU Banks	Private Banks
Month Wise from FY13 -FY20 on O/s Loans disbursed	11.08%	11.66%
Month Wise from FY16 -FY20 on Fresh Loans Sanctioned	9.71%	10.50%
Month wise 1 year MLCR from FY17-20	8.71%	9.32%

- BIAL submitted that the independent consultant, in the Consultation Paper issued by the Authority for determination of aeronautical tariff for the Third Control Period for DIAL had analysed yields of 13 debt instruments issued by various Infrastructure Companies and had arrived at a simple average of 9.97% as given below.

Table 82: Interest rate on bond issued as submitted by BIAL

Issuer	Number issued	Rate
Adani Infra (India) Limited	1	10.50%
AP Capital Region Dev Auth	5	10.32%
Ashoka Buildcon Limited	1	9.80%
G R Infra projects Limited	6	9.24%
Simple Average		9.97%

6.1.4 BIAL submitted that the average interest rate for both outstanding loans and fresh loans sanctioned are in the range of 10% to 11%. BIAL submitted that the 1-year MCLR is also around 9% (approx.) and BIAL, being an AA rated company is estimated to have a spread of 50 to 80 bps on the MCLR. BIAL submitted that the average interest rate of bonds issued by similar companies is also in the range of 10%. Hence, considering various range of interest rates depicted in tables above and the existing loan facilities availed by BIAL, BIAL submitted that it has considered 10% as the average cost of debt for the Third Control Period.

Weighted average cost of capital

6.1.5 Based on the cost of equity, cost of debt and gearing ratio, BIAL submitted the following FRoR for the Third Control Period:

Table 83: Weighted average cost of capital computation submitted by BIAL

Parameter	Value
Cost of equity	23.61%
Cost of State Support	0%
Cost of debt	10.0%
Weighted average gearing of equity	49.4%
Weighted average gearing of State Support	2.1%
Weighted average gearing of debt	48.6%
Weighted Average Cost of Capital	16.51%

6.2 Authority's examination regarding WACC for the Third Control Period

Cost of equity

6.2.1 As per the decision taken by the Authority in the Second Control Period order of BIAL, the Authority has commissioned a separate independent study through IIM Bangalore for evaluation of cost of capital for BIAL for the Third Control Period.

6.2.2 The independent study has drawn from the international experience of airports having comparability to BIAL in terms of hybrid till, ownership structure and scale of operations and has also studied the regulatory framework of other regulators for the study. The summary of the independent study is given at Annexure 3 - Summary of independent study on determination of cost of equity. The independent study is attached as an appendix (refer Appendix IV – Study on the Determinants of Cost of Capital of BIAL) to this consultation paper. The independent study has recommended the Cost of Equity of 15.05% which is arrived at as shown in the table below:

Table 84: Computation of cost of equity as per the independent study

Variables	Value
Asset beta based on Proximity Score Weights of comparable set	0.564689

Variables	Value
Gearing Ratio (D/E)	0.9231
Gearing Ratio (D/D+E)	48%
Equity beta	0.9296
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of equity	15.05%

6.2.3 The independent study has computed the Cost of Equity at 15.05% by using Capital Asset Pricing Model and using a notional Debt : Equity ratio of 48% :52%. While the study has used a nominal debt rate of 10.05% for illustrative purpose to arrive at the Weighted Average Cost of Capital, the Authority proposes to use the actual cost of debt for the purpose of calculation of WACC for tariff determination.

6.2.4 The Authority proposes to adopt the recommendations of the independent study in the tariff determination for the Third Control Period.

Cost of debt

6.2.5 The Authority noted that BIAL has considered cost of debt at 10% for the Third Control Period.

6.2.6 The Authority sought from BIAL the prevailing interest rate on the existing Rupee Term Loan of BIAL.

6.2.7 BIAL has submitted the mail from State Bank of India which stated that interest rate on the Rupee Term Loan of BIAL is set to 7.85% effective from 21 August 2020.

6.2.8 The Authority proposes to consider the prevailing interest rate of 7.85% as cost of debt for the Third Control Period.

6.2.9 The Authority proposes to true-up the cost of debt of BIAL for the Third Control Period based on actuals.

Weighted average cost of capital

6.2.10 Based on the above, the Authority proposes to consider the following WACC for the Third Control Period for BIAL:

Table 85: Weighted average cost of capital proposed by the Authority for the Third Control Period

Parameter	Value
Cost of equity	15.05%
Cost of debt	7.85%
Weighted average gearing of equity	52.0%
Weighted average gearing of debt	48.0%
Weighted Average Cost of Capital	11.59%

6.3 Authority's proposals regarding WACC for the Third Control Period

Based on the materials before it and based on its analysis, the Authority proposes the following:

6.3.1 To consider the cost of equity at 15.05% as per the outcome of the independent study.

6.3.2 To consider the notional debt to equity (gearing) ratio of 48% :52% as suggested by the independent study

6.3.3 To consider 7.85% as cost of debt for the Third Control Period.

6.3.4 To true-up the cost of debt of BIAL for the Third Control Period based on actuals.

- 6.3.5 To consider the WACC of 11.59% for the Third Control Period based on above mentioned cost of equity, cost of debt and considering the notional gearing ratio as suggested by the independent study.

7 OPERATING EXPENSES FOR THE THIRD CONTROL PERIOD

7.1 BIAL's submission on operating expenses for the Third Control Period

7.1.1 BIAL in its MYTP submission has stated that the operating expenditure for the Third Control Period has been estimated based on the following assumptions:

- Impact of COVID-19 pandemic on passenger processing time, passenger flow mandating additional spending, and outsourced manpower deployment.
- Opening of new Terminal T2 in FY22 resulting in additional costs across various expense categories
- Increased area of operation including parking, MMTH, peripheral road network etc.
- BIAL has also submitted that a large proportion of spend is fixed in nature and do not bear a direct correlation to traffic.

7.1.2 BIAL's submission on projections of individual expense heads is summarized in the table below:

Table 86: Basis of projections of operating expenditure as submitted by BIAL

Expense Head	Basis of projection as adopted by BIAL
Personnel Cost	<ul style="list-style-type: none"> • Manpower requirements for T2 Phase 1 has been estimated on a staggered basis with 340 employees added post commissioning in FY23 and additional 189 employees added in FY25. • Personnel costs have been estimated keeping base year as FY21. Annual pay increase of 10% is considered by BIAL on a y-o-y basis with a market correction of 2% once in every 3 years.
O&M Cost	<ul style="list-style-type: none"> • Increased area and space for management and maintenance after opening of T2 Phase 1, MMTH, 2 parallel runways, ECT etc. • The O&M expenditure has been estimated as a percentage of the gross block.
Utility Cost	<ul style="list-style-type: none"> • Utility cost has been calculated after netting off recoveries from concessionaires. • BIAL has initiated sustainability measures such as implementation of Solar and Wind Power projects to be additional sources of supply of power, leading to reduction in average power cost. • The utility cost has been estimated considering an increase of 5% in demand charges for power and 7% in consumption charges of power and potable water cost
Concession Fees	Calculated as 4% of gross revenue requirement
Lease Rent	Calculated based on the land lease deed executed between KSIIDC and BIAL.
Insurance Cost	The Insurance cost has been estimated as a percentage of the asset block with CPI increase.
Rates and Taxes	Rates and taxes mainly comprise of property tax which is estimated considering the additional area after commissioning of T2 and CPI based increase.
Marketing & Advertisement	Marketing costs are estimated considering benchmarking based on actual costs with an annual increase of 10%. Collection costs are estimated as part of the marketing cost based on the estimate of collection charges to be paid to airlines on the UDF collections.
General Administration Costs	<ul style="list-style-type: none"> • Estimated based on actual costs with an annual increase of 10%. • BIAL has also considered incremental security costs (other than CISF) considered from FY23 onwards for security and safeguard of the increased facility and infrastructure created.
CSR	Costs as mandated by the Companies Act are based on prescribed regulations.

7.1.3 Based on the above, the total operating expenditure submitted by BIAL as part of its MYTP submission is given in the table below:

Table 87: Total operating expenditure for the Third Control Period as submitted by BIAL

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Personnel expenses	247.50	348.03	392.61	513.61	582.21	2,083.97
O&M	215.74	347.23	385.67	445.34	602.70	1,996.68
Lease Rent	15.11	15.56	16.03	16.51	17.00	80.21
Utilities	39.81	52.35	56.02	59.94	64.13	272.25
Insurance	11.59	22.68	24.27	25.48	26.99	111.00
Rates & taxes (other than IT)	9.46	13.54	13.98	14.42	14.88	66.28
Marketing & Advertising	27.17	25.57	28.50	31.79	35.49	148.52
CSR	13.70	13.22	11.90	15.72	19.86	74.41
General admin costs	43.38	60.95	67.05	73.75	81.13	326.26
Total operating expenses	623.46	899.15	996.02	1,196.56	1,444.40	5,159.59
Less: Disallowance - Interest/hotel cost						-
Concession fee	146.22	202.99	241.16	286.83	341.30	1,218.50
Waiver and bad debts	-	-	-	-	-	-
Total operating expenditure	769.68	1,102.14	1,237.18	1,483.39	1,785.70	6,378.09

7.1.4 The allocation ratios for the Third Control Period are based on the allocation ratio arrived for the year FY20. The allocation ratio submitted by BIAL are given below:

Table 88: Operating expenditure allocation ratio for the Third Control Period as submitted by BIAL

Operating expenses	FY 2020	FY2021	FY 2022	FY 2023	FY 2024	FY2025	FY 2026
Personnel expenses	92.10%	92.10%	92.10%	92.10%	92.10%	92.10%	92.10%
O&M cost - Others	89.01%	89.01%	89.01%	89.01%	89.01%	89.01%	89.01%
Lease Rent	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Utilities	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Insurance	90.03%	90.03%	90.03%	90.03%	90.03%	90.03%	90.03%
Rates & taxes (other than IT)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Collection Cost	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Other Marketing costs	86.42%	86.42%	86.42%	86.42%	86.42%	86.42%	86.42%
CSR	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
General admin costs	91.33%	91.33%	91.33%	91.33%	91.33%	91.33%	91.33%

7.1.5 Based on the above allocation ratio, the aeronautical operating expenditure submitted by BIAL for the Third Control Period is given below:

Table 89: Aeronautical operating expenditure for the Third Control Period as submitted by BIAL

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Personnel expenses	227.95	320.54	361.59	473.03	536.22	1,919.33
O&M	193.24	310.49	342.76	398.03	550.00	1,794.52
Lease Rent	15.11	15.56	16.03	16.51	17.00	80.21
Utilities	39.81	52.35	56.02	59.94	64.13	272.25
Insurance	10.43	20.42	21.85	22.94	24.30	99.93
Rates & taxes (other than IT)	9.46	13.54	13.98	14.42	14.88	66.28
Marketing & Advertising	24.10	22.93	25.60	28.60	31.97	133.21
CSR	13.70	13.22	11.90	15.72	19.86	74.41
General admin costs	39.62	55.67	61.24	67.36	74.10	297.98

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Total operating expenses	573.41	824.73	910.96	1,096.55	1,332.47	4,738.12
Less: Disallowance - Interest/hotel cost						-
Concession fee	111.26	147.46	152.40	167.60	213.01	791.73
Waiver and bad debts						
Total operating expenditure	684.67	972.19	1,063.36	1,264.15	1,545.48	5,529.85

7.2 Authority's examination regarding operating expenses for the Third Control Period

7.2.1 The Authority has evaluated the submissions made by BIAL relating to operational expenditure. The Authority's analysis of various expenses under operational expenditure is given below.

Personnel Cost

7.2.2 The Authority noted the submissions of BIAL relating to personnel cost. The Authority analyzed the trend in total personnel cost for the Third Control Period and observed that BIAL had projected the personnel cost to increase by 41% in FY23 and 31% in FY25. The details are produced below:

Table 90: Trend in total personnel cost as submitted by BIAL

Operating expenses	FY 2020	FY2021	FY 2022	FY 2023	FY 2024	FY2025	FY 2026
Personnel expenses	202	221	248	348	393	514	582
% change		9%	12%	41%	13%	31%	13%

7.2.3 The Authority sought clarifications from BIAL on the basis of projections of personnel cost. BIAL submitted that the increase in personnel cost was due to two factors:

- Addition of manpower due to business growth and opening of T2 Phase 1
- Annual increment of 10% each year with market correction of 2% once in 3 years

7.2.4 The submission of BIAL is produced below for reference:

Table 91: Basis of projections of personnel cost as submitted by BIAL

Particulars	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Manpower proposed by BIAL	881	1,052	1,227	1,247	1,258	1,624	1,663	1,878	1,904
Manpower additions towards business growth					11	26	39	26	26
Manpower additions towards T2 Phase 1					0	340	0	189	0
Annual increments (in %)*		171	175	20	11	366	39	215	26
% increase in manpower		19.41%	16.63%	1.63%	0.88%	29.09%	2.40%	12.93%	1.38%
Annual increments (in %)					10%	12%	10%	10%	12%

* annual increments are different than the increase in the personnel cost due to addition of employees in the mid-year

7.2.5 The Authority noted that the manpower increase was largely attributed to the commissioning of Terminal 2 Phase 1. The Authority noted that the BIAL has already added 171 and 175 employees in FY19 and FY20 respectively before the impact of COVID on traffic in FY21. The Authority notes that the employee addition during FY19 and FY20 will be for the new south parallel runway operations and the new facilities proposed to be commissioned in FY21 which is now expected to commission in

FY22. Further, the Authority noted from the traffic forecast that the proposed Terminal 2 will not operate at peak capacity till the end of the Third Control Period and the usage of Terminal 2 can be optimized to cater to the limited traffic. Therefore, the Authority is of the view that the manpower addition proposed by BIAL is not in proportion to the increase in traffic at the airport and also the manpower requirement can be met by the manpower addition already undertaken by BIAL in FY19, FY20 and FY21. Therefore, the Authority proposes to consider 10% increase in manpower in FY23 and FY25 during the Third Control Period.

7.2.6 The Authority analyzed the personnel cost/employee and observed the following trend:

Table 92: Trends in personnel cost/employee

Operating expenses	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Personnel cost/employee(INR lakhs)	10.17	11.37	11.93	13.31	13.89	14.64	13.77	14.56	15.97
% change		11.79%	4.89%	11.55%	4.34%	5.43%	-5.96%	5.77%	9.70%
5-year CAGR						7.55%	3.89%	4.06%	3.72%
8-year CAGR (FY12-FY20)									5.80%

7.2.7 The Authority noted that BIAL had projected the personnel cost/employee at a higher growth rate for the Third Control Period. The Authority proposes to revise the growth rate of personnel cost/ employee for the Third Control Period to 5.8% (8-year CAGR for the period FY12-FY20) and accordingly proposes to recalculate the personnel cost for BIAL.

7.2.8 The Authority proposes to consider the allocation ratio of FY20 as the allocation ratio for the Third Control Period.

7.2.9 The Authority has also considered the revised FY21 personnel costs based on the true-up chapter to forecast the personnel cost for the Third Control Period.

7.2.10 The Authority proposes to true-up the personnel cost based on actuals during the next control period.

7.2.11 Based on the above, the personnel cost proposed by the Authority for the Third Control Period is as follows:

Table 93: Personnel cost for the Third Control Period proposed by the Authority

Operating expenses	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22-FY26)
Personnel cost/employee	15.97	16.93	17.91	18.95	20.05	21.21	22.44	101
% increase		6.01%	5.80%	5.80%	5.80%	5.80%	5.80%	
Number of Employees	1,227	1,247	1,247	1,372	1,372	1,509	1,509	7,008
% increase		1.63%	0.00%	10.00%	0.00%	10.00%	0.00%	
Total Personnel Cost	195.97	211.14	223.38	259.97	275.04	320.09	338.65	1,417
Aero allocation ratio	88.94%	88.94%	88.94%	88.94%	88.94%	88.94%	88.94%	
Aero personnel cost	174.29	187.78	198.67	231.21	244.61	284.68	301.18	1,260

O&M Cost

7.2.12 The Authority noted the submissions of BIAL relating to O&M cost. The Authority analyzed the trend in total O&M cost for the Third Control Period and observed that BIAL had projected the O&M cost

to increase by 61% in FY22 & FY23 and thereafter an increase of 35% in FY26. The details are produced below:

Table 94: Trends in total O&M cost as submitted by BIAL

Operating expenses	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22-FY26)
Total O&M cost as per BIAL	138	134	216	347	386	445	603	1,997
% change		-3%	61%	61%	11%	15%	35%	

7.2.13 The Authority made the following observations with regards to the submissions made by BIAL on O&M:

- BIAL had calculated the O&M cost as a percentage of gross block. BIAL has computed O&M-Landside, O&M-Airfield, O&M-Utilities and O&M-ICT cost based on the percentage gross block that is, 1.92%, 0.63%, 1.88% and 7.00% for landside, airside, utilities and ICT, respectively.
- The increase in total O&M costs is largely attributable to the increase in O&M – Infra costs from FY22 to FY23 due to asset addition. In addition, the O&M ICT costs have also shown an increase from FY21 to FY22 and then later from FY25 to FY26.
- O&M Infra costs, O&M ICT and O&M-others costs have been projected to increase by 10% year on year by BIAL.

7.2.14 The Authority noted that BIAL had incorrectly added the O&M-Landside cost in the O&M-ICT expenses and had incorrectly linked some of the asset addition to compute the O&M costs. The Authority has undertaken appropriate revisions in this regard.

7.2.15 The Authority proposes to calculate the O&M costs based on the percentage of gross block. However, the Authority noted that BIAL has considered higher percentages for the maintenance of the newer assets based on past trends. The Authority is of the view that comparison with the historical O&M costs as a % of gross block will not provide the right benchmark for forecasting the future O&M costs as BIAL's facilities were operating at peak capacity till FY20 and the Authority has noted from the proposed traffic forecast that the new terminal building, new apron and new south parallel runway would not operate at their peak capacity till the end of the Third Control Period.

7.2.16 Further, the Authority is of the view that the newer assets generally require less O&M costs as a percentage of their gross block compared to older assets.

7.2.17 The Authority has also noted that it is providing BIAL with the sustaining capital expenditure to undertake the special repairs in addition to the O&M costs.

7.2.18 Considering the above factors, the Authority proposes to consider the following percentages of the respective gross block to forecast the O&M costs for the Third Control Period:

Table 95: O&M cost % of the respective gross block proposed by the Authority for the Third Control Period for the assets proposed to be capitalized in the Third Control Period

Year	O&M- Infrastructure (landside, airfield and utilities)	O&M- ICT
Year 1 (year of capitalization)	0.00%	0.00%
Year 2	0.50%	5.00%
Year 3	0.60%	5.00%
Year 4	0.75%	5.00%
Year 5 onwards	1.00%	5.00%

- 7.2.19 The Authority noted that BIAL has considered the FY20 capital expenditure as new asset addition to forecast the O&M costs for the Third Control Period instead of considering it as part of the existing O&M costs of FY21. The Authority proposes to consider the existing O&M costs of FY21 as base to forecast the O&M costs for assets capitalized till FY20 and consider only the additions from FY21 onwards to forecast the O&M costs of Third Control Period (note that the O&M costs for capitalized assets of FY21 in year 1 is 0 and therefore, it has to be considered in FY22).
- 7.2.20 The Authority noted that BIAL had forecasted the O&M costs to increase by 10% year on year. The Authority proposes to forecast the O&M costs to increase by inflation in line with the growth rate proposed for general admin cost and unit cost of utility.
- 7.2.21 The Authority proposes to consider allocation ratio of O&M cost for the Third Control Period based on the allocation ratio of assets for the Third Control Period.
- 7.2.22 The Authority noted that BIAL has considered its savings due to cost optimization measures in the O&M-Other costs. The Authority proposes to consider these cost savings in the O&M-Other costs.
- 7.2.23 The Authority proposes to review the need and justification for incurring the actual O&M costs during the Third Control Period and proposes to true-up the O&M costs, accordingly.
- 7.2.24 Based on the above, the O&M cost proposed by the Authority for the Third Control Period is as follows:

Table 96: O&M cost proposed by the Authority for the Third Control Period

Operating expenses	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22-FY26)
Total O&M running cost - Infra	79.89	86.64	121.89	136.29	153.82	177.29	675.93
Total O&M costs - ICT	28.61	30.01	54.26	56.92	59.71	62.64	263.54
Total other O&M costs	25.48	13.68	14.84	16.05	17.33	18.67	80.57
Total O&M costs	133.98	130.32	190.99	209.27	230.86	258.60	1,020.04
Allocation Ratio - Other O&M costs	89.64%	89.59%	88.42%	88.28%	88.07%	87.84%	
Total aero O&M costs	120.10	116.76	168.87	184.74	203.31	227.15	900.84

Lease Rent

- 7.2.25 The Authority noted that a land lease deed was executed between Karnataka State Industrial Investment and Development Corporation Limited (KSIIDC) and BIAL on 30th April 2005 according to which:
- The lease rental from airport opening date till end of 7 years will be 3% of total site cost (INR 175 cr.).
 - For the 8th year, the lease rental shall be 6% of total site cost (INR 175 Cr.).
 - For every following year, the lease rent shall be equivalent to lease rental of previous year plus additional 3%.
- 7.2.26 The Authority noted that additional land was leased to BIAL by KSIIDC as per the following terms:
- The lease rental from airport opening date till end of 7 years will be 3% of total cost of additional land (INR 36.78 Cr.).
 - For the 8th year, the lease rental shall be 6% of the additional land cost (INR 36.78 Cr.).

- For every following year, the lease rent shall be equivalent to lease rental of previous year plus additional 3%.

7.2.27 The Authority noted that BIAL had allocated 100% of lease rentals to aeronautical expenditure.

7.2.28 The Authority noted from the land lease deed that a total of 4009 acres of land has been allocated to BIAL. The Authority also notes that BIAL through its subsidiary BACL shall be monetizing land for non-aero activities in the Third Control Period. Accordingly, the Authority proposes to consider land usage by BACL as non – aeronautical and revise the allocation ratio accordingly. The computation of revised allocation ratio (based on land usage) is given below:

Table 97: Revised allocation ratio for lease rent as per the Authority

Particulars	FY 2022	FY 2023	FY 2024	FY2025	FY 2026
BACL land use (in acres)	1.00	26.70	22.55	47.75	55.00
Cumulative BACL land use	1.00	27.70	50.25	98.00	153.00
Total Land (in acres)	4008.77	4008.77	4008.77	4008.77	4008.77
Aero area	4007.77	3981.07	3958.52	3910.77	3855.77
Aero %	99.98%	99.31%	98.75%	97.56%	96.18%

7.2.29 Accordingly, the revised lease rentals for the Third Control Period considered by the Authority is given below:

Table 98: Lease Rentals for the Third Control Period considered by the Authority

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Lease Rentals	15.11	15.56	16.03	16.51	17.00	80.21
Revised allocation ratio	99.98%	99.31%	98.75%	97.56%	96.18%	
Aeronautical lease rentals	15.10	15.45	15.83	16.11	16.36	78.85

Utility

7.2.30 Utility cost includes power, water and fuel expenses. The Authority noted the submissions of BIAL relating to utility costs.

7.2.31 BIAL submitted on 13 January 2021 that it has omitted the additional contract demand and power requirement for the expansion in facilities during the Third Control Period and requested the Authority to include it for the computation of the power cost. The Authority examined the submission of BIAL and proposes to include the additional contract demand and power consumptions for the expansion of facilities in the Third Control Period.

7.2.32 The Authority sought from BIAL the existing demand charges and the consumptions charges applicable in FY21. BIAL submitted that the demand charges is INR 240 per kVA per month and power unit charges is INR 6.39 per kWh for FY21.

7.2.33 The Authority noted that BIAL has proposed to increase the demand charges by 5% per annum in the Third Control Period. The Authority noted from the previous years that the CAGR of demand charges is 1.5% from 2009 to 2021 and therefore, proposes to consider nil increase in the demand charges for the Third Control Period.

7.2.34 The Authority noted that BIAL had proposed to increase the power and water unit charges by 7% per annum. The Authority proposes to increase the power and water unit charges by inflation during the Third Control Period.

- 7.2.35 The Authority noted that BIAL has proposed a recovery % as ~35% of the total power costs. The Authority noted from the previous years that the recovery % has been ~50% of the power costs. The Authority proposes to consider the recovery % as ~50% of the total power costs for the Third Control Period.
- 7.2.36 The Authority had sought BIAL's response on the water savings on account of commissioning of the rainwater harvesting ponds (RWH) from FY22 onwards. BIAL had submitted that it will source 50% of the potable water requirements of the airport from the rainwater harvesting ponds. The Authority proposes to revise the potable water consumption to be outsourced by BIAL after reducing the demand met by the RWH.
- 7.2.37 The Authority understood from the submission that BIAL has taken utility costs (net of recovery) as aeronautical. The Authority noted that BIAL had considered the utility recoveries from aeronautical concessionaires such as cargo, ground handling, fuel farm and CUTE/ CUSS as non-aeronautical revenues. Based on the Authority's decision in the Second Control Period, the Authority proposes to adjust these aeronautical utility recoveries from the aeronautical utility cost. The utility (net of recovery) cost has been considered as 100% aeronautical. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.
- 7.2.38 Based on the above changes, the net power cost computed by the Authority for the Third Control Period is given in the table below:

Table 99: Net power cost proposed by the Authority for the Third Control Period

Particulars	2022	2023	2024	2025	2026	Total
Contract demand (kVA)	15000	33000	45000	45000	45000	183000
Consumption (mn kWh)	77	125	125	125	125	576.73
Contract demand charges (INR per KVA per annum)	2880	2880	2880	2880	2880	14400
% increase		0.0%	0.0%	0.0%	0.0%	
Power unit tariff (INR per kWh)	6.70	7.03	7.38	7.74	8.12	36.96
% increase		4.90%	4.90%	4.90%	4.90%	
Contract demand cost (INR cr.)	4.32	9.50	12.96	12.96	12.96	52.70
Power consumption cost (INR cr.)	51.79	87.80	92.10	96.62	101.35	429.66
Total power cost (INR cr.)	56.11	97.30	105.06	109.58	114.31	482.37
Recovery %	51%	51%	49%	49%	50%	
Net power cost (INR cr.)	28.49	49.17	51.58	54.10	56.76	240.09

- 7.2.39 Based on the above changes, the net water cost computed by the Authority for the Third Control Period is given in the table below:

Table 100: Net water cost proposed by the Authority for the Third Control Period

Particulars	2022	2023	2024	2025	2026	Total
Potable water requirement - Existing (kL per day)	1694	1778	1778	1778	1778	8806
Potable water requirement - Future (kL per day)	0	2600	2600	2600	2600	10400
Potable water requirement (kL per day)	1694	4378	4378	4378	4378	19206
Potable water requirement met through RWH	50%	50%	50%	50%	50%	
Potable water requirement - payable by BIAL (kL per day)	847	2189	2189	2189	2189	9603

Particulars	2022	2023	2024	2025	2026	Total
Cost of potable water (INR per kL)	98.21	103.03	108.07	113.37	118.92	542
% increase		4.90%	4.90%	4.90%	4.90%	
Potable water cost (INR cr.)	3.04	8.23	8.63	9.06	9.50	38.46
Recovery % - potable water	45.00%	45.00%	45.00%	45.00%	45.00%	
Net potable water cost (INR cr.)	1.67	4.53	4.75	4.98	5.23	21.15
Raw water - consumption (crore kL)	0.04	0.07	0.07	0.07	0.07	0.33
Cost of raw water (INR per kL)	26.60	27.90	29.27	30.70	32.21	146.68
% increase		4.90%	4.90%	4.90%	4.90%	
Raw water cost (INR cr.)	0.97	2.04	2.14	2.24	2.35	9.74
Net water cost (INR cr.)	2.64	6.56	6.89	7.22	7.58	30.89

7.2.40 Accordingly, the revised aeronautical utility cost for the Third Control Period proposed by the Authority is given below:

Table 101: Aeronautical utility cost proposed by the Authority for the Third Control Period

Particulars	2022	2023	2024	2025	2026	Total
Net power cost	28.49	49.17	51.58	54.10	56.76	240.09
Net water cost	2.64	6.56	6.89	7.22	7.58	30.89
Less: Aero utility recoveries	2.91	5.22	5.47	5.74	6.02	25.37
Aeronautical utility cost	28.21	50.51	52.99	55.59	58.31	245.61

Insurance

7.2.41 The Authority noted the submissions of BIAL relating to insurance. The Authority noted that BIAL had considered a higher premium rate for the Third Control Period while historical trends reveal a comparatively lower premium rate. The Authority accordingly proposes to:

- Revise the premium rate as 0.07% , based on the average premium rate for the period FY17-FY21, to forecast insurance cost for the Third Control Period.
- Consider the aeronautical gross block ratio for allocation of insurance cost for the Third Control Period.

7.2.42 The insurance cost considered by the Authority for the Third Control Period is given below:

Table 102: Insurance cost considered by the Authority for Third Control Period

Operating expenses	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Insurance Cost	4.96	10.32	10.67	10.81	10.99	47.76
Allocation Ratio	87.46%	87.51%	87.50%	87.49%	87.54%	
Aero insurance cost	4.34	9.03	9.34	9.46	9.62	41.79

Rates and Taxes

7.2.43 The rates and taxes majorly include the expenses related to payment of property tax. The Authority noted that BIAL had allocated 100% of rates and taxes to aeronautical expenditure.

7.2.44 The Authority noted that the BIAL has projected the rates and taxes by linking it with the inflation and the increase in area due to capacity addition. The Authority proposes to consider these growth rates on the revised rates and taxes of FY 2021.

7.2.45 Similar to the treatment followed by the Authority for lease rentals, the Authority proposes to allocate the rates and taxes into aeronautical and non – aeronautical based on the land usage. Accordingly, the rates and taxes proposed by the Authority for the Third Control Period is as follows:

Table 103: Rates and taxes for the Third Control Period considered by the Authority

Operating expenses (INR cr.)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22-FY26)
Total Rates and Taxes as per Authority	8.29	8.70	12.60	13.22	13.87	14.55	62.93
Inflation (%)		4.90%	4.90%	4.90%	4.90%	4.90%	
% growth due to increase in area (%)		0.00%	40.00%	0.00%	0.00%	0.00%	
Revised allocation ratio (%)		99.98%	99.31%	98.75%	97.56%	96.18%	
Aeronautical Rates and Taxes as per Authority		8.69	12.51	13.05	13.53	13.99	61.78

Marketing & Advertisement

7.2.46 The marketing & advertisement expenses include collection cost and sales & marketing expenses.

7.2.47 The Authority noted the submissions of BIAL relating to marketing and advertisement expenses. The Authority proposes to calculate the marketing and advertisement by calculating the collection cost and sales & marketing cost separately and adding them to arrive at the total marketing and advertisement cost for the airport.

7.2.48 The approach taken by the Authority to forecast the collection cost is given below:

- The Authority proposes to forecast the collection cost based on the revised domestic and international traffic numbers projected by the Authority.
- To consider collection cost as 100% aeronautical

7.2.49 The Authority noted that BIAL had considered an increase of 10% year on year for the sales and marketing cost along with a one-time expense of INR 5 cr. in FY22 for the marketing of new Terminal 2.

7.2.50 The approach taken by the Authority to forecast the sales and marketing cost is given below:

- Similar to the approach taken by the Authority in the Second Control Period, the Authority proposes to consider the increase in sales and marketing expenses as 10% year on year.
- The Authority noted that the study on operating expenses has considered the revised sales and marketing costs for the Second Control Period. The Authority proposes to consider the revised sales of marketing cost of FY20 as base to forecast the sales and marketing for the Third Control Period.
- The Authority proposes to consider the expense related to marketing of T2 as a one-off expense in FY22.
- To consider allocation ratio of sales and marketing expenses of FY20 to forecast the aeronautical sales and marketing for the Third Control Period

7.2.51 Accordingly, the sales and marketing expenses considered by the Authority for the Third Control Period is given in the table below:

Table 104: Sales and marketing expenses considered by the Authority for the Third Control Period

Operating expenses	FY2021	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total*
Sales and marketing cost - Nominal increase	4.31	4.74	5.22	5.74	6.31	6.95	28.96
% increase		10%	10%	10%	10%	10%	
Sales and marketing cost - Onetime expense (relating to T2)		5.00					5.00
Total sales and marketing cost	4.31	9.74	5.22	5.74	6.31	6.95	33.96
Aeronautical ratio	84.80%	84.80%	84.80%	84.80%	84.80%	84.80%	
Aeronautical sales and marketing cost - Revised	3.66	8.26	4.42	4.87	5.35	5.89	28.80

*Total is calculated for the period FY22 – FY26.

7.2.52 Based on the above, the aeronautical marketing and advertisement expenses considered by the Authority for the Third Control Period is given below:

Table 105: Marketing and advertisement expenses considered by the Authority for Third Control Period

Operating expenses	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Aeronautical collection cost	4.67	7.50	8.75	10.18	11.86	42.96
Aeronautical sales and marketing cost	8.26	4.42	4.87	5.35	5.89	28.80
Aeronautical marketing and advertisement cost	12.93	11.92	13.62	15.54	17.75	71.76

Corporate Social Responsibility

7.2.53 The Authority noted from the directions given by Hon'ble TDSAT in its judgement dated 16th December 2020 that the CSR expenditure is considered as part of operating expenditure. The decision of Hon'ble TDSAT is produced below for reference:

“...The decision of the Authority to not allow CSR expenditure as a cost of the Airport Operator is not proper and is set aside. The Authority shall pass consequential orders so as to prevent loss of or reduction in the determined fair return to the equity holders. Necessary truing-up exercise shall be done accordingly...”

7.2.54 Accordingly, the Authority has categorized the CSR expenses as common and computed the aeronautical CSR based on the aeronautical profit before tax. The revised aeronautical CSR expenses is given below:

Table 106: Aeronautical CSR considered by the Authority for the Third Control Period

Particulars	2019	2020	2021	2022	2023	2024	2025	2026	Total (FY22-FY26)
Aero revenues	959	829	333	951	1,601	1,960	2,395	2,928	9,834
30% of non-aero revenues	0	0	0	0	0	0	0	0	0
Aero operational expense	-370	-422	-408	-494	-594	-645	-731	-804	-3,268

Particulars	2019	2020	2021	2022	2023	2024	2025	2026	Total (FY22-FY26)
EBITDA	590	406	-76	457	1,007	1,315	1,664	2,123	6,567
Aero Depreciation	-276	-193	-250	-391	-542	-555	-549	-550	-2,587
Interest expenses	-94	-118	-162	-203	-597	-580	-549	-515	-2,443
Aero PBT	220	95	-488	-137	-132	180	567	1,059	1,537
Average Aero PBT (last 3 financial years)				-58	-177	-252	-30	205	-311
Aeronautical CSR expenses (2% of average PBT)				0.00	0.00	0.00	0.00	4.10	4.10

General Administration Cost

7.2.55 The general admin costs consist of consultancy & legal, travel costs and office costs.

7.2.56 The Authority noted the submissions of BIAL relating to general admin costs. The Authority noted that BIAL had considered a year on year increase of 10% for travel costs and consultancy & legal. Similarly, BIAL had also considered a year on year increase of 10% for office costs with the exception of FY23, where the office costs have increased by 80%. The submission of BIAL is detailed in the table below:

Table 107: % increase in general admin costs submitted by BIAL

Revenues	FY2021	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total*
Consultancy and Legal	16.02	17.63	19.39	21.33	23.46	25.80	107.60
Travel Costs	6.22	6.84	7.52	8.27	9.10	10.01	41.74
Office Costs	17.19	18.91	34.04	37.45	41.19	45.31	176.91
% increase in consultancy & legal		10%	10%	10%	10%	10%	
% increase in travel costs		10%	10%	10%	10%	10%	
% increase in office costs		10%	80%	10%	10%	10%	
Total general admin cost	39.43	43.38	60.95	67.05	73.75	81.13	326.26
Allocation Ratio	91.33%	91.33%	91.33%	91.33%	91.33%	91.33%	
Aeronautical General admin cost	36.01	39.62	55.67	61.24	67.36	74.10	297.98

*Total is calculated for the period FY22 – FY26.

7.2.57 The Authority proposes to calculate the general admin costs as below:

- The Authority proposes to increase in consultancy & legal by inflation year on year.
- The Authority proposes to increase of inflation for office costs with the exception of FY23, where the office costs have been moderated to increase by 30% to account for the increase in the number of employees
- The Authority proposes to consider the increase in travel costs to reach pre-COVID levels by FY25.
- The Authority noted that consultancy and legal and office expenses are costs of fixed nature and therefore, proposes to consider their costs of FY21 as base value for Third Control Period forecast
- To consider allocation ratio of general admin expenses as 90%, that is, the allocation ratio for FY21.

7.2.58 Based on the above, the general admin expenses considered by the Authority for the Third Control Period is given below:

Table 108: General admin costs considered by the Authority for Third Control Period

Operating expenses	FY2021	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Consultancy and Legal	15.16	15.90	16.68	17.50	18.35	19.25	87.68
% increase		4.90%	4.90%	4.90%	4.90%	4.90%	
Travel Costs	0.18	0.20	1.41	2.83	5.65	6.22	16.30
% recovery to pre-COVID levels		10.00%	25.00%	50.00%	100.00%	110.00%	
Office Costs	11.43	11.99	15.59	16.35	17.15	17.99	79.08
% increase		4.90%	30.00%	4.90%	4.90%	4.90%	
Total general admin cost	26.77	28.09	33.68	36.67	41.16	43.46	183.07
Allocation Ratio	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	
Aeronautical general admin cost	24.09	25.28	30.31	33.01	37.04	39.12	164.76

* pre-COVID travel costs considered as travel costs for FY20 as per Business Plan submitted by BIAL

Concession Fee

- 7.2.59 As per Clause 3.3 of the concession agreement signed between BIAL and the Government of India, BIAL has to pay a concession fee amounting to 4% of the gross annual revenue every year.
- 7.2.60 The Authority noted the submissions of BIAL relating to concession fee. The Authority notes that the tariff computation for BIAL is undertaken on hybrid till basis and the aeronautical concession fee for BIAL will be computed as 4% of the aeronautical revenues.
- 7.2.61 The Authority noted that BIAL has computed the concession fee on the net aggregate revenue requirement instead of the forecasted aeronautical revenues. The Authority proposes to consider the concession fee on the forecasted aeronautical revenues.
- 7.2.62 Accordingly, the aeronautical concession fee considered by the Authority for the Third Control Period is given below:

Table 109: Aeronautical concession fee considered by the Authority for the Third Control Period

Revenues	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Aviation Revenues	743.76	1,362.73	1,696.06	2,085.21	2,580.70	8,468
Aviation Concession Revenues	206.85	237.87	264.33	309.90	346.99	1,366
Less: Collection cost	4.67	7.50	8.75	10.18	11.86	43
Total revenues	945.94	1,593.10	1,951.63	2,384.93	2,915.82	9,791
Percentage	4.00%	4.00%	4.00%	4.00%	4.00%	
Aeronautical Concession Fees	37.84	63.72	78.07	95.40	116.63	391.66

ORAT

- 7.2.63 BIAL in its submission has proposed an Operational Readiness and Airport Transfer (ORAT) program which is a 2-year program till FY22 for planning, executing and successful opening of the new Terminal 2.
- 7.2.64 BIAL has further submitted the following key components of the ORAT program:
- **“Operational Readiness** – Plan, detail and develop all operational documentation such as SOPs, Manuals and SLA (Service Level Agreements) with all internal and external stakeholders, such as airlines, ground handlers and authorities.
 - **Familiarization & Training** - Plan, develop and execute familiarization and training sessions for all stakeholders to operate in Terminal 2 with new systems. This workstream includes a budget for procuring logistics as well as state of the art training and familiarization methodologies.

- **Trial Program**– Plan, develop and execute a Trial Program that will encourage all BIAL Terminal 2 users to test and trial all facilities and procedures prior to the opening. This program contains basic, advanced, and fully integrated trials to simulate future operations in order to anticipate and mitigate any operational challenges of the airport. This workstream responds to a large amount of the ORAT budget as it includes all stakeholders and a rehearsal of future operations up to 180 times prior to the opening.
- **Airport Transfer** – This workstream focusses on the planning and physical relocation of airlines, authorities and all other stakeholders that will be future end-users of Terminal 2. The main budget here is for planning, logistics and security of the airport (or terminal) transfer.”

7.2.65 BIAL has submitted ORAT expenses of INR 46.14 cr. whose breakup is given below:

Table 110: Breakup of ORAT expenses as per BIAL’s submission

Project	Total cost (in INR cr.)
ORAT core team	7.55
ORAT SPOC’s	16.64
ORAT delivery specialists	12.90
Facilities for training rooms	1.25
Cost of external trainers	1.25
Preparing footprints, barricading, systems operating costs	2.00
Transportation required for taking staff & public volunteers to site for trials	0.50
Fees for facilitating and extending support services for trials	2.00
Signages, folders, hard helmet, jackets and safety shoes	0.50
Bags, boarding cards, Mock up’s, megaphones & other materials for trials	1.00
Vehicles for site	0.55
Total	46.14

7.2.66 The Authority noted the submissions of BIAL on ORAT. BIAL has submitted ORAT as a part of capital expenditure for the Third Control Period. However, the Authority is of the view that since this is an expense related to airport operations, it should be a part of operational expenditure and hence, proposes to consider it as part of opex for the Third Control Period.

7.2.67 Accordingly, the ORAT expenses proposed by the Authority for the Third Control Period is as follows:

Table 111: ORAT proposed by the Authority for the Third Control Period

Particulars	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
ORAT	46.14	0.0	0.0	0.0	0.0	46.14

Summary of Operational expenditure

7.2.68 Based on the material produced above, the total operational expenditure proposed by the Authority for the Third Control Period is given below:

Table 112: Total opex proposed by the Authority for the Third Control Period

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Personnel expenses	223.38	259.97	275.04	320.09	338.65	1,417.14
O&M	130.32	190.99	209.27	230.86	258.60	1,020.04
Lease Rent	15.11	15.56	16.03	16.51	17.00	80.21
Utilities	28.21	50.51	52.99	55.59	58.31	245.61
Insurance	4.96	10.32	10.67	10.81	10.99	47.76

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Rates & taxes (other than IT)	8.70	12.60	13.22	13.87	14.55	62.93
Marketing & Advertising	14.42	12.72	14.49	16.50	18.81	76.92
CSR	13.70	13.22	11.90	15.72	19.86	74.41
General admin costs	28.09	33.68	36.67	41.16	43.46	183.07
Total operating expenses	466.89	599.58	640.29	721.11	780.23	3,208.10
Concession fee	50.55	84.49	103.47	126.71	155.25	520.47
ORAT	46.14	0.00	0.00	0.00	0.00	46.14
Total operating expenditure	563.58	684.08	743.76	847.81	935.48	3,774.71

7.2.69 The allocation ratio considered by the Authority for the Third Control Period is given below:

Table 113: Operational expenditure aeronautical allocation ratio proposed by the Authority for the Third Control Period

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026
Personnel expenses	88.94%	88.94%	88.94%	88.94%	88.94%
O&M (others)	89.59%	88.42%	88.28%	88.07%	87.84%
Lease Rent	99.98%	99.31%	98.75%	97.56%	96.18%
Utilities	100.00%	100.00%	100.00%	100.00%	100.00%
Insurance	87.46%	87.51%	87.50%	87.49%	87.54%
Rates & taxes (other than IT)	99.98%	99.31%	98.75%	97.56%	96.18%
Collection Cost	100.00%	100.00%	100.00%	100.00%	100.00%
Marketing & Advertising	84.80%	84.80%	84.80%	84.80%	84.80%
General admin costs	90.00%	90.00%	90.00%	90.00%	90.00%

7.2.70 Accordingly, the aeronautical operating expenditure proposed by the Authority for the Third Control Period is given below:

Table 114: Aeronautical operating expenditure proposed by the Authority for the Third Control Period

Operating expenses	FY 2022	FY 2023	FY 2024	FY2025	FY 2026	Total
Personnel expenses	198.67	231.21	244.61	284.68	301.18	1,260.35
O&M	116.76	168.87	184.74	203.31	227.15	900.84
Lease Rent	15.10	15.45	15.83	16.11	16.36	78.85
Utilities	28.21	50.51	52.99	55.59	58.31	245.61
Insurance	4.34	9.03	9.34	9.46	9.62	41.79
Rates & taxes (other than IT)	8.69	12.51	13.05	13.53	13.99	61.78
Marketing & Advertising	12.93	11.92	13.62	15.54	17.75	71.76
CSR	0.00	0.00	0.00	0.00	4.10	4.10
General admin costs	25.28	30.31	33.01	37.04	39.12	164.76
Total operating expenses	409.99	529.83	567.19	635.25	687.58	2,829.84
Concession fee	37.84	63.72	78.07	95.40	116.63	391.66
ORAT	46.14	0.00	0.00	0.00	0.00	46.14
Total operating expenditure - Aero	493.96	593.56	645.25	730.65	804.21	3,267.63

7.3 Authority's proposal regarding operating expenses for the Third Control Period

Based on the material before it and its analysis, the Authority proposes:

7.3.1 To consider total operating expenditure as set out in Table 112 above for the Third Control Period

- 7.3.2 To consider allocation ratio as set out in Table 113 above for the Third Control Period
- 7.3.3 To consider aeronautical operating expenditure as set out in Table 114 for the Third Control Period
- 7.3.4 To consider ORAT as part of operating expenditure as given in Table 111 for the Third Control Period
- 7.3.5 To true up the operating expenditure for the current control period based on actuals, at the time of determination of tariff for the next control period.

8 NON – AERONAUTICAL REVENUE FOR THE THIRD CONTROL PERIOD

8.1 BIAL's submission relating to Non – Aeronautical Revenue (NAR)

8.1.1 BIAL in its submission dated 24th July 2020 to AERA has stated that it follows a concessionaire model for managing commercial activities at the airport. BIAL submitted that it has entered into a Service Provider Right Holder Agreement (SPRH) with service providers wherein BIAL is entitled for agreed percentage of revenue share on gross turnover or Minimum Annual Guarantee (MAG) whichever is higher.

8.1.2 BIAL in its submission has given reference of Article 10 of the Concession Agreement (signed between BIAL and MoCA) read with Schedule 6, regulated charges according to which only Landing, Parking, Housing, PSF and UDF are to be regulated. Further, BIAL has also stated that as per Article 10.3 of the CA, BIAL is free to determine the charges to be imposed in respect of facilities and services provided at the airport or on site other than facilities and services which are regulated.

8.1.3 Accordingly, BIAL has considered the following services as non – aeronautical and considered only Landing, Parking, Housing and UDF to be aeronautical.

- Car park
- Terminal entry / Miscellaneous services
- Retail
- Food and Beverages
- Advertising and Promotions
- Rent and Land Lease
- Lounge Services
- Utility Charges
- Flight Catering
- Cargo, Ground Handling and Fuel Farm
- ICT (including CIC)

8.1.4 BIAL has also mentioned about the impact of covid-19 pandemic on the aviation sector resulting in reduced passenger traffic and impacting passenger sentiments considering safety and social distancing norms while travelling. BIAL has estimated the non-aeronautical revenues for the Third Control Period basis the following:

- “The projections are majorly based on the business plan projections submitted by the concessionaire as per the agreement entered into with BIAL for a tenure ranging between 1 to 15 years.”
- “Terminal-2 Phase 1 is proposed to be commissioned by March 2022. Post commissioning, commercial activities at both the terminals will take time to stabilize and generate streamlined revenues. Accordingly, Non-Aero Revenues are expected to stabilize only towards the end of the Third Control Period.”
- “Most of the Non-Aeronautical contracts are due for extension. But, considering the current economic scenario, tremendous efforts are needed to encourage commercial operators at Airports

considering a lower passenger footfall and also reduction in per passenger revenues. Hence, this will translate to lower revenue share to BIAL.”

- “BIAL has, in FY 2020-21, in order to support the concessionaires affected by COVID-19 has extended reset of Minimum Guarantee and reduced the existing revenue share percentages. The impact of the same is also considered in the projections of Non-Aero Revenues for FY 2020-21 and the initial years in the Third Control Period.”

8.1.5 As per BIAL, the non – aeronautical revenues are projected to reach pre – covid levels (FY 2020) by FY 2024, in tandem with passenger traffic of FY 2020 levels being reached in FY 2024.

Passenger Traffic Related Revenue

8.1.6 The basis of projection adopted by BIAL for NAR which is driven by passenger traffic is given in the table below:

Table 115: Basis of projections of NAR driven by passenger traffic as given by BIAL

Revenue stream	Basis of projection as adopted by BIAL
Car park	Revenue from car park is driven by a combination of passenger growth, inflation and penetration over the base year.
Retail	The growth factors for retail are assumed considering the inflation, penetration and proportionate to the increase in passengers
F&B	The growth factors for F&B are assumed considering the inflation, penetration and proportionate to the increase in passengers
Advertising & Promotions	The advertising revenue projections is considered based on the new concession term of longer tenure with the recovery of passenger viewership for attracting the Global brands along with the digital media coverage, together with factoring the inflation.
Lounge revenues	The growth factors for lounge are assumed considering the inflation, penetration and proportionate to the increase in passengers
Non – aviation revenue (Others)	The growth factors for non-aviation revenue (others) are assumed considering the projected growth rate as estimated by BIAL management in line with traffic growth

8.1.7 Based on the above, the non – aeronautical revenue submitted by BIAL as part of its MYTP submission is given in the table below:

Table 116: Non – aeronautical revenue as submitted by BIAL in its MYTP

Particulars (INR cr.)	FY2022	FY2023	FY2024	FY2025	FY2026	Total
Non – Aviation revenues (A)						
Car park	50.48	71.09	95.16	110.66	128.76	456.16
Retail	61.12	127.96	149.77	173.66	201.60	714.11
Food & Beverage	32.42	48.28	62.98	73.24	85.21	302.13
Advertising & Promotions	52.69	75.83	92.52	107.60	125.19	453.83
Rents and Land Leases	51.73	64.30	67.51	74.43	78.15	336.12
Lounge Revenues	15.56	27.16	34.12	39.67	46.16	162.66
Utility Charges	5.55	5.55	5.97	5.96	5.96	28.98
Flight Catering	8.35	8.68	9.03	9.39	9.76	45.20
Non-Aviation Revenues - Others	8.81	10.03	10.97	11.81	12.98	54.60
Misc. Income (Including entry)	0.00	0.00	0.00	0.00	0.00	0.00

Particulars (INR cr.)	FY2022	FY2023	FY2024	FY2025	FY2026	Total
Total non – aviation revenues	286.70	438.87	528.03	606.41	693.77	2553.79
Aviation Concessions (B)						
Cargo	41.23	48.69	53.69	59.67	67.09	270.37
Fuel Farm	5.28	6.73	7.67	8.78	10.06	38.51
Ground Handling	49.87	62.71	68.32	74.87	81.96	337.73
ICT	16.65	17.18	17.73	18.29	18.88	88.73
Common Infrastructure Charge	44.75	60.74	70.59	82.09	95.51	353.69
Total Aviation Concessions	157.78	196.05	218.00	243.70	273.51	1089.03
Total non – aeronautical revenue (A+B)	444.48	634.91	746.02	850.11	967.28	3642.81

8.2 Authority's examination regarding non-aeronautical revenues for Third Control Period

8.2.1 The Authority has evaluated the submissions made by BIAL relating to non – aeronautical revenues.

Cargo, ground handling, fuel, CUTE/ CUSS, common infrastructure charges and aerobridges revenues

8.2.2 The Authority noted that BIAL had considered revenue from cargo, ground handling, fuel, CUTE/ CUSS, common infrastructure charges and aerobridges (aviation concession revenues) as non – aeronautical revenues. The Authority in line with its decision taken in the 2nd control period based on the AERA Act, 2008, AERA guidelines, concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020 proposes to consider revenue from cargo, ground handling, fuel, CUTE/ CUSS, common infrastructure charges and aerobridges as aeronautical revenue for the Third Control Period.

Passenger related non-aeronautical revenues

8.2.3 The Authority noted that the non – aeronautical area is estimated to increase by around 156% with the opening of the new Terminal 2 in FY22. Further, the Authority noted that the car parking capacity will also increase after commissioning of Multi Modal Transport Hub (MMTH) in FY22. The non-aero area increase projected with the opening up of the new terminal is given below:

Table 117: NAR area increase due to opening of Terminal 2 based on area statement submitted by BIAL

Non-aero areas	T1	T2	Total	% increase
Lounges	5296	4485	9781	85%
Retail Area	6412	13685	20097	213%
F&B Area	2838	6851	9689	241%
Supporting Facilities (Airline Office, Concessionaires Offices & Other Ticketing Offices, etc.,)	2701	1862	4563	69%
Total	17247	26883	44130	156%

8.2.4 However, the Authority noted that BIAL has not considered the increase in the non-aeronautical area and the MMTH while estimating the non-aeronautical revenues for the Third Control Period. The Authority sought clarification from BIAL in this regard.

8.2.5 BIAL in its response had requested the Authority to project the non-aeronautical revenue on a per passenger basis rather than on an increase in area basis considering the factors impacting the non-aeronautical revenue in the Third Control Period including impact of covid-19. BIAL's response is produced below:

“BIAL is on the cusp of large infrastructure development with T2, T1 refurbishment proposed after the commencement of new terminal. Still the onboarding of partners is yet to commence with the Pax recovery path of 4 to 5 years to reach the pre-Covid levels in terms of passenger profile. While there is addition to the Terminal space, these revenues are largely dependent on the growth in passengers and hence, the revenue estimates are made based on the Passenger growth along with inflation irrespective of terminal space increase.”

8.2.6 The Authority is of the view that the projections of the non-aeronautical revenues are primarily dependent on the passenger traffic. Higher terminal area and new facilities help the airport operator to capture the revenue when the traffic increases. However, the Authority notes that the passenger traffic are expected to be lower than FY20 for the next couple of years due to the COVID 19 pandemic. Thus, the Authority is of the view that it is reasonable to assume passenger traffic as the primary driver of the non-aeronautical revenues for those years. The Authority notes that the Terminal 2 operations might become relevant driver of the passenger linked non-aeronautical revenues during the end of the Third Control Period once the traffic goes beyond the pre-COVID levels, however, at the current stage it is difficult to ascertain quantitatively the impact on the passenger linked non-aeronautical revenues. In view of the above, the Authority proposes to forecast the passenger linked non-aeronautical revenues on the basis of the per passenger revenues and the revised passenger traffic.

8.2.7 The Authority noted the trend of revenue growth in key heads of non – aeronautical revenue as follows:

Table 118: Non-aeronautical revenue per passenger analysis by Authority for key non-aero revenue heads

Particulars*	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
Revenue for key heads (in INR cr.)						
Car park	44.47	63.34	75.40	88.71	90.27	362.20
Retail	88.6	105.32	118.47	143.38	160.91	616.68
F&B	25.18	31.88	41.10	56.96	69.15	224.26
Flight catering	8.26	9.08	9.90	12.67	11.71	51.61
Lounge revenues	14.72	19.91	26.90	33.53	38.77	133.83
Advertising & Promotion	53.32	71.77	77.87	77.64	75.16	355.76
Miscellaneous non-aeronautical revenue	6.43	5.89	7.98	9.85	14.29	44.44
Growth rates (value terms)						
Car park		42%	19.0%	17.7%	1.8%	
Retail		19%	12.5%	21.0%	12.2%	
F&B		27%	28.9%	38.6%	21.4%	
Flight catering		10%	9.0%	28.1%	-7.6%	
Lounge revenues		35%	35.1%	24.6%	15.6%	
Advertising & Promotion		35%	9%	0%	-3%	
Miscellaneous non-aeronautical revenue		-8%	36%	23%	45%	
Average revenue per passenger						
Domestic Passengers	15.6	19.3	23.1	28.8	27.8	
International Passengers	3.4	3.6	3.8	4.5	4.6	
Total passengers	19.0	22.9	26.9	33.3	32.4	

Particulars*	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
Revenue per passenger (INR)						
Car park	23.44	27.68	28.02	26.63	27.90	
Retail	46.70	46.03	44.02	43.05	49.72	
F&B	13.27	13.93	15.27	17.10	21.37	
Flight catering	4.35	3.97	3.68	3.80	3.62	
Lounge revenues	7.76	8.70	10.00	10.07	11.98	
Advertising & Promotion	28.10	31.37	28.94	23.31	23.23	
Miscellaneous non-aeronautical revenue	3.39	2.57	2.97	2.96	4.42	

* historical non-aeronautical revenues of FY21 are not considered for analysis due to the impact of COVID-19

8.2.8 The Authority has also looked at the projections of major sub-heads under non-aeronautical revenue submitted by BIAL. The major heads along with revenue per passenger based on BIAL's projections is given below:

Table 119: Major subheads under NAR and their per passenger analysis based on BIAL's MYTP submission

Particulars	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22-FY26)
Car park								
Parking services revenue	26.8	5.9	15.8	21.5	25.0	29.1	33.8	125.2
Parking services revenue / pax (INR/pax)	16.5	14.6	15.4	15.4	15.4	15.4	15.4	76.8
Taxi services revenue	57.9	11.8	32.1	46.0	65.7	76.4	88.9	309.0
Taxi services revenue / pax (INR/pax)	35.8	29.6	31.1	32.9	40.4	40.4	40.4	185.1
Limousine revenue	5.6	1.0	2.6	3.6	4.5	5.2	6.1	22.0
Limousine revenue / pax (INR/pax)	3.5	2.5	2.5	2.6	2.8	2.8	2.8	13.4
Total car park revenue	90.3	18.7	50.5	71.1	95.2	110.7	128.8	456.2
Total car park revenue / pax (INR/pax)	55.8	46.7	49.0	50.8	58.5	58.5	58.5	275.3
Retail Revenue								
Retail - Domestic revenue	27.9	4.6	11.7	17.7	23.1	28.4	35.7	116.5
Retail - Domestic revenue / pax (INR/pax)	20.1	12.4	13.0	14.8	16.4	17.3	18.5	79.9
Retail - International	103.9	8.8	41.2	94.4	108.3	124.3	141.7	509.9
Retail - International revenue / pax (INR/pax)	453.9	299.2	314.1	461.8	484.9	509.1	531.0	2301.0
Retail - Others	5.9	1.0	2.8	5.1	6.6	8.0	10.0	32.4
Retail others revenue / pax (INR/pax)	3.6	2.5	2.7	3.6	4.0	4.2	4.6	19.1
Retail - Forex	23.3	1.2	5.5	10.9	11.9	13.0	14.2	55.3
Retail forex revenue / pax (INR/pax)	101.6	39.6	41.6	53.1	53.1	53.1	53.1	254.1
Total retail revenue	160.9	15.6	61.1	128.0	149.8	173.7	201.6	714.1
Total Retail revenue / pax (INR/pax)	579.2	353.7	371.4	533.4	558.5	583.8	607.2	2654.1
F&B								

Particulars	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22-FY26)
F&B - Domestic	27.6	5.8	14.7	21.8	29.0	33.8	39.3	138.5
F&B - Domestic revenue / pax (INR/pax)	19.9	15.6	16.4	18.2	20.7	20.5	20.3	96.0
F&B - International	6.9	0.6	2.8	5.6	6.4	7.5	8.7	30.9
F&B - International revenue / pax (INR/pax)	30.1	20.0	21.0	27.3	28.7	30.5	32.5	140.0
F&B - Others	34.6	5.5	15.0	20.9	27.6	32.0	37.3	132.8
F&B - others revenue / pax (INR/pax)	21.4	13.8	14.5	15.0	16.9	16.9	16.9	80.3
Total F&B revenue	69.2	11.9	32.4	48.3	63.0	73.2	85.2	302.1
Total F&B revenue/ pax (INR/pax)	71.4	49.4	51.8	60.5	66.3	68.0	69.7	316.3
Advertising & Promotion								
Advertising & promotion	75.2	19.9	52.7	75.8	92.5	107.6	125.2	453.8
Advertising & promotion revenue / pax (INR/pax)	23.2	24.9	25.6	27.1	28.4	28.4	28.4	138.0
Lounge Revenue								
Lounge - Domestic	23.4	4.1	10.6	15.4	20.6	23.9	27.8	98.2
Lounge - Domestic revenue / pax (INR/pax)	16.9	11.2	11.7	12.9	14.6	14.5	14.4	68.1
Lounge - International	15.2	1.0	4.8	11.4	13.1	15.2	17.7	62.2
Lounge - International revenue / pax (INR/pax)	66.4	34.6	36.3	55.9	58.7	62.4	66.4	279.6
Day Hotel	0.1	0.1	0.2	0.4	0.5	0.6	0.6	2.3
Day hotel revenue / pax (INR/pax)	0.1	0.2	0.2	0.3	0.3	0.3	0.3	1.4
Total lounge revenue	38.8	5.3	15.6	27.2	34.1	39.7	46.2	162.7
Total lounge revenue/ pax (INR/pax)	83.4	46.0	48.3	69.0	73.6	77.2	81.1	349.1

8.2.9 The Authority's analysis of major heads under NAR driven by passenger traffic is given below.

Car park

8.2.10 The Authority sought clarifications from BIAL for the basis of projections of car park. BIAL's response is given below:

"The values are in line with the pax growth based on the base year. In the initial 3 to 4 years the growth rate is high proportionate to the pax growth. However, while lot of Airport commuters depend on public transport like BMTC, with the increase in last mile connectivity & Opening of SWAR (South west Access Road) this is likely to change where next to airport premises the parking is offered at minimal prices and passengers are also being picked from Arrivals directly."

8.2.11 The Authority noted BIAL submissions above on car park revenues, the opening of south west access road as well parking being offered to passengers at minimal prices.

8.2.12 The Authority analyzed the revenue heads on a per passenger basis and proposes the following to forecast the car park revenues for the Third Control Period:

- BIAL had projected the parking service revenue/pax to remain constant at FY22 levels during the Third Control Period. BIAL had projected nil increase in FY22, FY25 and FY26 for the limousine revenue/ pax. The Authority proposes to consider a nominal increase of 5% per year in parking service revenue/ pax and limousine revenue/ pax for the Third Control Period.
- BIAL had projected the taxi service revenue/pax to have no increase for FY25 and FY26. The Authority proposes to consider a nominal increase of 5% per year in taxi service revenue/ pax in FY25 and FY26.

8.2.13 The Authority proposes to compute the car park revenues based on the above revenue per pax and the revised passenger traffic for the Third Control Period.

Retail revenue

8.2.14 The Authority noted that the retail business of BIAL includes domestic, international, other revenues.

8.2.15 The Authority sought clarifications from BIAL for the basis of projections of retail revenue. BIAL's response is given below:

“As majority of the agreements are expired, these have been extended temporarily and considering the Post-Covid sentiments like travel/tourism/Hospitality recovery, longer tenure options for capex investment to make the business viable, the growth factors assumed are considering the inflation and proportionate to the increase in pax”

8.2.16 The Authority analyzed the revenue heads on a per passenger basis and proposes the following to forecast the retail revenues for the Third Control Period:

- BIAL had projected the retail domestic revenue to grow at a slower rate compared to the growth observed in the Second Control Period. The Authority proposes to increase the domestic retail revenue per departing domestic pax by 16% per year from FY23 onwards so that the domestic retail revenue per departing domestic pax will reach the pre-COVID levels of FY20 in FY25.
- The Authority notes the international retail revenue per departing international pax as per BIAL's projections will reach pre-COVID levels by FY23 which seems reasonable. The Authority proposes to consider the international retail revenue per departing international pax as per BIAL's submission.
- BIAL had projected the retail forex revenue per departing international pax to remain constant for the period FY23 – FY26. The Authority proposes to increase the forex revenue per departing international pax by nominal growth of 5% per year from FY23 to FY26.

8.2.17 The Authority proposes to compute the retail revenues based on the above revenue per pax and the revised passenger traffic for the Third Control Period.

Food & Beverage (F&B)

8.2.18 The Authority noted that the F&B business of BIAL is classified under three categories i.e. domestic, international and other revenues.

8.2.19 The Authority sought clarifications from BIAL for the basis of projections of F&B revenue. BIAL's response is given below:

“As majority of the agreements are expired, they have been extended temporarily and considering the Post-Covid sentiments like travel/tourism/Hospitality recovery, longer tenure options for capex investment to make the business viable the growth factors assumed are considering the inflation and proportionate to the increase in pax”

8.2.20 The Authority analyzed the revenue heads on a per passenger basis and proposes the following to forecast the F&B revenues for the Third Control Period:

- BIAL had projected a degrowth in F&B domestic revenue/ departing pax for FY25 and FY26. The Authority proposes to consider a nominal growth of 5% per year for FY25 and FY26.
- BIAL had projected the F&B international revenue/departing pax to grow slower in FY24 compared to domestic F&B revenue/ departing pax. The Authority proposes to consider the growth of international F&B revenue/ departing pax similar to the growth in domestic F&B revenue/ departing pax from FY24 to FY26.
- BIAL had not considered the inflation growth rate of 5% in FY23, FY25 and FY26 in the F&B others revenue/ departing pax. The Authority proposes to consider the nominal growth rate of 5% in FY23, FY25 and FY26 on the F&B Others Revenue/ departing pax.

8.2.21 The Authority proposes to compute the F&B revenues based on the above revenue per pax and the revised passenger traffic for the Third Control Period.

Advertising & Promotions

8.2.22 The Authority sought clarifications from BIAL for the basis of projections of advertising and promotion revenue. BIAL's response is given below:

"The advertising revenue projections are considered based on the new concession term of longer tenure with the recovery of passenger viewership for attracting the Global brands along with the digital media coverage, together with factoring the inflation."

8.2.23 BIAL had projected the advertising & promotion revenue/departing pax to remain constant for FY25 and FY26. The Authority proposes to consider the nominal growth rate of 5% in advertising & promotion revenue/departing pax in FY25 and FY26.

8.2.24 The Authority proposes to compute the advertising and promotions revenues based on the above revenue per pax and the revised passenger traffic for the Third Control Period.

Lounge Revenue

8.2.25 The Authority noted that the lounge revenue of BIAL is classified under three categories i.e. domestic, international and day hotel.

8.2.26 The Authority sought clarifications from BIAL for the basis of projections of lounge revenue. BIAL's response is given below:

"Considering the Post-Covid sentiments like travel/tourism/Hospitality recovery, longer tenure options for capex investment to make the business viable the growth factors for revenue projections are assumed proportionate to the pax while factoring inflation."

8.2.27 The Authority analyzed the revenue heads on a per passenger basis and proposes the following to forecast the lounge revenues for the Third Control Period:

- BIAL had projected a degrowth in lounge domestic revenue/departing pax for FY25 and FY26. The Authority proposes to increase the lounge domestic revenue/ departing pax of FY25 and FY26 by the growth rate of FY24 such that lounge domestic revenue/ departing pax reaches pre-COVID levels of FY20 by FY25.
- BIAL has projected the lounge international revenue/departing pax to grow slower than the lounge domestic revenue/departing pax. The Authority proposes to consider the same growth rate for both

lounge international revenue/ departing pax and lounge domestic revenue/ departing pax such that lounge international revenue/ departing pax reaches pre-COVID levels of FY20 by FY25.

8.2.28 The Authority proposes to compute the lounge revenues based on the above revenue per pax and the revised passenger traffic for the Third Control Period.

8.2.29 Based on the above, the revenue/passenger for various NAR heads driven by passenger traffic is given in the table below:

Table 120: Revenue/pax considered by the Authority for various pax driven NAR heads

Particulars	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Car park							
Parking services revenue / pax (INR/pax)	16.53	14.62	15.36	16.12	16.93	17.78	18.67
Taxi services revenue / pax (INR/pax)	35.79	29.61	31.09	32.87	40.39	42.41	44.53
Limousine revenue / pax (INR/pax)	3.47	2.50	2.63	2.76	2.90	3.04	3.19
Retail Revenue							
Retail - Domestic revenue / pax (INR/pax)	20.08	12.36	12.97	15.09	17.55	20.41	23.73
Retail - International revenue / pax (INR/pax)	453.88	299.18	314.14	461.81	484.90	509.14	531.04
Retail others revenue / pax (INR/pax)	3.61	2.54	2.67	3.63	4.03	4.22	4.55
Retail forex revenue / pax (INR/pax)	101.61	39.60	41.58	53.14	55.79	58.58	61.51
F&B							
F&B - Domestic revenue / pax (INR/pax)	19.87	15.58	16.36	18.20	20.68	21.71	22.80
F&B - International revenue / pax (INR/pax)	30.12	19.95	20.95	27.33	31.16	32.71	34.35
F&B - others revenue / pax (INR/pax)	21.41	13.81	14.50	15.71	17.79	18.67	19.61
Advertising & Promotion							
Advertising & promotion revenue / pax (INR/pax)	23.23	24.93	25.55	27.09	28.44	29.86	31.36
Lounge Revenue							
Lounge - Domestic revenue / pax (INR/pax)	16.87	11.17	11.72	12.88	14.64	16.65	18.93
Lounge - International revenue / pax (INR/pax)	66.40	34.57	36.29	55.85	63.67	72.59	82.75
Day hotel revenue / pax (INR/pax)	0.09	0.24	0.25	0.27	0.29	0.30	0.32

8.2.30 The Authority's analysis of major heads under NAR other than those driven by passenger traffic is given below.

Rent and Land lease

8.2.31 The Authority noted the submissions of BIAL relating to rent and land lease revenue. The Authority observed that BIAL had considered revenues from aeronautical concessionaires as part of rent and land lease revenues. The Authority in line with its decision taken in the 2nd control period proposes to

consider rent and land lease revenue from aeronautical concessionaires as aeronautical revenue and deduct the same from the rent and land lease revenue submitted by BIAL. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.

8.2.32 The Authority sought clarifications from BIAL for the basis of projections of rent and land lease revenue. BIAL's response is given below:

*"1. Rate increase of 5% considered as per rental agreements. (For the first 2 years 2021-22 and 2022-23 rate increase is considered to factor for certain contracts that have begun in earlier years)
2. Due to COVID-19, capacity utilization of Offices, Airline Buildings and PTB Storage has been negatively impacted. The reduced utilizations have been considered for FY21 and thereafter.
3. Increase in Rental space is due to T2 Phase 1 and Airline Buildings expected to be commissioned in FY23 and FY 25."*

8.2.33 The Authority, in line with its decision in the First Control Period order for BIAL, proposes to consider the revenues from cargo village as non-aeronautical revenues.

8.2.34 The Authority has proposed notional lease rent for the office space leased to AAI for the Second Control Period as per para 3.9.13 and 3.9.14. Similarly, the Authority proposes to consider a notional lease rental for the office space leased to AAI for the Third Control Period.

8.2.35 The Authority also requested BIAL to share the land lease and rental space at BIAL till FY26. Below is the data shared by BIAL:

Table 121: Area breakup of land lease and rental space at BIAL

Particulars (sq. m.)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Office Building	3648	3648	4097	4097	4375	4375
Airline building	5997	5926	10670	10670	12251	12251
Storage space & canteen	2427	2427	2614	2614	2707	2994
Land leases	13719	13310	13310	13310	13310	13310
Cargo village	8380	8686	8686	8686	8686	8686

8.2.36 Based on the above, the lease rent calculated by the Authority along with the year-on-year growth rate is given in the table below:

Table 122: Lease rent calculated by the Authority along with the year-on-year growth rate

Particulars (INR per sq. m. per annum)	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Airside/Landside	11516	11915	14043	14745	15765	16242
% increase		3%	18%	5%	7%	3%
Office	21422	22493	23886	25080	26485	27809
% increase		5.00%	6.19%	5.00%	5.60%	5.00%
Land lease	4350.8	4615.2	4845.9	5088.2	5342.6	5609.8
% increase		6.07%	5.0%	5.0%	5.0%	5.0%
Cargo Village	1567.5	1622.5	1679.3	1738.1	1798.9	1861.9
% increase		3.51%	3.50%	3.50%	3.50%	3.50%

8.2.37 Based on above, the revised rent and land lease computed by the Authority is given below:

Table 123: Rent and land lease computed by the Authority for the Third Control Period

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Rent and land lease	25.71	36.35	38.14	43.84	46.01	190.06

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
AAI office space - Notional lease rental	14.50	15.23	15.99	16.79	17.63	80.13
Total rent and land leases	40.21	51.57	54.13	60.63	63.64	270.18

Flight Catering

8.2.38 The Authority noted the submissions of BIAL relating to revenue from flight catering. The Authority observed the percentage change in revenue projections by BIAL as given in the table below:

Table 124: Revenue projections submitted by BIAL relating to flight catering

Particulars	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22 - FY26)
Flight catering	11.71	5.56	8.35	8.68	9.03	9.39	9.76	45.21
% change in revenue projections	-7.6%	-52.5%	50.0%	4.0%	4.0%	4.0%	4.0%	

8.2.39 The Authority noted that BIAL had projected a slower growth rate for flight catering in the Third Control Period as compared to a CAGR growth of 9% for the period FY17 – FY20.

8.2.40 As per the projections submitted by BIAL, the revenue from flight catering is not expected to reach pre-covid levels (FY20) during the Third Control Period. The Authority proposes to revise the flight catering revenues to reach pre-covid levels in FY24 i.e. one year after the recovery of ATM traffic and revise the revenues accordingly.

8.2.41 The flight catering revenues considered by the Authority for the Third Control Period is given in the table below:

Table 125: Flight catering revenue considered by the Authority for the Third Control Period

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Flight catering	8.35	9.08	11.71	12.74	13.87	55.75

Utility Charges

8.2.42 The Authority noted the utility recovery charges submitted by BIAL. The Authority based on the decision taken in the 2nd control period proposes to consider only the utility revenue from non-aeronautical concessionaires as non – aeronautical revenue. Hon’ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.

8.2.43 Accordingly, the utility revenue proposed by the Authority for the Third Control Period is given below:

Table 126: Utility revenue proposed by the Authority for the Third Control Period

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Utility charges	1.91	3.42	3.59	3.77	3.95	16.65

Miscellaneous non-aeronautical revenues (non-aviation revenues (others) as per BIAL)

8.2.44 The Authority noted the miscellaneous non-aeronautical revenues submitted by BIAL. The Authority sought clarifications from BIAL on the details of miscellaneous non-aeronautical revenues as well as the basis for projections. The response given by BIAL is produced below:

“Revenue from Non-Aviation Others comprises of all minor heads of Non-Aviation Revenues other than those identified and listed individually. The main components of “Non-Aviation Revenue Others” includes Reception Desk, Annual passes, fines/ penalties, Oil Spillage, Smoking Lounge, Meet and Assist Revenues, E-POS etc.

The estimates are made considering projected growth rate as estimated by Management, broadly considering the traffic growth.”

- 8.2.45 The Authority noted that BIAL had projected a slower growth rate for miscellaneous non-aeronautical revenues (existing) in the Third Control Period as compared to a CAGR growth of 34% for the period FY17 – FY20. The Authority proposes to revise the miscellaneous non-aeronautical revenues (existing) such that it reaches the pre-COVID levels by FY25.
- 8.2.46 BIAL in its submission dated 12 April 2021 provided the details of additional revenues streams in the miscellaneous non-aeronautical revenues for the Third Control Period. These included the rentals from the petrol pump and MRO facility. The Authority has included these rentals as part of the miscellaneous non-aeronautical revenues (new).
- 8.2.47 The miscellaneous non-aeronautical revenues considered by the Authority for the Third Control Period is given below:

Table 127: Miscellaneous non-aeronautical revenues considered by the Authority for the Third Control Period

Particulars	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total (FY22-FY26)
Miscellaneous non-aeronautical revenues	14.29	7.77	22.89	25.32	27.62	30.20	33.05	139.08
% change in revenue projections	45%	-46%	194.7%	10.64%	9.07%	9.32%	9.44%	

Real Estate

- 8.2.48 The Authority noted that BIAL had not considered real estate revenue as part of non – aeronautical revenue. As per the decision taken by the Authority in the Second Control Period order and based on the AERA Act, 2008, AERA guidelines, concession agreement of BIAL and Hon’ble TDSAT judgement dated 16th December 2020, the Authority proposes to treat income from real estate as part of non – aeronautical revenues.
- 8.2.49 The Authority has calculated the real estate revenue basis the following:
- BIAL has entered into an agreement with BAHF from 1 April 2019. As per the agreement between BAHF and BIAL, annual lease rent of INR 2.48 cr. with an escalation of 10% every 3 years is payable by BAHF. Accordingly, it is proposed to consider the lease rent from BAHF based on the agreement signed between BAHF and BIAL as non-aeronautical revenue.
 - The Authority had noted that BIAL has formed a subsidiary Bengaluru Airport City Limited (BACL) in January 2020 to carry out real estate activities. BIAL had submitted that the revenues from BACL to BIAL is nil in FY21. The Authority requested BIAL to submit the revenue projections from BACL to BIAL. The projections submitted by BIAL are considered as non-aeronautical revenue.
 - Revenue from fuel outlet, helipad and others is considered as non-aeronautical revenue.
- 8.2.50 Accordingly, the real estate revenue considered by the Authority for the Third Control Period is as follows:

Table 128: Real estate revenue considered by the Authority

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
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Real Estate Revenue	3.30	13.36	21.47	39.32	62.02	139.46
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Interest Income

8.2.51 In the Second Control Period order, the Authority had decided to consider revenue from interest income as non-aeronautical revenue. Accordingly, the Authority proposes to consider the interest income as non-aeronautical revenue for the Third Control Period. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.

Table 129: Interest income considered by the Authority

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Interest income	23.81	11.02	1.04	7.38	21.00	64.25

Non-aeronautical revenue considered by the Authority for the Third Control Period

8.2.52 The NAR considered by the Authority for the Third Control Period is given below:

Table 130: NAR considered by the Authority for the Third Control Period

Particulars	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Carpark revenue	52.12	88.22	119.84	146.55	179.31	586.04
Retail Revenue	61.61	134.04	162.70	194.03	231.94	784.32
F&B Revenue	33.38	59.67	78.96	96.38	117.71	386.08
Lounge Revenue	15.94	31.18	40.94	53.30	69.46	210.83
Advertising & promotion	54.27	92.36	113.22	138.45	169.40	567.69
Rent and land lease	40.21	51.57	54.13	60.63	63.64	270.18
Flight catering	8.35	9.08	11.71	12.74	13.87	55.75
Miscellaneous non-aeronautical revenues	22.89	25.32	27.62	30.20	33.05	139.08
Utility charges	1.91	3.42	3.59	3.77	3.95	16.65
Real estate	3.30	13.36	21.47	39.32	62.02	139.46
Interest income	23.81	11.02	1.04	7.38	21.00	64.25
Total NAR	317.78	519.25	635.21	782.76	965.35	3220.35

8.3 Authority's proposals regarding non-aeronautical revenues for the Third Control Period

Based on the material before it and its analysis, the Authority proposes:

- 8.3.1 To consider non-aeronautical revenue as set out in Table 130 above for the Third Control Period
- 8.3.2 To consider notional lease rental for AAI office space as non-aeronautical revenues in the Third Control Period as per Table 122
- 8.3.3 To treat real estate revenue as non-aeronautical revenues as stated in Table 128 above.
- 8.3.4 To treat interest income as non-aeronautical revenues as stated in Table 129 above.
- 8.3.5 To true up non-aeronautical revenues for the current control period, at the time of determination of tariff for the next control period.

9 **TAXATION FOR THE THIRD CONTROL PERIOD**

9.1 **BIAL's submission regarding taxation for the Third Control Period**

- 9.1.1 BIAL submitted that as per Direction No. 5/2011-12 details that the actual tax payments projected for tariff computations will be allowed as a reimbursement in arriving at the Aggregate Revenue Requirement.
- 9.1.2 BIAL had computed the projected income tax payments based on the prevailing Income Tax laws and rules considering the MAT provisions and Section 80IA of Income tax act. BIAL is eligible for Income Tax holiday for a continuous 10-year period, starting FY 2012-13, in the first 15 years since AOD.
- 9.1.3 BIAL submitted that it has computed aeronautical tax considering 30% non-aero revenues as part of aeronautical P&L in line with the proposal detailed in Consultation Paper of DIAL.
- 9.1.4 Aeronautical tax submitted by BIAL for the Third Control Period is given in the table below:

Table 131: Aeronautical tax submitted by BIAL for the Third Control Period

Particulars (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Taxation for TCP	334.61	383.79	515.66	775.64	1,552.29	3,561.99

9.2 **Authority's examination regarding taxation for the Third Control Period**

- 9.2.1 The Authority noted that Minimum Alternate Tax (MAT) was the minimum tax payable by BIAL on its book profits. The Authority also noted that MAT paid could be carried forward and be adjusted against the normal tax payable by the entity on the tax computed on profits from the year after the tax holiday period.
- 9.2.2 The Authority noted that BIAL has considered the 30% of non-aeronautical revenues to compute the aeronautical tax. The fact that a part of non-aeronautical revenues is used for cross-subsidization as per the hybrid till mechanism does not change the nature of such revenues to aeronautical. Cross-subsidization as per hybrid till mechanism is done in order to reduce tariff pressure on passengers and to incentivize the airport operator to make effective investments in non-aeronautical revenue generating sources.
- 9.2.3 The consideration of 30% non-aeronautical revenues for computation of aeronautical tax will increase tax reimbursement beyond the requirement pertaining to aeronautical services leading to an artificial tax benefit. The same could lead to the effective cross subsidy benefit being passed on to the airport user being less than 30% to the extent of the artificial tax benefit the airport operator receives in the event of considering 30% non-aeronautical revenues as part of revenue from aeronautical services.
- 9.2.4 Therefore, the Authority is of the view that:
- 30% non-aeronautical revenues should not be treated as a subsidy for the airport operator as the airport operator has already earned it from non-aeronautical services and is meant as a cross subsidy to the airport user.
 - Consideration of 30% non-aeronautical revenues as part of revenues from aeronautical services would result in undeserved enrichment to the airport operator effectively reducing the cross-subsidy benefit to the airport user from the present 30% of non-aeronautical revenues.
 - Further, this issue has been decided by the Authority and the details may be seen in Chapter 8 of DIAL Tariff Order No. 57/2020-21 dated 30 December 2020 for the Third Control Period.
- 9.2.5 The Authority, in line with its decision for other airports, proposes to not consider 30% of non-aeronautical revenues while computing aeronautical taxation for the Third Control Period.

- 9.2.6 As per the Second Control Period order, the Authority proposes to allow the estimated aeronautical MAT as passthrough in the Third Control Period. The Authority proposes to apply the effective tax rate, computed based on estimated total MAT of BIAL and the aggregate Profit Before Tax (PBT), on the aeronautical PBT for the respective years.
- 9.2.7 The Authority had made changes to the aeronautical taxation of BIAL based on the changes to the other building blocks proposed in the earlier chapter.
- 9.2.8 Based on the above, the Authority proposes the following aeronautical tax estimates for the Third Control Period:

Table 132: Aeronautical tax estimate proposed by the Authority for the Third Control Period

Particulars (In INR Cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Aeronautical PBT	-136.94	-132.10	179.94	567.06	1,058.79	1,536.76
Effective tax rate	0.00%	0.00%	16.71%	17.22%	17.33%	
Aero tax	0.00	0.00	30.07	97.63	183.46	311.17

- 9.2.9 The Authority proposes to true-up the aeronautical tax estimates based on actual tax outflow at the end of the current control period.

9.3 Authority's proposals regarding taxation for the Third Control Period

Based on the material before it and its analysis, the Authority proposes:

- 9.3.1 To consider tax outflow estimate as set out in Table 132 for the Third Control Period.
- 9.3.2 To true-up the aeronautical tax estimates based on actual tax outflow at the end of the current control period

10 WORKING CAPITAL INTEREST FOR THE THIRD CONTROL PERIOD

10.1 BIAL's submissions regarding working capital interest for the Third Control Period

10.1.1 Working capital requirement is considered by BIAL and the cost of funds is estimated at 11% per annum:

Table 133: Working capital interest/ lender fee submitted by BIAL for the Third Control Period

Particulars (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Working capital requirement	50	50	50	50	50	250
Interest on working capital borrowings	6.53	7.57	7.58	7.57	7.57	36.82

10.2 Authority's examination regarding working capital interest for the Third Control Period

10.2.1 The Authority notes that BIAL has projected working capital interest at 11% for the Third Control Period together with lender / engineer fee for the loans taken.

10.2.2 The Authority proposes to compute working capital interest at 8.85% for the Third Control Period. Accordingly, the recomputed fee/ working capital is as detailed below:

Table 134: Working capital interest/ lender fee proposed by the Authority for the Third Control Period

Particulars (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Lenders' engg. Fees, Trustee and other fees	1.03	2.07	2.07	2.07	2.07	9.30
Interest on working capital borrowings	4.03	4.03	4.04	4.03	4.03	20.14
Total	5.06	6.09	6.10	6.09	6.09	29.44

10.2.3 The Authority notes that the actual working capital facility availed, and the interest rates could vary considering the cash flow of the entity. The Authority hence proposes to true up the actual working capital borrowing and interest at the end of current control period, based on actuals.

10.3 Authority's proposals regarding working capital interest for the Third Control Period

Based on the material before it and its analysis, the Authority proposes:

10.3.1 To consider working capital interest / fee as detailed in Table 134 for the Third Control Period.

10.3.2 To true up the working capital interest/ fee projections based on actuals, at the end of the control period, in computation of tariff for the next control period

11 INFLATION FOR THE THIRD CONTROL PERIOD

11.1 BIAL's submissions regarding inflation for the Third Control Period

11.1.1 BIAL submitted that the WPI and CPI projections are based on a review of reports issued by the Reserve Bank of India (RBI).

11.1.2 The results of the 63rd round of Survey of Professional Forecasters on Macroeconomic Indicators as submitted by BIAL are given below:

Table 135: CPI inflation considered by BIAL's in its MYTP submission

	CPI combined (General)			
	Mean	Median	Max	Min
Q4: 2019-20	6.5	6.7	6.9	4.8
Q1: 2020-21	5.2	5.3	6.2	4.0
Q2: 2020-21	4.8	4.8	5.7	3.8
Q3: 2020-21	3.7	3.6	5.9	2.4
Q4: 2020-21	3.4	3.2	6.4	2.3

Table 136: WPI inflation considered by BIAL's in its MYTP submission

	WPI combined (General)			
	Mean	Median	Max	Min
Q4: 2019-20	2.3	2.4	2.8	1.6
Q1: 2020-21	1.6	1.8	3.0	-1.3
Q2: 2020-21	2.4	2.5	3.2	0.0
Q3: 2020-21	2.3	2.5	3.5	-0.2
Q4: 2020-21	2.3	2.2	4.6	0.8

11.2 Authority's examination regarding inflation for the Third Control Period

11.2.1 The Authority has examined the submission made by BIAL on inflation to be considered during Third Control Period.

11.2.2 The Authority has noted that BIAL has considered mean WPI and CPI from the RBI's 63rd round of survey as the inflation for Third Control Period. The Authority, however, proposes to consider the recent inflation forecast by RBI as per its 69th round of survey professional forecasters on macroeconomic indicators, as the same would be consistent with the recent macroeconomic developments.

11.2.3 Based on the recent inflation forecast by RBI, the Authority proposes to consider inflation of 4.9%, i.e. the mean WPI inflation forecast for FY 2021-22 given in Annex 2 of the RBI's survey for the Third Control Period.

11.3 Authority's proposal regarding inflation for the Third Control Period

Based on the material before it and its analysis, the Authority proposes the following:

11.3.1 To consider the inflation of 4.9% for the Third Control Period based on the mean WPI inflation forecast for FY 2021-22 given in the 69th round of survey professional forecasters on macroeconomic indicators of RBI.

12 QUALITY OF SERVICE FOR THE THIRD CONTROL PERIOD

12.1 BIAL's submission regarding Quality of Service

12.1.1 BIAL submitted that it has undertaken every possible step to achieve the appropriate quality of services offered, as mentioned in the concession agreement.

12.1.2 BIAL submitted that it has been felicitated with numerous awards from various leading organizations all around the globe. Some of the prestigious awards received by BIAL as per the submission of BIAL is given below:

- a) The ASQ (Airport Service Quality) Awards of ACI (Airports Council International) recognizes airports around the world based on a survey of passenger satisfaction.
- b) The ASQ awards celebrate the achievements of airports in delivering the best customer experience and they represent the highest possible accolade for Airport Operators around the world.
- c) In March 2019, BIAL has been awarded as the first airport in the world to clinch ACI's coveted ASQ Awards for both arrivals and departures.
- d) KIA has won the First-ever ASQ award for Arrivals, a category open to airports across the worlds, that was introduced in 2018.
- e) KIA also won the award for best airport by size/region in the 25-40 MPPA category in the Asia-Pacific zone.
- f) SKYTRAX Awards – SKYTRAX is a UK-based consultancy firm which runs an airport and airlines review and ranking site. The KIA has been felicitated with SKYTRAX's award for Best regional airport in India and central Asia, in May 2020, for the 3rd time in 4 years at the 2020 World Airport Awards. These awards are based on the World Airport Survey questionnaires completed by over 100 nationalities of airport customers during the 6-month survey period. The survey evaluated the customer experience across airport service and product key performance indicators – from check-ins, arrivals, transfers, shopping, security and immigration through to departure at the gate.

12.1.3 BIAL submitted that it has also received the following awards during Second Control Period,

- a) 2017
 - Favourite Airport for holidays by HolidayIQ
 - CII Customer Obsession Award customer engagement service in large business organization
 - Best Cargo Airport – West & South and best Airport Cargo Marketing Team – West & South, India Cargo Awards
- b) 2018
 - Emerging Cargo Airport of the Year for India at the STAT Trade Times International Awards for Excellence in Air cargo.
 - Second best Airport in the world in 15-25 MPPA category – ACI ASQ Awards.
 - Best Cargo Airport 2018 – India Cargo Awards
- c) 2019
 - Best Airport - ASSOCHAM Awards on Civil Aviation & Cargo.
 - Most Sustainable Airport – International Airport Review Awards.

d) 2020

- Best Greenfield Airport, Cargo – India Cargo Awards 2020.
- Fastest growing Cargo Airport of the year – Region India at Air Cargo India.

12.2 Authority's examination regarding Quality of Service

12.2.1 The Authority has examined BIAL's submission of the quality of service.

12.2.2 The Authority had, in MYTO for First Control Period noted the provisions of the Concession Agreement with respect to performance standards (particularly Article 9 and Schedule 9 Part 2 thereof). The Authority noted that these standards were based on IATA Global Airport Monitor service standards. The provisions of the Concession Agreement also indicate the consequences of not coming upto the prescribed level of performance standards. Therefore, the Authority felt that the scheme of performance standards as indicated in the Concession Agreement would be reasonable for this purpose.

12.2.3 Hence, the Authority decided as follows in the MYTO of First Control Period:

"The Authority decides that BIAL shall ensure that service quality conforms to the performance standards as indicated in the Concession Agreement."

12.2.4 Concession Agreement of BIAL states as follows:

"...9.2 Monitoring of Performance Standards

9.2.1 Throughout the term of this Agreement the Airport's performance shall be monitored by passenger surveys in accordance with this Article 9. The criteria used to measure the Airport's performance shall be the IATA Global Airport Monitor service standards set out in Schedule 9, Part 2 or such criteria as may be mutually agreed upon from time to time (the Standards).

9.2.2 BIAL shall participate in IATA surveys and shall ensure that a survey is conducted each year in accordance with IATA's requirements to determine the Airport's performance. The first such survey shall be conducted during the third (3rd) year after Airport Opening.

9.2.3 If three (3) consecutive surveys show that the Airport is consistently rated in respect of the service standards under BIAL's direct control, as lower than IATA rating of three and a half (3.5) (in the current IATA scale of 1 to 5), BIAL will produce an action plan in order to improve the Airport's performance which must be implemented within one (1) year..."

12.2.5 The Authority sought from BIAL the quarterly ASQ ratings for the Second Control Period. BIAL in its response submitted the below ASQ ratings:

Table 137: ASQ rating of BIAL in Second Control Period

Year (Calendar year)	Quarter	Departure ASQ rating	Arrival ASQ rating
2016	Q2	4.84	**
2016	Q3	4.88	**
2016	Q4	4.81	**
2017	Q1	4.77	**
2017	Q2	4.83	**
2017	Q3	4.82	**
2017	Q4	4.88	**
2018	Q1	4.89	**

Year (Calendar year)	Quarter	Departure ASQ rating	Arrival ASQ rating
2018	Q2	4.90	4.67
2018	Q3	4.89	4.79
2018	Q4	4.91	4.54
2019	Q1	4.92	4.74
2019	Q2	4.91	4.90
2019	Q3	4.92	4.93
2019	Q4	4.91	4.92
2020	Q1	4.93	4.93
2020	Q2	4.97	*
2020	Q3	4.94	4.92

Note – ** BLR started participation in Arrival survey from Q2 2018 (CY); * BLR did not participate in the Q2 2020 survey due to COVID-19

12.2.6 The Authority understands that BIAL has achieved ASQ ratings of above 4 throughout the Second Control Period. Hence, the Authority is of the view that BIAL is meeting the required performance standards and there is no need for any penal provisions to be applied on BIAL.

12.2.7 Similarly, for the Third Control Period, the Authority proposes that BIAL shall ensure that service quality at Kempegowda International Airport, Bengaluru conforms to the performance standards as indicated in the Concession Agreement. Hon'ble TDSAT judgement dated 16th December 2020 has also agreed to the stand of the Authority.

12.3 Authority's proposal regarding Quality of Service for the Third Control Period

Based on the material before it and based on its analysis, Authority proposes the following:

12.3.1 The Authority proposes that BIAL shall ensure that service quality at Kempegowda International Airport conforms to the performance standards as indicated in the Concession Agreement over the Third Control Period.

12.3.2 The Authority proposes not to levy any penalties / rebates against BIAL for the Second Control Period.

13 AGGREGATE REVENUE REQUIREMENT FOR THE THIRD CONTROL PERIOD

13.1 BIAL's submission regarding Aggregate Revenue Requirement for Third Control Period

13.1.1 The total Aggregate Revenue Requirement (ARR) submitted by BIAL for the Third Control Period as part of its MYTP submission based on the various building blocks is given in the table below:

Table 138: Aggregate Revenue Requirement (ARR) submitted by BIAL as part of its MYTP submission for the Third Control Period

Particulars (In INR crore)	FY2022	FY2023	FY2024	FY2025	FY2026	Total
Average RAB	8380.85	11225.98	10794.70	10455.73	10937.98	
FRoR	16.51%	16.51%	16.51%	16.51%	16.51%	
Return on RAB	1383.53	1853.21	1782.01	1726.05	1805.67	
Depreciation	505.59	660.19	665.20	671.56	704.33	3206.87
Opex	573.41	824.73	910.96	1,096.55	1,332.47	4738.12
Working capital interest	6.53	7.57	7.58	7.57	7.57	36.81
Tax	334.61	383.79	515.66	775.64	1,552.29	3561.98
Concession Fees	111.26	147.46	152.40	167.60	213.01	791.73
Less: Non - aero revenues	(133.34)	(190.47)	(223.81)	(255.03)	(290.18)	-1092.84
Aggregate Revenue Requirement	2781.59	3686.46	3810.00	4189.94	5325.15	19793.13
Add: Over/Under recovery in previous control period	4545.29					
Total requirement as per BIAL	7326.88	3686.46	3810.00	4189.94	5325.15	24338.43

13.1.2 Accordingly, the yield computed per passenger (YPP) by BIAL at the beginning of the Third Control Period is INR 1,546.55.

13.2 Authority's examination regarding Aggregate Revenue Requirement for Third Control Period

13.2.1 The Authority's analysis on individual building blocks of ARR are detailed in the above sections of this Consultation Paper.

13.2.2 Based on the individual analysis detailed above, the recomputed ARR for the Third Control Period is given in the table below:

Table 139: Recomputed Aggregate Revenue Requirement (ARR) proposed by the Authority for the Third Control Period

Particulars (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Average RAB (A) (refer Table 79)	7,114.47	10,088.88	9,847.97	9,490.84	9,178.54	
FRoR (B) (refer Table 85)	11.59%	11.59%	11.59%	11.59%	11.59%	
Return on RAB (C = A*B)	824.85	1,169.71	1,141.77	1,100.37	1,064.16	
Depreciation (D) (refer Table 78)	390.78	541.86	555.35	548.86	550.05	2,586.90
Operating Expenditure (E) (refer Table 112)	456.13	529.83	567.19	635.25	687.58	2,875.98
Working Capital Interest (F) (refer Table 134)	5.06	6.09	6.10	6.09	6.09	29.44
Tax (G) (refer Table 132)	0.00	0.00	30.07	97.63	183.46	311.17
Gross ARR (H = C+D+E+F+G)	1,676.82	2,247.49	2,300.49	2,388.20	2,491.35	11,104.34
Less: Non - Aero Revenue (I) (refer Table 130)	-95.33	-155.78	-190.56	-234.83	-289.60	-966.10

Particulars (INR cr.)	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Add: Concession Fee (J) (refer Table 109)	37.84	63.72	78.07	95.40	116.63	391.66
Add: Under recovery of pre-control period as on 31 March 2022 (K) (refer Table 4)	179.73					
Less: Over recovery of Second Control Period as on 31 March 2022 (L) (refer Table 46)	-1,030.21					
ARR (M = H-I+J+K+L)	768.85	2,155.43	2,187.99	2,248.77	2,318.38	9,679.42
PV factor	1.00	0.90	0.80	0.72	0.64	
PV of ARR as on 31 March 2022	768.85	1,931.50	1,756.97	1,618.16	1,494.93	7,570.40

13.2.3 The YPP at the beginning of the Third Control Period computed by the Authority is INR 447.53.

13.2.4 The Authority noted that BIAL has not submitted the Annual Tariff Plan for the years in the Third Control Period. BIAL has stated as follows:

“Variable Tariff Plan proposed by BIAL will be submitted later as part of the Annual Tariff Proposal after the ARR is determined.”

13.2.5 The Authority notes that, it is necessary to have the individual year wise tariff card laying down the different aeronautical charges and the workings for the aeronautical revenues, in order to have a constructive stakeholder discussion and hence BIAL is directed to submit the detailed Annual Tariff proposals in line with the ARR and Yield arrived at by the Authority within 7 days of issue of the Consultation Paper.

13.3 Authority’s proposal regarding ARR for Third Control Period

Based on the material before it and based on its analysis, Authority proposes the following:

13.3.1 To consider Aggregate Revenue Requirement (ARR) as detailed in Table 139 above as the eligible ARR for the Third Control Period for BIAL

13.3.2 To direct BIAL to submit the Annual Tariff Proposals within 7 days from issue of this Consultation Paper which will be reviewed and put up for stakeholder consultations.

14 SUMMARY OF PROPOSALS PUT FORTH FOR STAKEHOLDER CONSULTATION

14.1 Authority's proposal regarding pre-control period

- 14.1.1 To consider the pre-control period from airport opening date (24 May 2008) till the start of the First Control Period (31 March 2011)
- 14.1.2 To undertake the changes proposed in Table 3 while computing the under/ over-recovery of the pre-control period.
- 14.1.3 To carry forward the under/ over-recovery amount computed in Table 4 for the pre-control period to the 3rd control period.

14.2 Authority's proposal regarding True-up for the Second Control Period

- 14.2.1 To consider the aeronautical RAB as per Table 15 for true-up of the Second Control Period
- 14.2.2 To consider depreciation as per Table 26 for true-up of the Second Control Period.
- 14.2.3 To consider WACC as per Table 22 for true-up of the Second Control Period
- 14.2.4 To consider aeronautical operating expenditure as per Table 33 for true-up of the Second Control Period
- 14.2.5 To consider aeronautical taxation as per Table 36 for true-up of the Second Control Period
- 14.2.6 To consider non-aeronautical revenues as per Table 40 for true-up of the Second Control Period
- 14.2.7 To consider aeronautical revenues as per Table 42 for true-up of the Second Control Period
- 14.2.8 To consider the adjustment to the First Control Period true-up as per Table 43 for true-up of the Second Control Period
- 14.2.9 To carry forward the over-recovery amount of 2nd control period of INR 1030.21 cr. as on 31 March 2022 (excluding pre-control period shortfall) as per Table 46 to the Third Control Period

14.3 Authority's proposals regarding traffic projections for the Third Control Period

- 14.3.1 To consider the passenger traffic, ATM traffic and cargo traffic as per Table 51, Table 53 and Table 54 respectively which shall be trued up based on actuals

14.4 Authority's proposals regarding regulatory asset base and depreciation for the Third Control Period

- 14.4.1 To consider the interest during construction upto FY22 and also waive the adjustment of 1% on delay in operationalization of Terminal 2 - Phase 1 till 31 March 2022
- 14.4.2 To exclude the additional PMC costs estimated by BIAL for Terminal 2 for FY22
- 14.4.3 To levy the reduction (adjustment) of 1% in the project cost of Terminal 2 in case BIAL fails to commission and capitalize Terminal 2 Phase 1 by 31 March 2022. It is clarified that in case there is delay in completion of project beyond March 2022, due to any reason beyond the control of BIAL or its contracting agency and is properly justified, the same would be considered by the Authority while truing up the actual cost at the time of determination of tariff for the 4th control period in respect of IDC and PMC. However, there will be no waiver of reduction (adjustment) in case Phase 1 of Terminal 2 project is delayed beyond 31 March 2022 under any circumstances

- 14.4.4 To consider the increase in the cost of T2 Apron Phase 2 due to RWH ponds upto 22.50 cr. and exclude the estimated additional cost of INR 20.5 cr. in T2 Apron Phase 2 from RAB due to the delay in the commissioning of the ECT.
- 14.4.5 To bifurcate the MMTH cost into aeronautical and non-aeronautical components based on the floor wise area usage for aeronautical and non-aeronautical activities.
- 14.4.6 To capitalize the enabling works for metro station and the baggage sorting area in the year of metro commissioning, that is, FY26.
- 14.4.7 To consider 5% of the project cost for Design and PMC costs for the capital expenditure deferred from Second Control Period and the capital expenditure proposed in the Third Control Period.
- 14.4.8 To include the ORAT expenses as part of the operational expenditure and exclude it from the RAB of the Third Control Period
- 14.4.9 To exclude the pre-operative expenses on the deferred projects of the Second Control Period from the RAB of Third Control Period and the capital expenditure proposed in the Third Control Period.
- 14.4.10 To consider the interest during construction on the project cost in RAB for the Third Control Period.
- 14.4.11 To consider INR 50 cr. (excl. design, PMC, contingency and IDC cost) for the T1 optimization project in the Third Control Period. To true-up the actual T1 optimization project cost during the next control period based on the evaluation of its reasonableness.
- 14.4.12 To exclude the cost for MMTH Phase 2 and Airport terminal metro station project from the Third Control Period. In case BIAL capitalizes these assets in the Third Control Period, the Authority proposes to true-up the actual cost of these assets during the next control period.
- 14.4.13 To consider a reduced cost of INR 22.40 cr. (excluding design, PMC, contingency and IDC) for the CISF barrack expansion and access road project in the Third Control Period.
- 14.4.14 To exclude the capital expenditure of city side metro station from the RAB of BIAL.
- 14.4.15 To exclude the Landscape works and Alpha 4 project cost from the Third Control Period
- 14.4.16 To consider the contingency cost as 3% of the Third Control Period project cost.
- 14.4.17 To exclude the proposal for CISF permanent housing project from the Third Control Period and consider it during the fourth control period
- 14.4.18 To reduce 1% of the project cost from the ARR/ Target Revenue as re-adjustment, in case any particular capital project is not completed/ capitalized as per the capitalization schedule as per the approval in tariff order.
- 14.4.19 To bifurcate the Terminal 2 asset into aeronautical and non-aeronautical based on the floor area ratio of Terminal 2 of 87.7%.
- 14.4.20 To segregate the common assets based on terminal area ratio of 85.73% based on Terminal 1 area for common assets capitalized in FY22 and apply weighted average terminal area ratio of 86.85% from FY23 to FY26
- 14.4.21 To consider refurbishment of existing cargo terminals and new cargo terminal as aeronautical assets.
- 14.4.22 To bifurcate the RWH ponds into aeronautical and non-aeronautical based on the average terminal area ratio.
- 14.4.23 To bifurcate the MMTH Phase 1 cost based on 68% to 32% as bifurcation ratio between non-aeronautical to aeronautical assets as given in Table 64.

- 14.4.24 To consider the total asset addition and aeronautical asset addition given in Table 75 and Table 76 respectively for the Third Control Period
- 14.4.25 To true-up the total asset addition and the aeronautical asset addition for the Third Control Period based on the actual asset addition undertaken in the next control period and subject to its reasonableness.
- 14.4.26 To true-up the asset allocation of the assets capitalized in the Third Control Period based on the actual asset addition in the next control period
- 14.4.27 To consider the aeronautical depreciation given in Table 78 for the Third Control Period
- 14.4.28 To true-up the depreciation of the Third Control Period based on the actual asset additions and the actual date of capitalization
- 14.4.29 To consider the aeronautical RAB given in Table 79 for the Third Control Period..

14.5 Authority's proposals regarding WACC for the Third Control Period

- 14.5.1 To consider the cost of equity at 15.05% as per the outcome of the independent study.
- 14.5.2 To consider the notional debt to equity (gearing) ratio of 48%:52% as suggested by the independent study
- 14.5.3 To consider 7.85% as cost of debt for the Third Control Period.
- 14.5.4 To true-up the cost of debt of BIAL for the Third Control Period based on actuals.
- 14.5.5 To consider the WACC of 11.59% for the Third Control Period based on above mentioned cost of equity, cost of debt and considering the notional gearing ratio as suggested by the independent study.

14.6 Authority's proposal regarding operating expenses for the Third Control Period

- 14.6.1 To consider total operating expenditure as set out in Table 112 above for the Third Control Period
- 14.6.2 To consider allocation ratio as set out in Table 113 above for the Third Control Period
- 14.6.3 To consider aeronautical operating expenditure as set out in Table 114 for the Third Control Period
- 14.6.4 To consider ORAT as part of operating expenditure as given in Table 111 for the Third Control Period
- 14.6.5 To true up the operating expenditure for the current control period based on actuals, at the time of determination of tariff for the next control period.

14.7 Authority's proposals regarding non-aeronautical revenues for the Third Control Period

- 14.7.1 To consider non-aeronautical revenue as set out in Table 130 above for the Third Control Period
- 14.7.2 To consider notional lease rental for AAI office space as non-aeronautical revenues in the Third Control Period as per Table 122
- 14.7.3 To treat real estate revenue as non-aeronautical revenues as stated in Table 128 above.
- 14.7.4 To treat interest income as non-aeronautical revenues as stated in Table 129 above.
- 14.7.5 To true up non-aeronautical revenues for the current control period, at the time of determination of tariff for the next control period.

14.8 Authority's proposals regarding taxation for the Third Control Period

- 14.8.1 To consider tax outflow estimate as set out in Table 132 for the Third Control Period.
- 14.8.2 To true-up the aeronautical tax estimates based on actual tax outflow at the end of the current control period.

14.9 Authority's proposals regarding working capital interest for the Third Control Period

14.9.1 To consider working capital interest / fee as detailed in Table 134 for the Third Control Period.

14.9.2 To true up the working capital interest/ fee projections based on actuals, at the end of the control period, in computation of tariff for the next control period

14.10 Authority's proposal regarding inflation for the Third Control Period

14.10.1 To consider the inflation of 4.9% for the Third Control Period based on the mean WPI inflation forecast for FY 2021-22 given in the 69th round of survey professional forecasters on macroeconomic indicators of RBI.

14.11 Authority's proposal regarding Quality of Service for the Third Control Period

14.11.1 The Authority proposes that BIAL shall ensure that service quality at Kempegowda International Airport conforms to the performance standards as indicated in the Concession Agreement over the Third Control Period.

14.11.2 The Authority proposes not to levy any penalties / rebates against BIAL for the Second Control Period.

14.12 Authority's proposal regarding ARR for Third Control Period

14.12.1 To consider Aggregate Revenue Requirement (ARR) as detailed in Table 139 above as the eligible ARR for the Third Control Period for BIAL

14.12.2 To direct BIAL to submit the Annual Tariff Proposals within 7 days from issue of this Consultation Paper which will be reviewed and put up for stakeholder consultations.

15 STAKEHOLDER CONSULTATION TIMELINE

- 15.1.1 In accordance with the provisions of Section 13(4) of the AERA Act 2008, the proposal contained in the Summary of Proposals (Chapter 13 above) read with the Authority's analysis, is hereby put forth for Stakeholder Consultation. To assist the stakeholders in making their submissions in a meaningful and constructive manner, necessary documents are enclosed in annexures. For removal of doubts, it is clarified that the contents of this Consultation Paper may not be construed as any Order or Direction of this Authority. The Authority shall pass an Order, in the matter, only after considering the submissions of the stakeholders in response hereto and by making such decision fully documented and explained in the tariff order in terms of the provisions of the Act.
- 15.1.2 The Authority welcomes written evidence-based feedback, comments and suggestions from stakeholders (preferably in electronic form (editable "Microsoft Word" file) on the proposal made in Chapter 14 above latest by 20.07.2021.

Secretary

Airports Economic Regulatory Authority of India

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Chairperson

16 ANNEXURES

16.1 Annexure 1 – Summary of study on allocation of assets between aeronautical and non-aeronautical assets

Background

- 16.1.1 RAB is the most significant driver for tariff determination as it also has an impact on other building blocks i.e., Fair Rate of Return (FROR), operation costs and depreciation. RAB's impact on tariff determination process is increasing with significant investments being made to expand capacity. Under the shared till approach, segregation of RAB into Aeronautical ('Aero') and Non-aeronautical ('Non-Aero') assets becomes an important determinant of tariff determination.
- 16.1.2 For this purpose, the Regulatory Asset Base is bifurcated between aeronautical and non-aeronautical assets. Bifurcation of regulatory asset base is dependent on many factors such as the usage of the assets, location of the asset, type of revenues generated from the asset, etc. Due to multiplicity of factors, a detailed analysis of assets in the books of account of BIAL is required to be undertaken to determine the aeronautical Regulatory Asset Base.
- 16.1.3 The Authority had commissioned a study regarding allocation of assets between aeronautical and non – aeronautical for the Second Control Period.

Classification of Assets

- 16.1.4 The study based on their analysis, classified the aggregate assets of BIAL under the following categories:
- a. **Aeronautical:** Assets which are required for performance of the aeronautical services at the airport. Aeronautical services are as defined under the AERA Act. These assets include runways, taxiways, aprons, ARFF related assets, BHS, ground handling, cargo terminals, approach roads, airside lighting, VIP/ reserved lounges, etc.
 - b. **Non-aeronautical:** Assets which are required for performance of the non-aeronautical services at the airport. These assets include car parking, lounges, advertisement, retail plaza, commercial real estate development, etc.
 - c. **Common:** Assets which are not directly attributable to either aeronautical or non-aeronautical services. These assets include the terminal building, air conditioning, furniture, administrative office of airport company, etc.

Principle for segregation of assets

- 16.1.5 The study reviewed the various asset categories and developed a basis for classification of assets into aeronautical and non – aeronautical activities. The study also determined the appropriate proportion of the Common Assets that may be included as part of Aeronautical activity so in order to determine the Aeronautical asset base. The principles of segregation used by the study are as follows:

Aeronautical Assets

- Assets required for the performance of the aeronautical services at the airport.
- Classification of aeronautical assets are taken as defined in the AERA Act.
- Assets necessary to maintain the service quality of the airport are proposed to be considered as aeronautical except those located in the commercial real estate development.

Non - Aeronautical Assets

- Assets required for the performance of the non - aeronautical activities at the airport. Examples include car parking, advertisement, retail etc.

Common Assets

- Common assets are assets which are not directly attributable to either aeronautical or non-aeronautical services. These assets include the terminal building, air conditioning, furniture, administrative office of airport company, etc.
- Common assets are bifurcated by BIAL between aeronautical and non-aeronautical assets based on the ratio of aeronautical and non-aeronautical area of the terminal building. AERA has adopted the approach to allocate the assets based upon terminal area ratio or gross fixed asset ratio. The study proposes to adopt the approach for bifurcation of common assets based on the terminal area ratio. The ratio of aero to non-aero terminal area is taken as average terminal area ratio of 85.73% in the Second Control Period.

Details of adjustment to RAB

A. Reclassification from aeronautical assets to common assets

Electrical and powerhouse equipment

- a. Allocation as per BIAL: Aeronautical
- b. Observation: Power supply infrastructure at an airport provides power to air side, roads, terminal building and forecourts. These equipment include the DG sets, UPS, substations, power distribution board, low tension switchboards, high tension cables, etc. Since, these assets serve both the aeronautical assets as well as the common assets, bifurcation based on the usage is required.
- c. Revised asset allocation: Accordingly, the assets serving the terminal building, forecourts, airport and not identifiable are proposed to be classified as common assets.
- d. Impact on RAB for Second Control Period: Reduction of INR 4.69 cr.

BIAL – App (mobile application) (Thoughtworks project) under Software & program licenses

- a. Allocation as per BIAL: Aeronautical
- b. Observation: On the query regarding the BIAL – App, BIAL responded that “This is a Customer Oriented Platform-APP exclusively for the Passenger Experience Enhancement - It enable Intimation & Notification of Flight, Boarding information, Wi-Fi connectivity, feedback of airport services etc.” It is noted from the mobile application that in addition to providing the flight information, the application also provides the details of the retail, F&B outlets, car parking, etc. Thus, the application provides information of both aeronautical and non-aeronautical services at the airport. Further, BIAL has classified its BIAL Public Portal – www.bengaluruairport.com as a common asset. BIAL App (mobile application) is also assumed to be a similar asset to BIAL public portal.
- c. Revised asset allocation: Accordingly, the costs associated with Thoughtworks project for development of mobile app are proposed to be classified from aeronautical to common assets.
- d. Impact on RAB for Second Control Period: Reduction of INR 0.59 cr.

Water harvesting assets

- a. Allocation as per BIAL: Aeronautical

- b. Observation: BIAL has developed water harvesting ponds/ rain sumps to store rain water for use at the airport. It is noted that these rain water sumps serve both aeronautical and non-aeronautical assets.
- c. Revised asset allocation: Accordingly, the costs associated with water harvesting ponds/ rain sumps are classified as common assets.
- d. Impact on RAB for Second Control Period: Reduction of INR 13.29 cr.

B. Reclassification from aeronautical assets to non-aeronautical assets

Buildings – Landscaping in the commercial real estate development area

- a. Allocation as per BIAL: Aeronautical
- b. Observation: Landscaping is undertaken by the airport to provide enhanced passenger experience while also meeting the environment sustainability goals of the airport. However, it was noted that landscaping undertaken around the airport hotel has also been considered as aeronautical by BIAL.
- c. Revised asset allocation: Since, the assets forming part of the commercial real estate development are considered as non-aeronautical assets, the capital expenditure for landscaping in and around the commercial real estate development is also considered as non-aeronautical.
- d. Impact on gross block: Due to change in asset allocation methodology, the reduction in gross block of Buildings – Landscaping in FY20 is INR 0.14 cr.
- e. Impact on RAB for Second Control Period: Reduction of INR 0.14 cr.

Car park and advertising related assets under Airport Equipment – Operations related

- a. Allocation as per BIAL: Aeronautical
- b. Observation: Car park and advertising related assets are non-aeronautical assets as per past orders of AERA. However, these assets have been considered as aeronautical by BIAL.
- c. Revised asset allocation: Accordingly, the costs associated with car park and advertising related assets are classified as non-aeronautical assets.
- d. Impact on RAB for Second Control Period: Reduction of INR 0.17 cr.

C. Adjustments to proposed asset additions of FY21

Exclusion of enabling works for eastern connectivity tunnel

- a. Allocation as per BIAL: Aeronautical
- b. Observation: AERA in its Second Control Period for BIAL had excluded the enabling works for eastern connectivity tunnel. Accordingly, these are excluded from the FY21 asset additions.
- c. Revised asset allocation: Excluded from the FY21 asset addition.
- d. Impact on RAB for Second Control Period: Reduction of INR 86.55 cr.

Express cargo

- a. Allocation as per BIAL: Non-Aeronautical
- b. Observation: AERA Act, 2008 considers the cargo, ground handling and fuel services as aeronautical services. Accordingly, the express cargo capital expenditure is considered as aeronautical.
- c. Revised asset allocation: Considered as aeronautical
- d. Impact on RAB for Second Control Period: Increase of INR 88.49 cr.

Revised asset allocation ratio from gross block ratio to terminal area ratio for common assets

- Allocation as per BIAL: Common
- Observation: Gross block ratio is a composite ratio and a weighted average of aero, common and non-aero assets. Hence, the gross block ratio should be applied on entire capex addition irrespective of it being aero, common or non-aero instead of BIAL's approach of applying it selectively on common assets. Common assets have been segregated in the asset register based on the average terminal area ratio and therefore, the same ratio (85.73%) is applied on the common assets. Based on the above, bifurcation ratio for FY21 capex of airport offices, ITI project and sustaining capex is revised from 91% to terminal area ratio of 85.73%.
- Revised asset allocation: Revised bifurcation ratio from 91% to 85.73%.
- Impact on RAB for Second Control Period: Reduction of INR 15.34 cr.

Adjustment to RAB during Second Control Period

16.1.6 The summary of adjustments to the aggregate assets of BIAL during the Second Control Period is given in the table below:

Table 140: Revised aeronautical asset addition from FY17 to FY20 based on the asset allocation study

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	Total
(A) Total investments in fixed assets during FY17 to FY20 (as per FAR of BIAL)	226.31	170.30	161.00	2042.42	2,600.03
(B) Aero asset addition to RAB as per BIAL	213.92	135.99	132.02	2,007.23	2,489.16
(C) Proposed adjustment to RAB of BIAL due to change in segregation logic, for reasons below:					
(C.1) Reclassification from aeronautical to common					
Electrical and Power House Equipment	-3.19	-0.60	-0.70	-0.20	-4.69
BIAL App (mobile application)	-0.27	-0.32	0.00	0.00	-0.59
Water harvesting assets	-0.08	0.00	-0.01	-13.20	-13.29
(C.2) Reclassification from aeronautical to non-aeronautical					
Landscape in real estate area	-0.14	0.00	0.00	0.00	-0.14
Car park related asset	-0.17	0.00	0.00	0.00	-0.17
(D) Total proposed adjustments due to changes in segregation logic to RAB (D = C.1 + C.2)	-3.84	-0.92	-0.71	-13.40	-18.87
(E) Adjustment to RAB due to change in terminal area ratio *	-9.23 [^]	-0.14	+15.63 [#]	0.15	+6.45
(F) Total impact due to proposed changes (F = D + E)	-13.06	-1.06	15.00	-13.25	-12.38

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	Total
(G) Adjusted aero additions to RAB during Second Control Period as per this study (G = B + F)	200.86	134.93	147.02	1993.98	2,476.78

Table 141: Revised aeronautical asset addition for FY21

S no	Projects	Revised submission of BIAL – total additions	Allocation as per BIAL	Aero addition to FY21 as per BIAL	Revised allocation as per the study	Revised Aero addition to FY21 as per the study	Difference
1	Site preparation & Earthworks	21.98	100.00%	21.98	100.00%	21.98	0.00
2	Aircraft Rescue & Fire Fighting	8.86	100.00%	8.86	100.00%	8.86	0.00
3	Airport Offices - Phase I	3.89	91.00%	3.54	85.73%	3.33	0.20
4	Existing Runways / Taxiway Improvements - Phase 1b	193.94	100.00%	193.94	100.00%	193.94	0.00
5	Eastern Tunnel - Enabling works	86.55	100.00%	86.55	0.00%	0.00	86.55
6	Express Cargo	88.49	0.00%	0.00	100.00%	88.49	-88.49
7	ITI Project	86.60	91.00%	78.81	85.73%	74.24	4.56
8	Sustaining capex	200.59	91.00%	182.54	85.73%	171.97	10.57
	Total	690.90		576.21		562.81	13.40

16.1.7 Based on the above, the total reduction in the aeronautical asset addition on account of these adjustments for the Second Control Period (from FY17 to FY21) is INR 25.78 cr. as given in the table below:

Table 142: Revised aeronautical asset addition from FY17 to FY21 based on the asset allocation study

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Aero asset addition to RAB as per BIAL (A)	213.92	135.99	132.02	2,007.23	576.21	3,065.37
Less: Impact due to proposed changes (B)	-13.06[^]	-1.06	15.00[#]	-13.25	-13.40	-25.78
Adjusted aero additions to RAB during Second Control Period as per this study (C = A + B)	200.86	134.93	147.02	1993.98	562.81	3,039.60

16.1.8 Based on the above, the year-wise revision in the asset allocation ratio of the Gross Block and the asset additions from FY17 to FY21 has been summarized in the table below:

Particulars*	FY17	FY18	FY19	FY20	FY21 [#]	Total
Opening total gross block as per FAR of BIAL (A)	3714.01	3940.32	4110.62	4271.62	6314.03	22,350.59
Net additions after adjustment for disposals (B)	226.31	170.30	161.00	2042.42	690.90	3,290.93
Closing gross block as per FAR of BIAL (C = A + B)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero Gross Block as submitted by BIAL						
Opening aero gross block (D)	3,363.00	3,576.92	3,712.91	3,844.93	5,852.17	20,349.94
Net aero additions after adjustment for disposals (E)	213.92	135.99	132.02	2,007.23	576.21	3,065.37
Closing aero gross block (F = D + E)	3,576.92	3,712.91	3,844.93	5,852.17	6,428.38	23,415.31
Opening non-aero gross block (H = A - D)	351.00	363.39	397.70	426.68	461.87	2,000.65
Net non-aero additions after adjustment for disposals (I = B - E)	12.39	34.31	28.98	35.18	114.69	225.55
Closing non-aero gross block (J = H + I)	363.39	397.70	426.68	461.87	576.56	2,226.20
Total Gross Block (C=F+J)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero gross block ratio (G)	90.78%	90.32%	90.01%	92.69%	91.77%	91.32%
Reclassification of assets as per this study						
Opening aero gross block [^] (K)	3,317.35 [^]	3,518.21	3,653.14	3,800.16	5,794.13	20,082.99
Net aero additions after adjustment for disposals (L)	200.86	134.93	147.02	1,993.98	562.81	3,039.60
Closing aero gross block (M = K + L)	3,518.21	3,653.14	3,800.16	5,794.13	6,356.95	23,122.59
Opening non-aero gross block (O = C - K)	396.66	422.11	457.48	471.46	519.90	2,267.60
Net non-aero additions after adjustment for disposals (P = B - L)	25.46	35.37	13.98	48.44	128.09	251.33
Closing non-aero gross block (Q = O + P)	422.11	457.48	471.46	519.90	647.98	2,518.93

Particulars*	FY17	FY18	FY19	FY20	FY21 [#]	Total
Total Gross Block (C= M+Q)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero gross block ratio (N=M/C)	89.29%	88.87%	88.96%	91.77%	90.75%	90.18%
Net impact on the aero additions (R = L – E)	-13.06	-1.06	15.00	-13.25	-13.40	-25.78
Net impact on aero ratio (S = N – G)	-1.49%	-1.45%	-1.05%	-0.92%	-1.02%	-1.14%

16.1.9 As seen from the above table, the total reduction due to the above adjustments in the aeronautical asset addition from FY17 to FY21 as on 31 March 2021 is INR 25.78 cr. (includes adjustment for revision of terminal area ratio).

16.2 Annexure 2 - Summary of study on efficient Operation and Maintenance costs

Background

- 16.2.1 Establishing efficient operation and maintenance costs and their reasonableness is essential to the effective execution of tariff determination exercise for aeronautical services. This expenditure has consistently been increasing, driven by investments in expanding, modernizing and improving the efficiency and excellence of the airport by BIAL.
- 16.2.2 Assessment of Operation and Maintenance cost requires AERA to examine the financial information submitted by the airport operator, and also examine the baseline operating cost levels, cost reduction, efficiency initiatives and benchmarking exercises undertaken by the airport operator etc.
- 16.2.3 The Authority had commissioned a study to determine aeronautical Operations & Maintenance costs for the Second Control Period.

Principles for segregation of costs

- 16.2.4 The operations and maintenance costs have been bifurcated into aeronautical, non-aeronautical and common costs based on the provisions of the AERA Act, 2008.
- 16.2.5 The bifurcation of the personnel cost, operation and maintenance cost, general administration cost, marketing and advertising cost (except collection charges which are considered as aeronautical expense) is undertaken as per below:
- a) These major expenses are sub-divided into sub-cost centres.
 - b) Each sub-cost centre is categorized into aeronautical, non-aeronautical and common and the expenses within that sub-cost centre are also categorized accordingly.
 - c) These common costs except for marketing and advertisement expenses have been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses within the major cost head).
 - d) Marketing and advertisement expenses are bifurcated based on 85:15 ratio which is the average for previous years.
 - e) Sub-cost centres whose allocation is changed from aeronautical to common include quality management, corporate affairs, terminal operations, ops, planning and project co-ordination, innovation lab, landside maintenance – special equipment, utility – water supply, utility – power supply, corporate communication, chief operations officer, customer engagement and service quality and president – airport operations.
- 16.2.6 The bifurcation of the remaining expenses is undertaken as per below:
- a) Concession fee – Since the tariff computation for BIAL is undertaken on hybrid till, the aeronautical concession fee for BIAL is computed as 4% of the aeronautical revenues. The study has considered the CGF revenues as part of the aeronautical revenues for computing the aeronautical concession fee as per the AERA Act, 2008, AERA guidelines, the concession agreement of BIAL and Hon'ble TDSAT judgement dated 16th December 2020.
 - b) CSR expenses – Computed based on the aeronautical profit before tax for BIAL.
 - c) Donations and waivers and bad debts – These expenses have been excluded as per AERA's Second Control Period order for BIAL.

- d) Land lease rent and rates and taxes – Land usage by BIAL has been primarily for airport with very low utilization under real estate development till FY 2020 and it is forecasted to remain the same in FY 2021. Accordingly, the lease rent and rates and taxes are considered as aeronautical.
- e) Utility cost – The utility cost has been adjusted for the utility recoveries from aeronautical concessionaires as per AERA's Second Control Period order for BIAL. The net amount has been considered as aeronautical expenses.
- f) Insurance cost – These expenses are bifurcated based on the revised asset ratio.

Details of adjustment to O&M expenses

16.2.7 The study on the basis of the expense classification and principles of segregation adopted, as can be seen in the above paragraphs, has considered re-segregation of Operation and Maintenance expenses to determine aeronautical O&M costs. The study has proposed the following adjustments:

Table 143: Revised segregation logic for O&M costs as per the study for Second Control Period

Operational expenditure*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021
Personnel Expenses	90.44%	91.05%	89.71%	88.94%	88.94%
Operations & Maintenance	83.62%	84.78%	82.66%	84.49%	89.64%
Lease Rent	100.00%	100.00%	100.00%	100.00%	100.00%
Utility (Net)	100.00%	100.00%	100.00%	100.00%	100.00%
Insurance	89.29%	88.87%	88.96%	91.98%	90.93%
Rates & Taxes (other than IT)	100.00%	100.00%	100.00%	100.00%	100.00%
Collection cost	100.00%	100.00%	100.00%	100.00%	100.00%
Marketing and Advertising	89.82%	83.60%	85.17%	84.80%	84.80%
Total General Administration Costs	95.10%	91.27%	63.34%	59.03%	90.00%
Total operational expenditure – Study	87.14%	87.14%	79.83%	79.62%	87.79%
Total operational expenditure – BIAL	89.30%	89.04%	87.51%	87.46%	90.79%

Aeronautical O&M costs for the Second Control Period

16.2.8 Based on the above, the aeronautical operating and maintenance cost for BIAL for the Second Control Period is given below:

Table 144: Aeronautical operation and maintenance cost for BIAL for the Second Control Period

Operating expenses adjustments*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	107.37	110.43	137.41	174.29	187.78	717.27
O&M	83.03	98.97	96.93	117.09	120.09	516.11

Operating expenses adjustments*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utility	36.45	41.92	34.86	34.22	23.41	170.86
Insurance	1.57	2.22	1.94	3.25	5.64	14.62
Rates & taxes (other than IT)	8.72	6.55	9.36	8.90	8.29	41.82
Marketing & Advertising	7.90	9.02	12.93	10.77	6.07	46.68
CSR	2.14	4.22	6.98	6.85	5.21	25.41
General admin costs	23.40	27.34	17.28	19.90	24.09	112.02
Total operating expenses – Aero	283.59	314.08	331.52	389.51	395.26	1713.96
Waiver and bad debts	0.00	0.00	0.00	0.00	0.00	0.00
Concession fee	39.63	44.62	38.11	32.85	13.21	168.42
Total operating expenditure – Aero as per the study	323.22	358.70	369.63	422.36	408.47	1882.38
Total Operating expenditure – Aero as per BIAL	332.05	367.33	406.02	463.89	464.20	2,033.48

16.2.9 The airport operator, that is, BIAL had proposed a total operational expenditure of INR 2,290.07 cr., the aeronautical operational expenditure as INR 2,033.48 cr. and the non-aeronautical operational expenditure as INR 256.59 cr. for the Second Control Period.

16.2.10 Based on the study, the total operational expenditure is INR 2,241.31 cr. (based on audited financial statements) and the proposed aeronautical operational expenditure is INR 1,882.38 cr. for the Second Control Period. Thus, resulting in a reduction of INR 151.10 cr. in the aeronautical operational expenditure for the Second Control Period. The opex allocation ratio for the Second Control Period as submitted by BIAL is 88.80% while that considered in the study is 83.99%.

16.3 Annexure 3 - Summary of independent study on determination of cost of equity

Background

- 16.3.1 The airport infrastructure sector has been undergoing a phased change during the past 15 years. The first Public Private Partnership (PPP) model of airport operations was implemented in Delhi, Mumbai, Bangalore and Hyderabad airports starting in 2004.
- 16.3.2 While Delhi and Mumbai were brownfield projects, Bangalore and Hyderabad were greenfield in nature. As with any infrastructure project, these projects involved high Capital Expenditure (CAPEX) and Operational Expenditure (OPEX) mobilization. To ensure viability of airport investment, it is standard practice to provide a reasonable return to investors by charging airport users an appropriate tariff.
- 16.3.3 The Airports Economic Regulatory Authority (AERA) was established in 2008 for fixing aero tariffs and User Development Fee (UDF) at different airports. AERA uses the Capital Asset Pricing Model (CAPM) to determine the Cost of Equity (CoE) and hence the FRoR. The study computes the cost of equity and further the FRoR for Bangalore International Airport Ltd. (BIAL).

Scope of Engagement

- 16.3.4 The scope of the engagement as stipulated under original terms of reference from the Authority is given below:
- Study of relevant environment, trends in airport capitalization
 - Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity
 - Recommendations on Cost of Equity
 - Follow-on activities
- 16.3.5 The objective of the independent study is to provide recommendations on cost of equity including:
- Cost of Equity – Risk-free return, risk premium and beta levels
 - Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing
 - Alternative models for determination of cost of equity

Determination of Cost of Equity

- 16.3.6 The independent study compared the regulatory authorities of 12 countries and over 25 airports to understand the regulatory framework across the world, and assigned weights to the 25 international airports in 12 countries to estimate their comparability to BIAL based on the following parameters:
- a) Revenue Till Structure:
 - 1 - Single Till or where information is not available
 - 2- Dual Till
 - 3- Hybrid Till
 - b) Ownership Structure:

- 1- 100% Government owned/funded
- 2- Government/private owned/funded, not being Public Private Partnership
- 3- Public Private Partnership funded

c) Operations Scale:

- For each comparable international airport, the independent study computed the ratios of passenger, cargo and aircraft movement of these airports to that of BIAL in each of the years from 2015 to 2017. Later, an equal weighted sum for these airports is computed using average of the ratios under each category (Passenger, cargo and air traffic movements) as per the following equation:

$$OpS_k = \sum_{i=2015}^{i=2017} \left(\frac{1}{3} \right) * R_{Pi} + \left(\frac{1}{3} \right) * R_{Ci} + \left(\frac{1}{3} \right) * R_{Ai}$$

where

- OpS_k = Operations scale for comparable airport k
- i = Year 2015, 2016 and 2017
- R_{Pi} = Ratio of passengers of the comparable airport to that of Bangalore airport
- P_i = No. of passengers for the comparable international airport in year i
- P_B = No. of passengers for BIAL in year i
- R_{Ai} = Ratio of aircraft movements of the comparable airport to that of Bangalore airport
- A_i = No. of aircraft movements for a comparable international airport in year i
- A_B = No. of aircraft movements for BIAL in year i
- R_{Ci} = Ratio of cargo of the comparable airport to that of Bangalore airport
- C_i = Total cargo movement in metric tonne for a comparable international airport in year i
- C_B = Total cargo movement in metric tonne for BIAL in year i

16.3.7 Finally, the proximity score for comparable airport, k, with respect to Bangalore airport is denoted by $PS_{k,B}$ which is the net Euclidean Distance from each of the parameters w.r.t. BIAL given by the following equation:

$$PS_{k,B} = \sqrt{(RT_B - RT_k)^2 + (OS_B - OS_k)^2 + (OpS_B - OpS_k)^2}$$

where

- RT_B = Revenue Till Score of BIAL
- RT_k = Revenue Till Score of comparable airport, k
- OS_B = Ownership structure Score of BIAL
- OS_k = Ownership structure Score of comparable airport, k
- OpS_B = Equal Weighted Operations Scale of BIAL

- OpS_k = Equal Weighted Operations Scale of comparable airport, k

16.3.8 Based on the above, the airports shortlisted for comparative study with BIAL were Sydney, Auckland, MAHB, AoT, Gatwick, Dublin and Changi. The proximity score with BIAL for these airports is given in the table below:

Table 145: Proximity score of shortlisted airports with BIAL

Airport	Revenue Till	Ownership Structure	Operations	Proximity Scores
Bangalore (BIAL)	0.00	0.00	0.00	0.0000
Sydney	1.00	1.00	-2.32	2.7171
Auckland	1.00	1.00	0.62	1.5449
MAHB	2.00	1.00	-9.87	10.1161
AoT	1.00	1.00	-11.83	11.9111
Gatwick	2.00	1.00	-0.94	2.2364
Dublin	2.00	2.00	0.17	2.8333
Changi	0.00	2.00	-8.34	8.5737

16.3.9 The independent study then studied the returns of the airport over the period from 2013 to 2017 and computed the Internal Rate of Return (IRR) for all the airports.

Methodology to compute cost of equity and Fair Rate of Return

16.3.10 The independent study regressed the monthly growth rate in passenger volumes for BIAL on the monthly returns for the Indian stock market.

16.3.11 The passenger growth rate can be viewed as a proxy for the demand driver for BIAL. The stock market return captures the fluctuations in macroeconomic conditions.

16.3.12 The stock returns signify external economic conditions. The independent study analyzed the impact on demand if the external conditions change significantly and found very low regression coefficients (~ 0.3) thereby establishing that demand for BIAL is relatively inelastic and highly constrained by supply under normal circumstances.

16.3.13 The independent study has used CAPM to determine the Cost of Equity, stating that though it is a theoretical model based on assumptions that do not hold true in the real world, its simple and intuitive appeal have made it the model most used by airport regulators to determine Cost of Equity.

16.3.14 There are three components required for computing the cost of equity using CAPM – risk-free rate (R_f), equity beta and equity risk premium (ERP). R_f and ERP are macro-economic in nature and can be derived from using time series analysis with R_f being considered from public sources and estimates for ERP available from an independent study by Anshuman, Biswas, Jain and Sharma, 2019. Equity beta for an unlisted company like BIAL is more challenging and the methodology used by the independent study is described below:

- Un-lever the betas of the comparable airports.
- Estimate asset betas for BIAL with proximity distance scores as inputs.

- Re-lever asset betas to get equity betas for BIAL with target gearing ratios as inputs.
- Evaluate cost of equity with Rf and ERP as inputs.
- Estimate Fair Rate of Return with cost of equity and cost of debt as inputs.

Phase 1: Unlevering of beta for comparable airports

16.3.15 The Independent Study considered 6 airports from the comparable set of airports as Changi airport did not have an estimate of asset beta in the public domain. Of these airports, Sydney, Auckland, AoT and MAHB are listed airports for which the independent study evaluated equity betas based on market data. The equity betas of these airports are then un-levered to determine the corresponding asset beta of the listed airports. Dublin and Gatwick airports are unlisted but have the estimates for asset betas from their respective regulators. The asset betas for the comparable set of airports can be seen in the table below:

Table 146: Asset betas for comparable airports

Airport	Asset Beta
Sydney	0.4000
Auckland	0.6000
MAHB	0.7693
AoT	0.8582
Gatwick	0.5600
Dublin	0.5500

Phase 2: Estimation of asset beta for BIAL based on proximity score of the comparable airports

16.3.16 Based on the Table above and considering the proximity scores as determined by the independent study, the proximity score weighted average unlevered asset beta for BIAL has been arrived at as 0.5646.

Phase 3: Re-levering of Beta for BIAL using target value of D: E ratio

16.3.17 The independent study recommends using a lower target gearing ratio than the gearing ratio suggested by actual D/E values of BIAL as WACC should reflect a long-term steady gearing ratio rather than the current gearing ratio. WACC should also be determined using market value of D/E ratios as equity tends to increase over time, thereby resulting in lower market D/E ratios than book D/E ratios. The independent study considers this factor to be a significant reason for airports using lower target gearing ratios.

16.3.18 The independent study, to estimate market value of D/E (MDE) ratio for BIAL, has examined the relation between MDE and BDE (Book debt to equity ratio) of infrastructure firms in India. Based on the established empirical relationship between MDE and BDE, the conversion multiplier to determine MDE from BDE has been estimated as 0.459. The independent study then assumed BDE of 2:1, which gave an MDE of 0.918 for a typical infrastructure firm in India. It translated in a target gearing ratio of 47.86% which is reasonably close to the average gearing ratio of the set of comparable international airports.

16.3.19 Thus, the independent study consider an average gearing ratio (D/D+E) of 48% for BIAL to estimate their Cost of Equity and Fair Rate of Return.

16.3.20 Based on this target gearing ratio, the asset beta of BIAL has been re-levered to calculate equity beta whose value is arrived at 0.9296.

Phase 4: Estimation of cost of equity with R_f and ERP as inputs

16.3.21 ERP is an essential input in the implementation of the Capital Asset Pricing Model. It captures the additional return demanded by investors for holding equity shares in contrast to holding risk-free deposits. It reflects the investing population's compensation for taking up equity risk.

16.3.22 To arrive at the cost of equity, Equity Risk Premium (ERP) is derived as the simple average of the three independent study estimates (historical average of ERP over 2000 – 2018 period, based on CDS and bond ratings, forward looking estimate as suggested by Grant Thornton) i.e. 8.06% as this simple average technique helps eliminate the effect of biases implicit in each of the three independent studies.

16.3.23 After computing all the components required, the cost of equity using CAPM has been determined and the variables used to estimate the cost of equity and fair rate of return are summarized in the table below:

Table 147: Calculation of cost of equity

Variables	Gearing based on Target gearing ratio
Asset Beta	0.564689
Gearing ratio (D/E)	0.9231
Weighted Gearing ratio (D/D+E)	48%
Equity Beta	0.9296
Risk free rate	7.56%
Equity risk premium	8.06%
Cost of Equity	15.05%

Phase 5: Estimation of Fair Rate of Return / WACC with cost of equity and cost of debt as inputs

16.3.24 To arrive at the fair rate of return, the independent study has computed an estimate of cost of debt.

16.3.25 To estimate the Cost of Debt of comparable debt instruments in India, the study considered a total of 17,665 debt instruments (Debt Instruments, Commercial Papers and Certificate of Deposit) as per NSDL. Of these, 709 are rated 'AA Negative' as per CARE, CRISIL, ICRA, Brick Work Ratings, India Ratings & Research, SME Ratings and Acuite Ratings. BIAL is rated "AA Negative" by CRISIL, as of 17 Jun 2020. The number of debt instruments issued, from 01/01/2018 till 31/12/2020 of the said rating is 264. Of these, 11 were by infrastructure companies.

16.3.26 Based on the above, the illustrative cost of debt arrived at was 10.05%. Using the above, the Fair Rate of Return (FRoR) is computed as 12.65% for BIAL for illustrative purposes.

16.3.27 Thus, the independent study has computed the cost of equity at 15.05% using Capital Asset Pricing Model at a notional D:E ratio of 48:52 and using as benchmark, a comparable set of airports with more than 50% private ownership.

16.4 Annexure 4 – Details of the design, PMC, pre-operative expenses and IDC for the projects proposed to be capitalized in second control period

Table 148: Details of the design, PMC, pre-operative expenses and IDC for the projects proposed to be capitalized in second control period

S no.	Projects (INR cr.)	Proposed capitalization as per BIAL in SCP	Design	PMC	Pre-ops	Sub-total	IDC and FA	Total
		A	B	C	D	E = A+B+C+D	F	G=E+F
1	New south airfield development works	1,613.12	21.87	18.97	65.86	1,719.82	139.65	1,859.46
2	Forecourts, roadways and landside development	88.89	2.04	0.00	4.85	95.78	5.55	101.33
3	Rescue and Fire Fighting	7.43	0.00	0.00	0.24	7.67	1.33	9.00
4	Existing Runway, Taxiway improvements	216.95	12.95	0.00	6.32	236.22	1.94	238.15
	Total	1,926.38	36.86	18.97	77.27	2,059.48	148.46	2,207.94

16.5 Annexure 5 – Details of sustaining capex proposed by BIAL in Third Control Period

1. Fresh sustaining capex proposed by BIAL in the Third Control Period

Table 149: Fresh sustaining capex proposed by BIAL in the Third Control Period

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
1	PTB Replacement of Granite Cladding Fasteners	Existing	0.2	-	-	-	-
2	Drainage System Upgradation	Existing	0.2	0.2	0.2	0.2	0.3
3	Sanitary lines and water lines valve replacement and standby water line for T1A and water meters installation	Existing	-	0.4	-	-	0.4
4	Replacement of Civil furniture of LSB	Existing	-	0.3	0.3	0.3	0.3
5	Major works of Road, Parking & Overhauling of Porta cabins	Existing	-	0.6	0.2	0.2	0.4
6	Repairing of Bridges, Underpass	Existing	0.3	0.3	0.5	0.4	0.5
7	Replacement of wornout restroom fixture, false flooring, False ceiling	Existing	-	-	0.8	1.0	1.0
8	Granite Flooring & Cladding T2	T2 Phase 1	-	-	-	0.5	-
9	Road Markings & Signages T2	T2 Phase 1	-	-	-	0.2	0.1
10	Replacement of Furnitures and Civil Fixtures T2	T2 Phase 1	-	-	-	-	0.3
11	Tools	Existing	0.0	0.0	0.0	0.0	0.0
12	Tools	T2 Phase 1	-	0.3	0.2	0.1	-
13	Access Equipment - T1	Existing	-	-	-	0.6	2.6
14	Access Equipment - T2	T2 Phase 1	3.9	-	1.2	-	-
15	Cable	Existing	0.2	-	0.2	-	-
16	Cable	T2 Phase 1	-	0.2	-	0.2	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
17	Panel upgradations/modifications	Existing	-	0.1	0.2	-	0.1
18	Switch sockets replacements due to non availability of earlier fixed types	Existing	0.2	-	0.2	-	0.2
19	UPS replacement - T1	Existing	-	-	-	0.6	0.6
20	DCPS - T1	Existing	-	-	-	0.4	-
21	Indoor lighting	Existing	0.4	0.1	-	-	0.1
22	Indoor lighting	T2 Phase 1	-	-	-	0.6	0.6
23	Sliding Doors - T1	Existing	0.2	0.2	-	-	0.1
24	Boom Barriers	Existing	0.1	-	0.1	-	-
25	Lower KVA UPS	Existing	0.1	-	-	0.2	-
26	Monitoring & Automations	Existing	-	-	-	-	0.4
27	MAR & SAR lightings	Existing	-	-	-	0.2	-
28	High Mast UPS	Existing	-	-	-	-	0.2
29	VHT-T1	Existing	5.8	6.0	5.7	0.6	-
30	VHT-T1A	Existing	-	0.5	-	0.5	6.2
31	BHS-T1	Existing	5.6	5.8	-	0.6	-
32	BHS-T1A	Existing	-	-	0.7	-	0.8
33	HVAC T1 Central & Standalone AC System	Existing	3.3	3.5	3.6	1.7	1.8
34	HVAC T1A Central & Standalone AC System	Existing	-	-	-	0.2	0.2
35	FFS-T1	Existing	2.2	-	0.5	-	0.5
36	FFS-T1A	Existing	-	-	-	0.6	-
37	PBB-T1	Existing	-	-	5.4	5.6	5.8
38	PBB-T1A	Existing	-	-	-	0.6	-
39	HVAC (Ph-I)	T2 Phase 1	-	-	-	-	0.6
40	FFS-T2 PHASE-1	T2 Phase 1	-	-	-	-	0.4
41	Toilet Accessories/Dispensers - T1	Existing	0.1	-	0.1	-	0.1
42	Waste Bins/ transportation Trolleys - T1	Existing	0.1	0.2	-	0.2	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
43	Cleaning Equipment (not machinery) - T1	Existing	0.2	-	0.1	-	0.1
44	Other Equipments - T1	Existing	0.2	-	-	-	-
45	Other Equipments - T2	T2 Phase 1	-	0.5	-	-	0.1
46	Cleaning Equipment (not machinery) - T2	T2 Phase 1	0.2	-	0.2	-	0.3
47	Waste Bins / transportation Trolleys - T2	T2 Phase 1	-	-	0.4	-	0.1
48	Toilet Accessories/Dispensers - T2	T2 Phase 1	-	0.3	-	0.1	-
49	Part Replacement of Carpet - T1	T2 Phase 1	-	1.2	-	-	-
50	Façade Anchoring - T1	Existing	0.2	-	-	0.5	-
51	FAS (Alpha-3, Airside Building, VVIP Bldg)	Existing	2.0	-	-	-	-
52	SIEMENS FAS	Existing	2.2	3.5	3.0	-	-
53	Technology Refresh (FAS Server & Clients)	Existing	-	0.2	-	-	-
54	VDGS Server & Clients	Existing	0.2	-	-	-	-
55	VDGS Units & Associated Items	Existing	0.4	0.8	0.8	-	-
56	VDGS- SNI (stand led board to display stand no.) & WGS (wall directional details)	Existing	0.1	-	0.1	-	-
57	ALCS (PLC)	Existing	0.7	-	-	-	-
58	BHS (T1) (PLC)	Existing	1.7	-	-	-	-
59	BHS (T1A) (PLC & SCADA)	Existing	-	-	3.6	-	5.1
60	BHS (T1) (PLC & SCADA) - PC	Existing	-	1.7	-	-	-
61	NEC-PHN (PLC & Application)	Existing	-	1.7	-	-	-
62	PBB (PLC, SCADA & HMI)	Existing	3.3	3.8	-	-	-
63	STP (PLC & SCADA)	Existing	-	-	-	-	0.7

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
64	Drainage	Existing	0.2	0.3	-	-	-
65	Airfield Pavement	Existing	-	9.4	-	0.9	-
66	Airfield Pavement	South Runway	-	-	-	1.5	-
67	Security Wall, Mixing Yard and paver blocks	Existing	0.6	0.6	-	3.1	-
68	New Mixing yard	South Runway	-	-	0.4	-	-
69	LED Fixtures, SFL Lighting and Cables	Existing	0.0	-	0.3	0.2	0.2
70	Ground power units	Existing	0.1	0.1	0.1	0.1	0.1
71	Perimeter lighting	Existing	-	0.2	-	0.2	1.2
72	Airside buildings	Existing	0.4	-	0.2	1.8	0.4
73	Apron highmast lighting	Existing	0.7	-	0.2	-	0.3
74	C&Wd Airfield Services	Existing	-	0.2	0.2	0.1	1.3
75	Replacement of V&E - South Runway	South Runway	-	-	-	0.7	0.2
76	Replacement of V&E - North Runway	Existing	3.7	6.0	53.7	8.7	3.3
77	Potable Water Network	Existing	0.4	-	-	0.9	0.6
78	Potable & Raw water Network	Existing	-	-	4.2	-	-
79	Online water consumption Metering System	Existing	0.5	0.5	-	0.6	-
80	Raw/Rain water Pumping system	Existing	0.4	-	-	-	-
81	Raw Water Network	Existing	-	1.2	-	0.9	0.6
82	Rain Water Harvesting System	Existing	0.5	-	-	0.2	-
83	Sewage Collection Networks	Existing	0.2	-	1.8	-	0.6
84	Filtration/ Treatment system	Existing	0.4	-	-	-	-
85	Tankers & Jetting Machine	Existing	-	0.9	-	-	0.6
86	Underground Storage Sump of 3 ML Capacity for Potable water	Existing	-	0.1	-	-	-
87	Underground Storage Sump of 2	Existing	-	0.1	-	-	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
	ML Capacity for Raw water						
88	Water Treatment Plant	T2 Phase 1	0.3	-	0.4	-	1.9
89	Furniture for office	Existing	-	-	0.2	0.6	0.3
90	Lab equipment's	Existing	-	-	-	0.2	-
91	Lakes	T2 Phase 1	0.3	-	0.4	-	-
92	Enhancement of STP Sludge Drying bed	Existing	0.3	0.3	-	-	0.3
93	Treated water Metering System	Existing	-	-	0.1	-	-
94	Structure repairs	Existing	0.1	-	-	0.2	-
95	STP Refurbishment	Existing	0.4	1.2	-	-	0.4
96	Environmental Monitoring Systems	Existing	-	-	0.4	-	0.3
97	SBR STP	Existing	-	-	0.6	-	-
98	Equipment repairs	Existing	0.1	0.2	0.2	0.2	0.1
99	Diffusers replacement	Existing	-	-	0.4	-	0.1
100	Instrumentation replacement	Existing	-	-	0.4	-	-
101	Filtration system media	Existing	-	-	-	-	1.0
102	Technology up-gradation SBR to MBR	Existing	-	-	-	1.0	-
103	STP civil Structures	Existing	0.3	-	0.6	-	-
104	C-check of DG sets of Terminal 1 (13 Nps)	Existing	-	0.2	-	-	-
105	Servicing of 11 KV Ring Mains Units of Terminal 1 (28 Nos)	Existing	-	-	-	0.1	0.1
106	Overhauling of HVAC/NCP/PHN/NEC/DG Transformers (16Nos)	Existing	-	-	-	0.2	0.3
107	Procurement of 66KV 630 sq. mm copper jointing kits	Existing	0.1	-	-	-	-
108	Procurement of 11 KV jointing kits	Existing	0.0	-	-	0.0	-
109	Servicing of Battery chargers (5 nos.) of T1 & T1A	Existing	-	-	-	-	0.1

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
110	Procurement of measuring instruments, safety equipment etc.	Existing	-	0.1	-	-	-
111	Procurement of Relays/breakers/meters of T1, T1A, NSPR, SS3, T2 etc.	Existing	0.1	-	0.1	-	-
112	OFC connectivity to new stations like TS3, TS4 etc.	Existing	0.1	0.1	-	-	-
113	Asset Management System	Existing	13.4	13.9	14.4	-	-
114	mySAPERP license purchase	Existing	0.6	-	0.6	-	0.6
115	Security weaver SOD license purchase	Existing	0.0	-	0.0	-	0.1
116	SAP warehouse Implementation	Existing	-	0.5	-	-	-
117	S4 HANA Implementation	Existing	-	4.6	-	-	-
118	SAP upgrades & updates	Existing	-	-	-	-	0.2
119	Master data management centralization	Existing	-	-	-	0.4	-
120	SAP-Epalm enhancements	Existing	-	0.2	-	0.3	-
121	System monitoring tool	Existing	-	-	-	-	0.6
122	Godrej 4 Drawer Vertical Filing Cabinet	T2 Phase 1	0.0	-	-	0.0	-
123	Training rooms fully equipped	Existing	3.3	-	-	-	-
124	Cafeteria requirement - p6 canteen	Existing	0.6	-	-	-	-
125	Cafeteria requirement - Food Court @ MLCP along with Alpha 4	T2 Phase 1	-	-	-	0.9	-
126	Cafeteria requirement - T2 Canteen - Cafeteria/Kitchen	T2 Phase 1	0.6	-	-	-	-
127	Cafeteria requirement -	Existing	0.4	0.4	-	-	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
	Equipment and Furniture Refresh						
128	BME Enabling Works	Existing	11.1	-	7.2	-	-
129	Landscaping equipments	T2 Phase 1	2.8	-	-	-	-
130	Vehicle for Terminal Ops	Existing	-	0.1	-	-	-
131	Buggy	Existing	0.2	-	-	-	-
132	Segway for Terminal Ops	Existing	0.1	-	0.2	-	-
133	GR lounge furniture refurbishment	Existing	-	0.3	-	-	-
134	Furnitures for stakeholders	Existing	-	-	0.1	-	0.1
135	Cars for GR movements	Existing	-	0.9	-	-	-
136	Mobile handset	Existing	0.0	-	0.0	-	0.0
137	Automation of Imm process	Existing	1.0	-	-	-	-
138	Trolley 500 for Terminal Ops	Existing	-	-	-	2.5	-
139	Furnitures for Terminal Ops	Existing	-	0.1	-	0.1	-
140	Baggage tub for operations	Existing	-	0.5	-	-	-
141	Q Manager	Existing	-	-	0.1	-	0.2
142	Chairs for stakeholders	Existing	-	0.0	-	-	0.1
143	Baby Stroller	Existing	0.0	-	-	0.0	-
144	Terminal Enhancement Projects	Existing	0.2	-	0.2	-	0.2
145	Signages mastheads & Digital display	Existing	-	0.3	-	0.4	-
146	CAPEX item for regulatory changes and additional process changes	Existing	0.4	0.5	0.5	0.6	0.6
147	QMS	T2 Phase 1	7.7	-	-	-	-
148	Trolleys -Passenger	T2 Phase 1	7.8	-	-	-	-
149	Queue managers	T2 Phase 1	1.9	-	-	-	-
150	Buggy	T2 Phase 1	0.7	-	-	-	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
151	Interactive information kiosks	T2 Phase 1	0.7	-	-	-	-
152	Repacking Stations	T2 Phase 1	0.5	-	-	-	-
153	Stand alone weighing scales	T2 Phase 1	0.0	-	-	-	-
154	Landside road speed governer	T2 Phase 1	0.2	-	-	-	-
155	Baggage Sizers	T2 Phase 1	0.1	-	-	-	-
156	PESC-LAG disposal unit	T2 Phase 1	0.1	-	-	-	-
157	Traffic barricades	T2 Phase 1	0.1	-	-	-	-
158	Queue managers transport unit	T2 Phase 1	0.1	-	-	-	-
159	Mastheads (A3 - CUTE Ops)	T2 Phase 1	0.0	-	-	0.0	-
160	Hot and cold water dispencers for staff	T2 Phase 1	0.0	-	-	-	-
161	Car for terminal operations	T2 Phase 1	-	0.2	-	-	-
162	Cars for GR movements	T2 Phase 1	-	0.9	-	-	-
163	Signage modifications etc.,	T2 Phase 1	-	0.1	-	0.1	-
164	Mobile handset	T2 Phase 1	0.0	-	0.0	-	0.0
165	Terminal enhancement projects	T2 Phase 1	-	-	0.1	0.1	2.6
166	Baby Stroller	T2 Phase 1	-	0.0	-	0.0	-
167	Moveable digital display units for dynamic ops information	T2 Phase 1	-	0.3	-	-	-
168	CAPEX item for regulatory changes and additional process changes	T2 Phase 1	-	0.5	0.5	0.6	0.6
169	Tow vehicles	Existing	-	0.1	-	0.3	-
170	Mobile handset	Existing	0.0	0.0	0.0	0.0	0.1
171	Patrolling vehicle	Existing	-	-	0.1	-	-
172	Metal Barricades	Existing	-	0.2	-	-	0.1
173	Landside Ops Office	Existing	-	-	0.2	-	-
174	Tow vehicles	T2 Phase 1	-	0.1	-	0.2	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
175	Mobile handset	T2 Phase 1	-	0.0	0.0	0.0	0.0
176	Patrolling vehicle	T2 Phase 1	-	-	0.1	-	-
177	Metal Barricades	T2 Phase 1	-	0.2	-	-	0.1
178	TMRS	T2 Phase 1	1.1	-	-	0.6	-
179	Landside Ops Office	Existing	-	-	0.1	-	-
180	Surveillance through CCTV with infra-red/night view and/or cameras/solutions to support surveillance during low visibility for all the stands at AM position	T2 Phase 1	-	2.3	-	-	-
181	AVDGS (Require for 5 stands every FY)	T2 Phase 1	3.3	3.5	3.8	3.9	4.1
182	Stand Id boards 2D & 3D	T2 Phase 1	-	0.3	0.4	0.5	-
183	FM requirement for replacement, both RWY & extended apron	Existing	0.4	-	0.5	-	0.6
184	TAXIBOT related Road network (simulation, trials)	T2 Phase 1	-	1.2	-	-	-
185	CCTV Cameras for stands, Apron etc	T2 Phase 1	-	-	0.6	-	-
186	Mobile phone	Existing	0.0	0.0	-	0.0	-
187	Chairs & furniture's for Apron monitoring unit	T2 Phase 1	-	-	2.4	-	-
188	CAPEX item for regulatory changes and additional process changes	Existing	0.3	0.3	0.4	0.4	0.4
189	AOCC system upgrade/refresh	T2 Phase 1	-	0.1	-	-	-
190	Mobile phone	Existing	-	0.0	-	0.0	-
191	Chairs/Furnitures	Existing	0.0	-	0.0	-	0.1
192	ADSB receivers and analytics	T2 Phase 1	-	0.2	-	-	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
193	Pre Departure sequence and other interface	T2 Phase 1	-	-	2.4	-	-
194	AOCC expansion (Capacity enhancement)	T2 Phase 1	-	5.8	-	-	-
195	New software for productivity	Existing	0.0	-	0.0	-	0.0
196	ROIP	Existing	0.2	-	0.3	-	0.3
197	AOCC system upgrade/refresh	T2 Phase 1	-	0.1	-	-	-
198	Mobile phone	T2 Phase 1	-	0.0	-	0.0	-
199	Chairs/Furnitures	T2 Phase 1	0.0	-	0.0	-	0.1
200	ADSB receivers and analytics	Existing	0.2	-	-	-	-
201	AOCC expansion (Capacity enhancement)	T2 Phase 1	-	5.8	-	-	-
202	New software for productivity	Existing	0.0	-	0.0	-	0.0
203	ROIP	T2 Phase 1	0.2	-	0.3	-	0.4
204	Changing Places	T2 Phase 1	-	1.2	-	-	-
205	Silent room for autistic persons	T2 Phase 1	-	0.1	-	-	-
206	PRM washroom upgradation	T2 Phase 1	-	-	0.1	-	-
207	Sleep Zone	T2 Phase 1	-	0.0	-	-	-
208	Pet Boarding & Pet care facility	Existing	-	-	-	1.2	-
209	Training facility (Room with digital interactive board)	T2 Phase 1	-	-	-	0.1	-
210	Trolley tracking	T2 Phase 1	-	-	0.0	-	-
211	Automated queue management	T2 Phase 1	-	0.0	-	-	0.0
212	Kids Play zone	Existing	-	0.0	-	-	-
213	HHMD	Existing	0.3	-	0.3	-	0.3
214	Upgradation of old BHS including server and AWS	Existing	-	-	9.6	-	-
215	Conventional X-BIS for PESC, departure	Existing	5.6	5.8	6.0	6.2	6.4

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
	gates and Airside access gates						
216	ION Scan 500DT/600 DT	Existing	2.2	2.3	2.4	2.5	2.6
217	Perimeter Intrusion Detection System (PIDS)	Existing	14.5	-	-	-	-
218	CCTV Camera	Existing	-	2.3	-	2.5	-
219	Replacement of OLD HMC printer	Existing	-	-	0.0	-	-
220	Chairs for level-2, level-3, Physical check room & PTB pass office	Existing	0.1	-	-	-	-
221	Centralised image storage for all CISF X-ray BIS	Existing	-	-	-	-	38.5
222	AEP Laminating Machine	Existing	0.0	-	-	0.0	-
223	X-Bis 100/100T low bed	Existing	-	-	0.6	-	-
224	Replacement of CISF vehicles	Existing	1.7	-	-	-	-
225	Miscellaneous requirements for CISF	Existing	1.1	1.2	1.2	1.2	1.9
226	HHMDT1	Existing	0.3	-	0.3	-	0.3
227	Whole body scanner	Existing	2.4	-	-	-	-
228	Barbed wire reinforcement at the Perimeter wall	Existing	0.7	-	0.9	-	1.2
229	Construction of Garage for placing TCV	Existing	-	0.0	-	-	-
230	PVC Cones new/replacement for parking management at Alpha parkings/Search Mirror	Existing	0.0	-	-	0.0	-
231	Portable Cabins	Existing	-	-	0.1	-	-
232	Hazard Simulation Accessories for OHS Training	Existing	-	-	0.1	-	-
233	OHS Safety Management	Existing	-	1.2	-	-	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
	System Online Application						
234	Aviator SMS application Enhancement	Existing	-	-	0.6	-	0.6
235	Addition & Upgradation of Rwy Monitoring System	Existing	-	-	-	-	1.9
236	Remotely Speed Monitoring Solution for T2 Apron & T3 Apron	Existing	-	-	-	0.9	-
237	Installation of TRAFFIC LIGHT AT APRON SERVICE ROAD	Existing	-	-	0.6	-	-
238	Habitat Management equipments 1. Ground Master 2. Brush cutter 3. Six shot launchers 4. Binoculars 5. Bird scaring equipments	Existing	-	-	1.0	-	-
239	Replacement of Four old CFTs	Existing	22.3	23.1	-	-	-
240	Emergency Escape Stairs	South Runway	-	-	12.0	-	-
241	Replacement of Equipment Truck with Light Mast	Existing	2.2	-	-	-	-
242	Hazmat Vehicle	South Runway	-	-	8.4	-	-
243	Aircraft fire training model with pressure fed fuel fire for live fire aircraft accident scenario exposure to fireman	Existing	-	-	-	-	64.2
244	Replacement of Triage equipment	Existing	-	-	-	0.6	-
245	Replacement of BA Compressor	Existing	-	-	-	1.2	-
246	Replacement of rescue & firefighting tools of old runway	Existing	-	-	0.6	-	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
247	Fire Training Academy	Existing	-	-	-	-	64.2
248	Replacement of BA Sets	Existing	-	0.3	-	-	-
249	Replacement of facemask	Existing	-	-	0.2	-	-
250	Replacement of Industrial Fire Tender	Existing	-	-	-	-	1.3
251	AODB HW- T1 & T2	Existing	-	-	-	-	0.4
252	AODB Infra - HW, SW (OS, DB, Application)	Existing	-	-	-	4.3	-
253	AODB Enhancements/ Changes	Existing	-	1.2	1.2	1.2	1.3
254	AODB Interfaces/ Enhancements	Existing	-	0.3	-	0.4	-
255	AOCC Desktops	Existing	-	-	-	-	0.6
256	CUTE/CUSS/BRS - T1	Existing	55.7	0.2	0.2	0.2	0.3
257	FIDS- T1	Existing	9.6	0.2	0.2	0.2	0.3
258	VIDEOWALLS- T1	Existing	4.5	-	-	-	-
259	FBLB Devices	Existing	0.2	-	-	-	-
260	AODB Integration	T2 Phase 1	0.6	0.6	0.6	0.6	0.6
261	CUTE/CUSS/BRS	T2 Phase 1	-	0.2	0.2	0.2	0.3
262	FIDS	T2 Phase 1	-	0.2	0.2	0.2	0.3
263	DigiYatra Systems	T2 Phase 1	4.2	4.3	4.5	4.6	4.8
264	Intranet	Existing	0.3	0.3	0.4	0.4	0.4
265	Middleware	Existing	-	3.5	-	-	-
266	Business Process Automation /DMS (E-Palm)	Existing	1.1	-	12.0	-	1.3
267	Corporate Performance Management (DICE)	Existing	2.2	-	2.4	-	-
268	SAP -Functional enhancements	Existing	2.2	2.3	2.4	2.5	2.6
269	Targeted Threat Management (Cyber Deception)	Existing	-	-	-	-	1.5

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
270	New Cyber Security Initiatives	Existing	2.2	2.3	2.4	2.5	2.6
271	Unix	T2 Phase 1	2.2	-	-	-	-
272	Windows	T2 Phase 1	-	0.6	-	0.6	-
273	Virtualisation	T2 Phase 1	0.8	0.6	0.6	0.6	0.6
274	Storage	Existing	0.4	2.3	0.5	0.5	0.5
275	Tape library	Existing	0.4	-	-	-	-
276	Datacenter-Racks,KVM Switches, etc	Existing	0.1	0.1	0.1	0.1	0.1
277	Internet Infra-Firewalls/Routers/Load Balancers	T2 Phase 1	-	2.3	-	-	-
278	Active New Network Expansion/Refurbishments	Existing	0.3	0.3	0.3	0.3	0.3
279	Active Network WIFI Expansion	Existing	6.7	0.3	0.3	0.3	0.3
280	Passive Network-OFC & Copper	Existing	0.3	0.3	0.3	0.3	0.3
281	Passive Network-OFC & Copper for SCADA	Existing	0.3	-	-	-	-
282	Active Network Refresh	T2 Phase 1	83.5	-	-	-	-
283	Active New Network Expansion/Refurbishments	T2 Phase 1	0.3	0.3	0.3	0.3	0.3
284	Active Network WIFI Expansion	T2 Phase 1	0.3	0.3	0.3	0.3	0.3
285	Passive Network-OFC & Copper	T2 Phase 1	0.3	0.3	0.3	0.3	0.3
286	Passive Network-OFC & Copper for SCADA	T2 Phase 1	0.1	0.1	0.1	0.1	0.1
287	Passive Network-OFC & Copper	T2 Phase 1	0.3	0.3	0.3	0.3	0.3
288	Passive Network-OFC & Copper for SCADA	T2 Phase 1	0.3	-	-	-	-
289	IPPABX /Telephony Backend	Existing	0.1	0.1	0.1	0.1	0.1
290	Radios- Backend+ End devices	Existing	0.1	0.1	0.1	0.1	0.1
291	Radio IBS	Existing	-	-	3.0	-	-

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
292	Test Equipment and Tools	Existing	0.2	-	0.2	-	0.2
293	Net Master Clock	Existing	0.1	-	-	-	-
294	IVRS	Existing	1.8	0.6	-	-	-
295	IPTV Infrastructure	T2 Phase 1	2.2	-	-	-	-
296	CCTV device Refresh & New	Existing	0.4	0.3	0.3	0.3	0.3
297	CCTV Backend Infra, VMS	Existing	-	2.3	-	-	-
298	CCTV Storage	Existing	0.6	0.6	0.6	0.6	0.6
299	PAS	Existing	-	-	17.9	-	-
300	ACS-New/ Refurbishment/ Replacement	Existing	0.2	0.2	0.2	0.2	0.3
301	Crash alarm	Existing	0.2	-	-	-	-
302	Desktops, Printers, Thin Clients, Projectors	Existing	0.6	0.6	0.6	0.6	0.6
303	Common Pool IT Items	Existing	0.6	0.6	0.6	0.6	0.6
304	CMDB/ Asset Management	Existing	-	11.5	-	-	-
305	IOT	Existing	2.2	2.3	2.4	2.5	5.1
306	Enterprise Asset Management	Existing	40.1	0.3	0.3	0.3	0.3
307	T2- EPC	T2 Phase 1	11.7	12.2	12.6	13.1	13.6
308	NSPR-Non EPC	T2 Phase 1	0.2	0.2	0.2	0.2	0.2
309	Airport Loyalty	Existing	1.7	0.3	0.1	0.1	0.1
310	BLR Care	Existing	2.3	0.6	0.6	0.6	0.1
311	PRM Lounge	Existing	-	1.2	1.2	1.2	0.0
312	Kids Play area	Existing	-	0.6	0.6	0.6	0.1
313	Payment gateway	Existing	0.4	1.2	0.3	0.3	0.0
314	Video analytics - Commercial areas	Existing	0.6	1.7	1.8	0.9	0.1
315	Wi-fi Infra (Land side)	Existing	-	0.6	0.6	0.6	0.0
316	On Demand Content infra	Existing	-	1.2	1.2	-	0.1
317	Land side + Parking	Existing	-	5.8	-	2.5	0.6
318	Advertising (Media relocation)	Existing	5.6	5.8	6.0	3.1	1.6
319	Urban Consolidation Center	Existing	-	-	9.0	-	0.1

S no	Item description (Amount in INR cr.)	Phase	2022	2023	2024	2025	2026
320	Terminal capacity/efficiency enhancement (Utility/Tap up points)	Existing	-	8.1	8.4	3.7	-
321	Gas Pipe line	Existing	-	6.9	6.0	-	-
322	FSTR by BLR	Existing	2.2	1.2	0.6	0.6	0.1
323	Digital experience centre	Existing	-	1.2	0.3	0.3	0.0
324	Others (Misc.)	Existing	1.7	1.9	2.5	2.8	3.2
	GRAND TOTAL		413.9	230.1	282.3	126.4	290.2

2. Sustaining capex proposed by BIAL in FY22 which is carried forward from FY21

Table 150: Sustaining capex proposed by BIAL in FY22 which is carried forward from FY21

S no	Particulars (in INR cr.)	Proposed capitalization in FY21	Proposed capitalization in FY22	Amount
A	Sustaining capex/Minor project items	60.00	84.26	144.26
B	Sustaining capex / Minor Projects	20.00	81.07	101.07
C	Carry forward of sustaining capex of FY 2019-20	20.00	74.22	94.22
	Total (A+B+C)	100.00	239.56	339.56

Table 151: Detailed category-wise break-up of the sustaining capex as proposed by BIAL

S no	Item description	Amount (in INR cr.)
	A. Sustaining capex/Minor project items	
1	220 KV Substation	25.42
2	Airport Master Plan Studies pertaining to Utilities, Drainage, Landscaping and other landside projects	21.60
3	Master Plan updation - 2018-19	9.86
4	Digital contractual charges towards Project management	8.14
5	Capex towards Digital Transformation support as per Accenture contract	5.62
6	Capex towards Digital Master Plan Charges	5.01
7	Tech refresh and replacement of Existing cameras	3.21
8	Retail Plaza	3.05
9	SITC OF ENHANCEMENT IN BPH POTABLE WATER	3.03
10	ITC of CCR 25/30 KVA	2.89
11	Data Platform Phase 1	2.70
12	Capex towards SITC of Boentra software for airport capacity planning	2.27
13	AGL PRIMARY CABLE 1CX6 SQ.MM	2.18
14	Chiller Plant Optimiser in T1A	2.02
15	Cargo Village Structure & Road Work	1.71
16	Engagement Center Tool/Software	1.65
17	P5 Parking	1.59
18	VDGS SAFEDOCK TYPE 2-24	1.45
19	Temporary office construction	1.41

S no	Item description	Amount (in INR cr.)
20	Implementation Cost for 1500 License	1.31
21	South West Connectivity	1.17
22	Kerf cutting and sec cable laying	1.05
23	MAR Resurfacing & road furniture work	1.03
24	Installation and Commissioning (FIDS, Display systems, Street lights, Air curtain and various other installations)	0.93
25	Consultancy services for safety assessme	0.89
26	Isolating transfmr 200W-50Hz RST 200-6-6-5E	0.77
27	Installation, Testing & Commissioning (CCTVs, Break glass unit, Strobe cum hooter, Egress switch bell push)	0.75
28	Traffic Projection for 22 yrs	0.65
29	MTP 3150 PORTABLE RADIO	0.64
30	Installation & Commissioning (Mobile self service kiosks, MOTOROLA VHF HANDHELD XirP8668, MOTOROLA VHF DESKTOP W/PS XirM3668, MOTOROLA VHF REPEATER, etc	0.61
31	Construction of Pipe Culvert	0.60
32	TRIAGE AND RESCUE EQUIPMENTS ARFF	0.59
33	8" SHALLOW BASE - AGL FITTINGS	0.57
34	Professional Services towards Installation of Extreme Network switches	0.56
35	Migration from IBM BPM 7.5 to 8.6	0.55
36	QUAD-Store Sense Cost for 21 devices	0.49
37	MACH SMART LANE POC	0.47
38	ATRS Digi Yatra Electrical work	0.46
39	RE demand revalidation & strategy study	0.45
40	TCS - ICT requirements	0.44
41	BOSCH CAMERA LICENSES FOR VMS	0.44
42	ARCSIGHT DATA PLATFORM 5GB DAY ADD ON	0.42
43	Levelling using Back-hoe and roller	0.39
44	Design, Engineering consultancy: Alpha 4	0.38
45	CAPA Consultancy services for traffic estimates	0.38
46	ISOLATING TRANSFORMER 65 W	0.38
47	S-wave (essentials)	0.38
48	GPRS Equipment	0.37
49	Upgrading of V&E workshop	0.36
50	COLD SEALANT 600ML PACK	0.35
51	Consultancy Services for DYCIMP	0.35
52	Arrival Experience	0.33
53	Consultancy Services (KITCO) for Preparation of Detailed Design for Construction of taxiway, taxi lane connecting to Engine Run-up bay	0.32
54	SharePoint Tech Refresh	0.31
55	Installation, Commissioning & Testing of CCTVs	0.29
56	Aeronautical survey for NSPR	0.29
57	T1 Network refresh - One time Implementation Charges	0.29
58	DESIGN & BUILT - EXPN. OF INNOVATION LAB	0.27
59	Construction of ARFF Hose Drying Room	0.26
60	Concert Arena_Temp & Permanent phase 2	0.25

S no	Item description	Amount (in INR cr.)
61	48 Core OS2 Fiber Optic cable	0.25
62	UPGRADE ADVANTAGE AURA R7 CS 3YR PREPD	0.25
63	Bullet proof ballistic shield	0.24
64	BlueDart bldg ACP Sheet Works as per BOQ	0.24
65	INTERIOR WORK AT BLUEDART	0.24
66	CMC Reused & new sply eqpt w accs 3 Yrs	0.23
67	PUSH PIT CPLER FOR 63MM DIA PIPE	0.22
68	DESIGN & INSTL. OF FAS - BLUEDART BLDG	0.20
69	Consultancy Service: MSWM - Consultancy services for establishing in-house solid waste Management	0.20
70	Sustainable water solutions	0.20
71	Installation Charges for single split Ca	0.20
72	Transit Lounge	0.19
73	6AWG COPPER WIRE	0.19
74	3 & 4 * hotel Fin Analysis & RFP assist	0.19
75	Registration Charges for vehicles	0.19
76	BS Face plate 2 Port, white	0.19
77	Provide parking bays	0.19
78	Glass Partition at PESC (3mt height)	0.19
79	Additional Work at Cargo Village	0.18
80	Innovation Lab Redesign	0.18
81	Insurance DMax S-Cab HR	0.18
82	ILBS server room modification	0.17
83	Renewal of AEC Revit licenses	0.17
84	Data Centre Feasibility Study	0.17
85	Installation & Commissioning - Display units, FIDS, PIM module (SBB-PD32BV2 media Player)	0.16
86	IOT - POC for Smart Energy	0.16
87	Noise and Vibration study	0.16
88	Modification at Parking P5 in KIAB	0.15
89	PULL PIT FOR 5 CIRCUITS	0.15
90	Simulation Model for T1	0.15
91	Various small items	11.89
	Sub-total (A)	144.26
	B. Sustaining capex / Minor Projects - Open PR/PO	
1	T1 Refresh - Project CISCO	22.31
2	Construction of a taxiway and engine run-up bay	17.04
3	Boarding Gate area renovation	6.09
4	New AODB	3.27
5	Accenture Contract / Digital initiatives	3.05
6	Backend Infra-Radio Communication devices	2.51
7	Replacement of old Desktops	2.26
8	SITC of Redundancy Potable water network	2.24
9	Runway Sweeper machine	1.43

S no	Item description	Amount (in INR cr.)
10	Vehicles - Mobile QRT Bullet proof vehicles	1.04
11	Video analysis and artificial intelligen	0.96
12	3rd GSE Building site development	0.94
13	100x100T with dual view XBIS	0.90
14	MLAT and related works	0.89
15	ITP- building refurbishment	0.85
16	Explosive Trace Detector ETD	0.83
17	Tool Vans	1.30
18	Trolley Tracking System (RFID)	0.76
19	Skylift-1 no	0.76
20	End User Devices-Enterprise - CCTV Units	0.72
21	Replacement OOG machine with dual view	0.71
22	SAR slope beautification	0.66
23	Relocation & New media due to main acces	0.64
24	CISF Furnishing and Allied Infra for Bac	0.63
25	Enterprise Architecture & API management	0.61
26	CCTV Storage for Surveillance Footage	0.56
27	Flight Information Display Systems & Con	0.55
28	CISF requirements Miscellenous	0.54
29	End User Devices-IP Phones Tech Refres	0.52
30	E-Learning Customization	0.50
31	Independent Fire Proximity Suit	0.50
32	Enhanced IT Security Operation Center	0.49
33	Roof Light Replacement - Phase 4	0.48
34	Replacement of Two 'Follow Me' Vehicles	0.48
35	High Capacity X-Ray machine	0.47
36	E&M Vehicles commonality	0.46
37	End User Devices-CCTV Units	0.44
38	Backend Infra to Support Addl 2000 cameras	0.44
39	Modification of Exisiting Safety office	0.43
40	Registration Kiosk Canopy	0.40
41	Heavy Duty Hard Surface Cleaner for Oil	0.39
42	Arrival Gates 1112 & 13 Auto Sliding do	0.39
43	E-POS for Landside & Quad	0.35
44	ORACLE Active Data Guard	0.34
45	Bullet proof jacket and accessories	0.33
46	Individual face mask for NSPR	0.31
47	Fence around GSE parking areas	0.29
48	Breathing Apparatus Set qty 20 for NSP	0.28
49	Expansion of the Restroom Facilities at Airside	0.28
50	CAPEX item for regulatory changes	0.27
51	Column Light replacement - Phase 2	0.26
52	Additional works for BRAVO 1 second Floor	0.26
53	Vehicle for DSA Duties	0.25
54	Inspection Vehicles-1no	0.24

S no	Item description	Amount (in INR cr.)
55	AEOC Redesign Expansion Upgrade & Tech	0.22
56	Energy Conservation projects	0.20
57	Water supply to SWM facility	0.20
58	Replacement of existing FO cables & join	0.20
59	Electrical Equipments & Testers NSPR	0.20
60	Passive Network - Fiber/Coper Cabling	0.20
61	Startup engagement towards IOT - POC for Smart Energy	0.19
62	Pop up Retail Plaza Relocation works	0.19
63	Additional works for Queue measurement system	0.18
64	Lift and carry mobile Crane with 15 ton	0.18
65	Maintenance & work shop tool requirement	0.17
66	Gym equipment for ARFF personnel at NSPR	0.16
67	SITC of QRS system for LV panels	0.16
68	SITC of CCR 7.5 KVA	0.16
69	Various small items	13.57
	Sub-total (B)	101.07
	C. C/F Sustaining capex of FY 2019-20	
1	Taxiway and other works associated with Engine Run-up Bay	8.61
2	Runway Sweeper -2nos.	6.93
3	Wayfinding Consultancy for BIAL	6.50
4	Explosive Trace Detectors (ETD) - 05 no's	3.04
5	Connectivity to sub-urban railway station	3.00
6	New airport parking design (Consultancy for Parking new airport layout) New airport parking design (Re-design and building of parking attendant cabins for different parkings)	2.50
7	COVID 19 related capex requirements	2.00
8	Compliance Mobile airfield light measuring system Guidance signage boards photometric measurement unit Approach lights/PAPI/elevated AGL system photometric measurement units	2.00
9	Building of toilet blocks, dining area & utilities	1.92
10	SITC of additional CAAQMS station for Second runway	1.92
11	Enhanced Digital Platform	1.91
12	Intergrated canopy at Catering gate and Airside gate adjacent to Airport clinic with complete set of security check equipments - 3 DFMDs @ 35 Lacs each; Rs.30 Lacs for Xray machine; Rs.20 L for allied infrastructure; Building & Canopy Rs.70 Lacs; Under vehicle scanner Rs.63 Lacs; High platform for secy. check Rs.10 Lacs; ETD - Rs.25 Lacs)	1.85
13	ATR (Automatic Tag Reader) for T1 BHS departure lines A,B&C	1.80
14	Technology Refreshment/Up gradation - CISF Video wall	1.60
15	Self powered high rise access equipment 35m high -1 no.	1.50
16	Replacement of Ambulances	1.30
17	Airport Digital Twin and visual way finding solution	1.28
18	Procurement of Hydraulic Bollards for 03 gates	1.25

S no	Item description	Amount (in INR cr.)
19	T1 Re-imagination	2.16
20	Increase the size of the Lounge lift LBM 10, Consultancy for feasibility study	1.12
21	Road Lazer & Line lazer - Painting Equipment -1 no.	1.00
22	Endpoint Detection and Response (EDR) Solution	1.00
23	Replacement of old FIDS in Check-in Counters & Boarding gates and replacement of old Kerb side Cluster FIDS Videowall	1.00
24	CCTV VMS Channel Licenses to Support for additional	0.87
25	Construction of Airside Toilets/Restrooms	0.82
26	IOT platform initiatives 4 use cases (Energy, Water, HVAC, weather)	0.80
27	SITC of Redundancy Potable water network from BPH to MPH	0.76
28	Automated queue management system	0.75
29	Biometric Access Control System - Phase-3	0.75
30	Maintenance & work shop tool requirements AGL inset fitting maintenance tool kit Digital torque wrench AGL shallow base/ Bolt repair kit IN pavement pressure test assembly 6.6 A power supply 200 VA CCR Secondary connector crimping tool Torque management system - MALMS AGL MALMS cleaner Primary connector crimping tool Frangible coupling wrench Mobile vehicle mounted lux meter- storage and mapping.	0.74
31	Self Connection Platform transfer passenger traffic	0.70
32	Workshop Equipments for AMB Building	0.69
33	Under Vehicle Scanners and associated works for the installation at four airside entry gates	0.68
34	Replacement of OOG X-ray machine with a dual view image X-ray model (180180-2IS)	0.65
35	Independent Fire Proximity Suit	0.62
36	Consultancy and related costs for obtaining Business blue print report for setting up the BIAL Aviation Academy	0.60
37	Setup HA (High Availability) and migrate to latest support versions for enterprise MS SQL databases	0.60
38	Replacement of old FIDS in Check-in Counters & Boarding gates and replacement of old Kerb side Cluster FIDS Videowall	0.60
39	outdoor seating in QUAD	0.58
40	Refurbishment of PRM washrooms	0.57
41	Replacement of existing Precession Air Conditioner (PAC) at G-04 (Server room) and B-110 (Mobile Equipment room)	0.54
42	Urban Consolidation center Consultancy and Study	0.50
43	Quad Refurbishment	0.50
44	E&M Vehicles (commonality)	0.49
45	Additional works for Remote car Parking	0.47
46	Airside GSE Workshop area	0.46

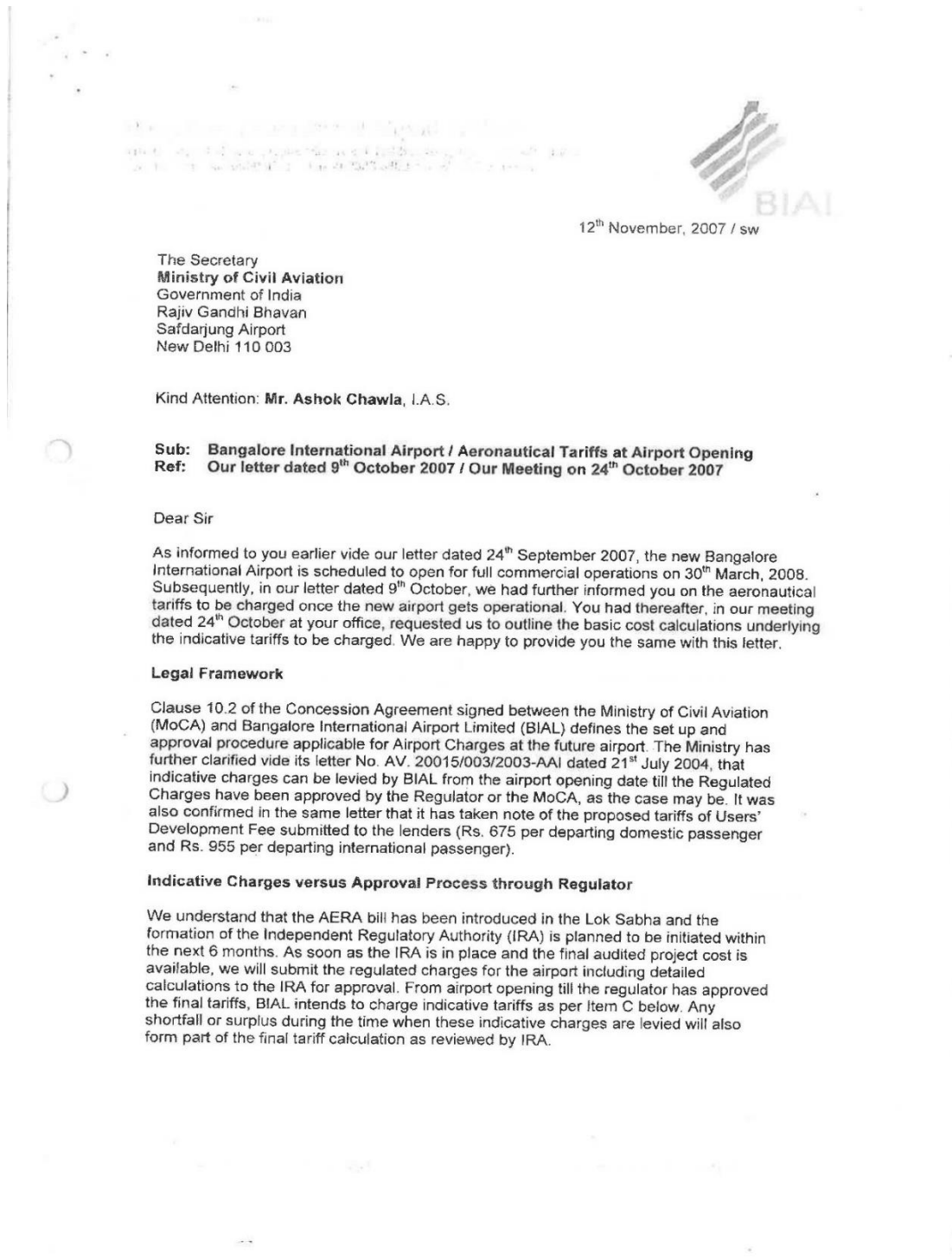
S no	Item description	Amount (in INR cr.)
47	Design, development, supply and installation of flowering bio wall mock up at Terminal 1 and its evaluation - Mock up-1	0.45
48	Redundancy Server for Parking & Upgradation of Server	0.45
49	Purchase of SAP ERP Licenses	0.45
50	Integrated Traffic Lights on all service road	0.45
51	Techno-refresh of Automated Emergency Alert System	0.45
52	WIFI or Bluetooth enabled mobile display system 15 no's (portable display systems)	0.44
53	EV Fast Charging Points for Passenger Parking	0.40
54	INDAS / IFRS Reporting Tool Consolidation Tool	0.40
55	Data centre Protection - Server Security	0.40
56	Privilege Identity / Access Management	0.40
57	HSA (Heimann Single Analyst) along with associated works	0.40
58	Installation of Remote Speed Gun Additional cameras	0.40
59	Digital Signages Directory At Airport Taxi Boarding	0.38
60	Electrical 15 KV Megger, Insulation tester - 1 KV, Digital Multimeter, AC clamp meter, Thermal scanner, Crimping tool- up to 400 SQ.mm, Hand held Lux meter- storage & mapping, Four terminal Earth Resistance & Soil Resistivity Tester, Earth resistance clamp tester, Battery Impedance Test Equipment, Cable Fault Locating equipment, Hand held power quality analyzer, Potable Generator, Covered container with racks, De-watering pump	0.36
61	Sub-urban railway station	0.36
62	Boom Barriers for Parking Entry and Exit	0.35
63	Bobcat compact loader with attachments	0.35
64	Replacement of 04 BDDS equipment	0.34
65	New images and upgradation of existing CBT (Computer Based Training)	0.33
66	Laying of Paver Block at Quad Area Tensile Roof Ca	0.32
67	Digital Store way finders @ Domestic/Int SHA & Kerb side	0.32
68	LED Screens at all Boarding Points and Terminal (Arrival Hall)	0.32
69	Refurbishment of support infrastructure at STP	0.30
70	LCV truck with 3.5 ton carrying capacity-2no.	0.30
71	Landscape Irrigation Systems and Main Hydrant line for the Open area, proposed for keeping the transplanted trees and shrubs.	0.29
72	Space Designer - Commercial Development T2	0.25
73	BLR Airport App Development & Maintenance	0.25
74	Provide power source and water supply to Isolation Hospital/ DRS Facility for AAI	0.25
75	Procurement of 9 KL & 6 KL Tankers, for Potable & Raw water supply	0.25
76	Water quality analysers at BPH for Potable & Raw water System	0.25
77	Biometric Access Control System - Phase-3	0.24
78	Smart Washroom - Providing real time data of washroom utilization to passengers outside washroom	0.24
79	3rd GSE Building site 1. ICT Implementation 19.2 lacs 2. Demolition+Shifting of Airside Wall 35.1 lac	0.24

S no	Item description	Amount (in INR cr.)
	3. HT Power 32.4lacs 4. Water - Raw+Potable 55000 5. Sewage	
80	BIRD WATCH TOWER FOR SOUTH RUNWAY	0.23
81	Additional fund for signage standees	0.23
82	Devices for Performance Marketing	0.23
83	Power BI Premium Plan 1	0.21
84	ICT requirements - Hardware & other ICT requirements ICT requirements - Software requirements	0.20
85	Purchase of CPMI and TMRS RF measuring tool	0.20
86	Engaging 3rd party testing agency for the e-Palm	0.20
87	Enhanced Digital Platform	0.20
88	Additional kennel at existing dog kennel complex	0.20
89	Office space for outsourced Security	0.20
90	Ladies Change over room at Fire Station North	0.20
91	Fence around GSE parking areas	0.19
92	Additional amount for procuring 02 X-Ray machines	0.19
93	CCTV Surveillance Storage for various CCTV project	0.19
94	Covered truck - 1 no.	0.19
95	FSS integration to centralized location	0.18
96	Explosive Trace Detectors (ETD)	0.17
97	Collection well refurbishment - MS grating, hand rail and ladders	0.17
98	Technology Refresh of RoIP Touch Panel PC Monitor	0.16
99	Crusher cum compactor for SRA articles	0.15
100	Enhanced Digital Platform	0.15
101	10 Automated External Defibrillators for the Terminal and Ancillary Buildings	0.15
102	Tow vehicle	0.15
103	Various small items	6.60
	Sub-total (C)	94.22

17 APPENDICES

Appendix I – References for pre-control period computation

I.A. BIAL's letter to MoCA for UDF at INR 675 and INR 955 for domestic and international passengers





Justification of Proposed Tariffs

A. Passenger and Cargo Traffic Growth Forecast

The existing HAL Airport reported 8.12 million passengers in the Financial Year 2006/07. We assume a strong growth in the next five years, though developments in other countries have shown that strong growth periods were always followed by stagnant years as well. Nevertheless, we have assumed to reach 10.5 Mio. passengers by the end of the Financial Year 2007/08, and strong growth figures over the first 5 years of operation as follows:

	Year-1	Year-2	Year-3	Year-4	Year-5
	2008-09	2009-10	2010-11	2011-12	2012-13
Domestic (Mio.)	10.9	12.7	14.2	15.6	17.2
International (Mio.)	2.3	2.9	3.3	3.8	4.2
Total	13.3	15.6	17.5	19.5	21.4

The growth in cargo is assumed as follows:

	Year-1	Year-2	Year-3	Year-4	Year-5
	2008-09	2009-10	2010-11	2011-12	2012-13
Cargo ('000 MT)	236.3	314.4	381.2	450.3	508.4

B. Project Cost and Capital Expenditure

The following table shows the total project cost of BIAL for the first phase, including the immediate project extensions in the amount of 540 Crores as approved by the board and shareholders of BIAL:

Total Project Costs till Airport Opening	INR Mio
Capital Investments	22'219
Non-capitalized pre-operational costs	937
Financing costs	1'547
Total Project costs	24'703

It may be noted that the project cost at the time of definition of the UDF in 2004 stood only at 1'100 Crores and has since considerably increased.

The capital investments have to be split between aviation and non-aviation segments. The bifurcation is based on (a) assets directly attributable to aviation and non-aviation segments and (b) common assets for which allocation has been made based on estimated proportionate usage.

It has to be noted that according to the BIAL business philosophy, non-aviation investments are done wherever possible through selected service providers, and therefore the above mentioned project cost of Rs. 22'219 Mio. does not include investments for cargo warehouses, fuel infrastructure incl. hydrant system, retail units and restaurants, lounges, flight kitchens, airport hotel, etc. The following table shows the split between aviation and non-aviation investments:



Aviation versus Non-Aviation Investments	INR Mio	% to total
Aviation	17'396	78.3%
Non-Aviation	4'823	21.7%
Total Capital Investments	22'219	

Depreciation has been computed on straight line method according to Indian GAAP based on the following average depreciation rates:

Civil:	5%
Electrical:	10%
Equipments & Vehicles:	20%

For the purposes of return on capital employed (ROCE), a reasonable rate of return of 16% has been adopted on the net aviation capital invested. To arrive at the net capital investment of each year, the original capital expenditure has been reduced by applicable depreciation. Additional investments to provide the capacity required as per the traffic forecast have been anticipated and considered over the next 5 years and result in the following net capital investments over the next 5 years:

In INR Mio.	Year-1 2008-09	Year-2 2009-10	Year-3 2010-11	Year-4 2011-12	Year-5 2012-13
Capital Investments					
Opening Block	22'219	25'325	25'190	25'029	23'662
+ : Additional Investments	5'216	2'345	2'488	1'436	335
- : Depreciation	-2'109	-2'480	-2'649	-2'802	-2'842
Net Capital employed	25'325	25'190	25'029	23'662	21'155
Aviation related capital investments (78%)	19'828	19'722	19'596	18'526	16'563
Reasonable Return on Aviation Capital Employed @ 16%	3'173	3'156	3'135	2'964	2'650

Please also note that as per above projections, BIAL assumes to make considerable further investments of above 1000 Crores for capacity increases in the next few years in addition to the project extensions already approved.

C. Profit & Loss Statement for Aviation Segment / Justification for User Development Fee (UDF)

BIAL is entitled to adjust the existing AAI tariffs by inflation since 2001, which would result in an adjustment by 1st of April 2008 of approximately 38%. We however respect your request to leave the current aeronautical tariffs (Landing, Parking and Housing as well as PSF tariffs) from the airport opening till final regulatory charges have been fixed at the same rates as charged by AAI today. From year 2 onwards, the following adjustments have been considered in the following table:



PSF and Parking Charges: Adjustment by applicable inflation index on 1st of April 2009 and fees remain then constant till end of 2012/13

Landing Charges: Increase by 20% (domestic flights) and 30% (international flights) on 1st of April 2009 and fees then remain constant till end of 2012/13.

The profit and loss statement by the company without UDF for the aviation segment looks as follows:

Aviation - Revenues & Costs (without UDF)	2008-09	2009-10	2010-11	2011-12	2012-13
PSF	464	795	895	993	1'093
Landing	862	1'244	1'398	1'520	1'720
Parking	19	32	35	39	42
Total Aviation Revenue without UDF (A)	1'345	2'071	2'329	2'552	2'854
Operating costs					
Personnel costs	464	539	522	737	870
Maintenance, Energy & Insurance	1'044	1'121	1'348	1'395	1'492
Sales & General Administration incl. Concession Fee	1'159	1'349	1'475	1'625	1'799
Total operating costs	2'667	3'009	3'345	3'756	4'161
Depreciation	1'651	1'942	2'074	2'194	2'225
Total costs	4'318	4'950	5'419	5'950	6'386
Reasonable ROCE (16%)	3'173	3'156	3'135	2'964	2'650
Total costs including reasonable return (B)	7'490	8'106	8'555	8'914	9'036
Net Deficit to be recovered through UDF (B-A)	(6'145)	(6'035)	(6'226)	(6'362)	(6'182)

It can be seen that the projected revenues from present aeronautical charges without UDF are grossly inadequate to recover the costs for providing airport infrastructure and facilities to passengers at the new airport at international standards. The introduction of the User Development Fee from airport opening onwards as defined in the Concession Agreement is crucial for the financial feasibility of the project. It may also be noted that the Union Budget of 2004/2005 by the Finance Ministry specifically approved charging of UDF by BIAL.

We propose to levy a UDF tariff of Rs. 675 per departing domestic passenger and Rs. 955 per departing international passenger from airport opening, with discounts for transfer passengers which use the infrastructure only to a limited extent. The following table shows the resulting UDF revenues over the first 5 years of operation:

	User Development Fee (INR per departing pax)	Revenue (INR Mio.)				
		Year-1 2008-09	Year-2 2009-10	Year-3 2010-11	Year-4 2011-12	Year-5 2012-13
Domestic	675.0	3'340	3'826	4'236	4'571	5'028
Domestic Transfer	150.0	78	101	125	157	173
International	955.0	1'074	1'329	1'528	1'757	1'933
International Transfer	200.0	7	12	13	15	17
Total UDF Revenues		4'499	5'268	5'902	6'500	7'150



It is seen that there is a cumulative net deficit in the aviation segment even after considering planned UDF tariffs, though we anticipate the cumulative deficit to narrow down over a longer time frame and there is room for reducing the UDF after the first five years of operation if the traffic growth is as dynamic as it has been assumed.

While it is true that the current traffic levels at Bangalore are substantially higher than initially anticipated, investment in infrastructure as well the provided capacity of the airport have also been substantially increased by a total additional investment of Rs.1070 crores. In spite of these substantial additional investments (increasing for example the number of aircraft stands from initially 13 to 72), the proposed UDF is still within the limits as agreed with the MoCA when executing the Concession Agreement, and BIAL does not request any increase of the UDF, as it usually happens in the international context when capacity is increased.

D. Non-Aviation Revenues

Non-aviation income comprises of revenues from commercial activities (advertising, retail, food & beverages, parking, etc.) and real estate leases and rentals. Table 3 below gives an overview of planned non-aviation revenues and expenses.

	Year-1 2008-09	Year-2 2009-10	Year-3 2010-11	Year-4 2011-12	Year-5 2012-13
Non Aviation Revenue & Costs					
Total Non Aviation Revenue	1'173	1'721	2'094	2'419	2'987
Operating costs					
Personnel costs	95	110	107	150	178
Maintenance, Energy & Insurance	244	263	332	341	365
Sales & General Administration	180	222	251	285	330
Total operating costs	518	595	690	776	873
EBITDA	655	1'126	1'404	1'643	2'095
EBITDA%	56%	65%	67%	68%	71%

As can be seen, the non-aviation revenues will constantly grow over the time period, but cannot compensate any net deficit of the aviation segment in the short term, nor does the Concession Agreement between BIAL and MoCA foresee any such cross-subsidy of the aviation segment through non-aviation revenues. Nevertheless, with the shortfalls outlined above, the non-aviation revenue will very much compensate the net deficit of the aviation segment in the following years.

It has to be noted that BIAL has so far concentrated on providing aeronautical infrastructure and for this reason the non-aviation revenues will be rather small for the first few years. With the increasing non-aviation revenues, the UDF is also likely to be reduced after the first 5 years.

E. Conclusion

With above information, we have given you full transparency on the main cost and revenue elements of BIAL.



We respect your concern that airport charges should be levied in a sensitive way by the new public private partnerships and therefore agree to

- keep landing, parking and PSF charges at the existing levels in the first year of operation;
- increase them thereafter less than required to compensate inflation;
- levy UDF charges less than necessary to cover all aviation related costs with aviation revenues;
- use non-aviation revenues to compensate in the short term deficits of the aviation segment.

We kindly ask you for your understanding that new greenfield airports at international standards can only be funded with reasonable passenger charges. The proposed User Development Fees are still low in the international context. Future expansion of the airport infrastructure can only happen if the business plan of BIAL is based on solid grounds. Also, we kindly ask you to appreciate that BIAL will use more than 90% of its land for pure aviation infrastructure and less than 10% of its land for commercial real estate. We believe that our main focus must be the development of a professional aviation platform, and the same is only possible with reasonable aeronautical tariffs.

We therefore intend to levy the indicative User Development Fee (as agreed between the parties in the above referred correspondence underlying the concession agreement) at Rs. 675 per departing domestic passenger and Rs. 955 per departing international passenger from airport opening till final approval of the tariffs by the IRA.

We hereby request you to acknowledge receipt of this letter in token of having noted the contents herein.

Thanking you,

Yours truly
for BANGALORE INTERNATIONAL AIRPORT LIMITED

A handwritten signature in dark ink, appearing to read 'Albert Brunner', is positioned above the printed name and title.

Albert Brunner
Chief Executive Officer

Cc:

- Mr. K.N. Shrivastava, Joint Secretary, Ministry of Civil Aviation
- Ms. Anna Roy, Executive Director, Ministry of Civil Aviation

I.B. MoCA's grant of ad-hoc UDF of INR 1070 and INR 260 for International and domestic passengers and details of information awaited from BIAL

F. No. AV.20015/ 003/2003-AAI
Government of India
Ministry of Civil Aviation
AD Section

B'Block, Rajiv Gandhi Bhavan,
Safdarjung Airport, New Delhi
Dated 03.04.2008.

To,
Mr. Albert Bruner,
Chief Executive Officer,
Bangalore International Airport Limited,
118, Gayathri Lakefront, Outer Ring Road,
Hebbal, Bangalore-560024

Sub: User Development Fee at the Bangalore International Airport.

Sir,

I am directed to refer to your letter dated March 28, 2008 regarding the levy of User Development Fee (UDF) from the date of airport opening at Bangalore International Airport.

2. Your proposal to levy a UDF @ Rs.1070/-, inclusive of all taxes on international departing passengers w. e. f. the airport opening date on an 'ad-hoc' basis has been approved. As regards the other regulated charges, viz. Landing and Parking Fee and Passenger Service Fee, it should be at the existing rates to all aircrafts and all passengers as applicable at other airports.

3. Once the final audited accounts have been submitted by Bangalore International Airport Limited (BIAL) to the Govt. of India, a final decision will be taken on fixation of UDF charges both for domestic and international departing passengers. The ad-hoc UDF would remain in force till the earlier of the following:

- (a) final audited figures submitted by BIAL,
- (b) guidelines for determination of UDF finalized by Ministry of Civil Aviation (MoCA), or
- (c) 3 months from airport opening date.

4. The tariff would be finalized thereafter as per the guidelines of MoCA and the Concession Agreement.

Received by	On	10/4/08
To	A. B. S. / H. A.	
cc	S. V. / H. A.	
For action	<input checked="" type="checkbox"/>	
For discussion	<input type="checkbox"/>	
For feedback	<input type="checkbox"/>	
For Info	<input type="checkbox"/>	
For Record	<input type="checkbox"/>	

Yours faithfully,


(Vijay Singh)
Under Secretary to the Government of India
Tele-24640217

F. No. AV.20036/007/2008-AD
Government of India
Ministry of Civil Aviation

Rajiv Gandhi Bhawan,
New Delhi-110003.

To

Dated: 9th January, 2009

Mr. Albert Brunner,
Chief Operating Officer,
Bangalore International Airport Ltd.
Outer Ring Road, Hebbal,
Bangalore 560024

Subject: Levy of User Development Fee – reg.

Sir,

I am directed to refer to your reference BIAL/LGL/arr/236 dated 18.11.2008 on the subject noted above and to say that in terms of the Article 10.2.1 of the Concession Agreement, the regulated charges should be consistent with the ICAO policies. Further, as per the Article 10.2.2, prior to airport opening BIAL shall seek approval from this Ministry for the regulated charges, which shall be based on the final audited project cost. This Ministry shall *subject to the proposed regulated charges being in compliance with the principles set out in Article 10.2.1*, grant its approval thereto within a period of 60 days of the date of the application being submitted by BIAL. Therefore, a plain reading of the both the Articles, viz., Article 10.2.1 and Article 10.2.2 brings out the two main compliance parameters for grant of approval for levy of UDF viz.,

- (i) the airport charges are to be based on final audited project cost;
- (ii) the levy of airport charges should be consistent with and in compliance of ICAO policies.

The ICAO policies on charges for airport and air navigation services are set out in Doc 9082. A plain reading of Doc 9082 makes it evident that UDF computation should allow pass through of "reasonable cost" and should ensure "safeguarding the interest of the airport users". It is, therefore, imperative for this Ministry to ensure that before any approval for collecting UDF is granted to BIAL a proper diligence of information is undertaken to determine that the proposed charges are consistent with and in compliance of the ICAO policies. Further, it needs to be observed that Article 10.2.2 clearly makes the grant of approval, within a period of 60 days, subject to the proposed charges being in compliance with the principles set out in Article 10.2.1, i.e., the ICAO policies.

2. Based on the above understanding this Ministry had sought clarifications/information/documents for conducting diligence. The table below provides the list of information required and the status of submission thereof from your end.

S. No.	Documents Required	BIAL
1	Final audited project cost certificate	Available
2	Quarterly Audited Financial Statements (In the absence of audited, provisional may be submitted)	Awaited
3	Certified Statement of classification of assets in Aeronautical, Non Aeronautical and common assets	Awaited
4	Approved Business Plan	Awaited

5	Certification from Statutory Auditors that Transparent competitive bidding process has been carried out	Awaited (Minutes of Board meeting have been provided as of now)
6	Certificate of independent engineer certifying commissioning of assets	Available
7	Concession agreement	Available
8	Declaration by the airports company as to the grants received	Available
9	Loan Sanction Letters	Available
10	Interest reset letters if reset already done	Awaited
11	Details of working capital arrangement	Awaited
12	Certificate from the statutory auditors providing details of pre-bid expenses incurred	Available
13	Certification by the company providing details of government grants received	Available
14	Copies of agreements between the airport company and its service providers	Awaited
15	Detailed computation (along with assumptions) of the revenue projection (split in to aeronautical and non -aeronautical) for the projected period	Awaited

3. As you would observe, it is the delay in furnishing of requisite information by BIAL which has prevented the Government of India from making a determination that the charges proposed by BIAL are consistent with and in compliance of the ICAO policies and thereby taking a view in the matter. As such, there has been no default on the part of the Government of India.

4. In view of the position stated above, I am directed to request you to provide the complete information, at the earliest, so as to enable the Government to conclude the diligence process and take a final view in respect of the proposals submitted by BIAL. The Ministry of Civil Aviation looks forward to cooperation and compliance on part of BIAL so that the project and the larger interests of the user public do not suffer.

5. In the meantime, BIAL is permitted to levy a UDF @ Rs. 260/- per departing domestic passenger, with effect from 16.01.2009, on an 'ad-hoc' basis. This levy shall be inclusive of all applicable taxes. Further, BIAL may please finalize their expansion plan within a period of three months.

6. This issues with the approval of Minister of State for Civil Aviation (Independent Charge).

Yours faithfully,

(Sandeep Prakash)
Director
Tel No.24616025

I.C. BIAL's letter to MoCA asking for revision in domestic UDF to INR 375

Bangalore International Airport Limited

118 Gayathri Lakefront
Outer Ring Road, Hebbal
Bangalore 560 024 India

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January 23, 2009

Mr. M. Madhavan Nambiar
Secretary to the Government of India
Ministry of Civil Aviation
Rajiv Gandhi Bhawan
Safdarjung Airport
New Delhi 110 003

Sub: Ad-hoc Domestic UDF for BIAL

Dear Sir,

We make reference to your letter dated 9th January, 2009 in which you approved an ad-hoc Domestic UDF of Rs. 260/- per departing passenger. As per the aforementioned letter, we have started collecting this fee effective 16th January, 2009 and the whole procedure is going on well without any inconvenience to the passengers.

We take note that the Ministry has, for the time being approved an ad-hoc domestic UDF. However, even for an ad-hoc UDF, we had expected a significantly higher amount. This expectation can be explained by three facts:

1. BIAL has to resume immediately the process for the next expansion. An ad-hoc UDF of Rs. 260/- does not allow any expenditures of this kind.
2. The present traffic volume is much lower than anticipated (6.2 mio instead of 8.3 mio domestic passengers from Airport Opening Date (AOD) till 31st March, 2009).
3. The delay in the UDF approval has resulted in significant losses for BIAL during the last seven months since AOD.

Based on these facts, we consider an interim ad-hoc UDF amount of Rs. 375/- as reasonable and justifiable, pending final approval by the Ministry / Regulator.

We therefore kindly request you to reconsider this. We will formally answer to the questions raised by you in your letter dated 9th January, 2009 in the next few days.

Thanking you,

Yours faithfully,
for BANGALORE INTERNATIONAL AIRPORT LIMITED


Albert Brunner
Chief Executive Officer

C C: Mr. Stoeckl-Pukall, Embassy of Germany, Delhi
Mr. D. Freihofer, Embassy of Switzerland, Delhi

Registered Office: 118 Gayathri Lakefront, Outer Ring Road, Hebbal, Bangalore 560 024 India

I.D. BIAL's letter to MoCA asking for revision in domestic UDF to INR 375 at par with Hyderabad airport

Bangalore International Airport Limited

118 Gayathri Lakefront
Outer Ring Road, Hebbal
Bangalore 560 024 India

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BIAL/MoCA/UDF

February 18, 2009

Secretary to the Government of India
Ministry of Civil Aviation
Rajiv Gandhi Bhawan
Safdarjung Airport
New Delhi 110 003

Kind Attention: Mr. Sandeep Prakash, IAS, Director

Sub: Domestic User Development Fee (UDF) at BIA

Sir,

Reference is invited to the Ministry letter No. AV.20036/007/2008-AD dated 9th January, 2009 approving levy of domestic UDF of Rs. 260/- *inclusive of taxes* on ad-hoc basis with effect from 16th January, 2009.

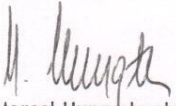
We request you to kindly approve the domestic adhoc UDF *exclusive of taxes* in order that BIAL realises the full amount of Rs. 260/- per departing domestic passenger. It becomes therefore necessary to revise the UDF payable to Rs. 300/- *inclusive of taxes*. This rounded off amount of Rs. 300/- is suggested to facilitate convenient transaction by passengers.

Notwithstanding the above, we reiterate our request for a revision in the domestic adhoc UDF to atleast Rs. 375/- per departing passenger (on par with that of Hyderabad International Airport Limited) pending a final decision on the quantum.

We will be grateful to you for an early action.

Thanking you,

Yours faithfully,
for BANGALORE INTERNATIONAL AIRPORT LIMITED


Marcel Hungerbuehler
Chief Executive Officer

Registered Office : 118 Gayathri Lakefront, Outer Ring Road, Hebbal, Bangalore 560 024 India

I.E. MoCA's letter to AERA to consider the request from BIAL

82/secy/09
7/7/09

F. No. AV.20036/014/2009-AD

Government of India
Ministry of Civil Aviation
AD Section

Safdarjung Airport, New Delhi,
Dated 06.10.2009.

To,
Shri Sandeep Prakash,
Secretary,
Airports Economic Regulatory Authority of India,
Safdarjung Airport,
New Delhi.

Pl. examine for.

4/7/09

03/11

Sub: Determination of UDF by AERA- pending cases to be transferred to AERA.

Sir,

W.
4/10/09.

I am directed to refer to d.o. letter No. AERA/20011/DIAL-DF/2009 dated 10.09.2009 from Chairman, AERA on the above-mentioned subject and to forward herewith a set of the relevant extracts of files and correspondence (photocopies) of the proposals received from M/s BIAL and HIAL pertaining to determination of UDF at Bangalore International Airport, Devenahalli and Rajiv Gandhi International Airport, Shamshabad for further necessary action, as desired. The relevant agreements executed in this regard are available on this Ministry's web-site.

Yours faithfully,

(Gina Nand)

Under Secretary to the Government of India.

Tele-24640214.

Encl:

- (i) Relevant extract of notings of files and correspondences relating to determination of BIAL's UDF.
- (ii) Relevant extract of notings of files and correspondences relating to determination of HIAL's UDF.
- (iii) M/s CRISIL's report (in original) received from AAL. (copy to be submitted)
- (iv) Independent Engineers' report in respect of M/s BIAL (in original).

I.F. BIAL's letter to AERA in response to Authority's follow-ups

PAGE 01/01

Bangalore International Airport Limited

Administration Block
Bengaluru International Airport
Devanahalli, Bangalore - 560300 India

T +91 80 6678 2425 F +91 80 6678 3366 www.bengaluruairport.com



secy/10
5/1/10
1-AERA-10
28.1.10

BIAL/CEO/UDF

January 22, 2010

Mr. Sandeep Prakash
Secretary
Airports Economic Regulatory Authority of India
Room No. 354
Rajiv Gandhi Bhavan
New Delhi 110 003

Sub: User Development Fee

Dear Sir,

This is with reference to the application of BIAL for an increase in UDF. As you may be aware GVK has taken over the Management of BIAL w.e.f. 19th January, 2010. Whereas there is definitely a need for increase in UDF, BIAL would like to understand in detail the parameters for sanction of UDF in the process of being finalized by AERA. Once the parameters are understood, BIAL will submit the appropriate information at the earliest possible.

Thanking you for your support,

Yours sincerely,
for BANGALORE INTERNATIONAL AIRPORT LIMITED


Marcel Hungerbuehler
Chief Executive Officer

I.G. Reference of UDF in the Concession Agreement

Schedule 6 Regulated Charges

Pursuant to the principles set out in Article 10.2 of this Agreement, BIAL shall be entitled to levy and recover from airline operators, passengers and other users and in respect of both domestic and international aircraft and passenger movements, at rates consistent with ICAO Policies, the following Regulated Charges:

(i) Landing, Housing and Parking charges (Domestic and International):

The charges to be adopted by BIAL at the time of airport opening will be the higher of:

(a) The AAI tariff effective 2001 duly increased with inflation index, as set out hereunder, upto the airport opening date **Or**

(b) The then prevailing tariff at the other AAI airports

(ii) Passenger Service Fee (Domestic and International):

The charges to be adopted by BIAL at the time of airport opening will be the higher of:

a) The AAI tariff effective 2001 duly increased with inflation index, as set out hereunder, upto the airport opening date **Or**

b) The then prevailing Passenger Service Fee at the other AAI airports

The Passenger Service Fee chargeable by BIAL, as given above, is inclusive of the cost of Security Expenditure on Central Industrial Security Force (CISF). This component of cost towards Security Expenditure on CISF shall be revised upwards by BIAL as and when directed by GOI.

(iii) User Development Fee (UDF) (Domestic and International):

BIAL will be allowed to levy UDF, w.e.f Airport Opening Date, duly increased in the subsequent years with inflation index as set out hereunder, from embarking domestic and international passengers, for the provision of passenger amenities, services and facilities and the UDF will be used for the development, management, maintenance, operation and expansion of the facilities at the Airport.

The Regulated Charges set out in Schedule 6 shall be the indicative charges at the Airport. Prior to Airport Opening BIAL shall seek approval from the Ministry of Civil Aviation for the Regulated Charges, which shall be based on the final audited project cost.

Note: (a) Charges will be calculated on the basis of nearest MT (i.e. 1000 kgs)

(b) The minimum fee for per single landing will be INR 1000.0

(c) Peak hour surcharge on International landing between 2301 hrs (IST) to 2400 hrs (IST) will be 5%

(d) If US \$ rates are to be charged the following rule for conversion, US\$ into INR the rate as on the 1st day of the month for 1st fortnight billing period and rates as on 16th of the month for the 2nd fortnightly billing period, will be applicable.

(e) All Tariffs are net for BIAL. Any taxes such as Service tax, if applicable, will be over and above the tariff proposed.

I.H. Changes proposed to BIAL's submission in Consultation Paper no. 14/2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till

- Changes proposed to BIAL's submission as given in Table 8 of Consultation Paper no. 14/2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till is detailed below:

Table 152: Changes proposed to BIAL's submission as given in Table 8 of CP14

Particulars	Claim by BIAL	Observations by Authority
Cost of Debt	Claimed as Interest cost / average loan balance	The Authority notes that these are based on the audited details of the Interest Cost and Debt balances and hence considered as such.
Cost of Equity	24.4%	The cost of equity proposed to be considered for BIAL for the control period is proposed to be allowed for the pre-control period also. Refer Para 13 below on Cost of Equity wherein the Cost of Equity at 16% is proposed.
Fair Rate of Return	Equity considered for the purpose of Gearing has been computed considering Equity excluding losses in case of Accumulated P&L having Debit balance and including P&L balance in case of Accumulated P&L being in credit.	There have been cumulative losses during the first 2 years, as can be seen from the audited Financial statements. Hence the Authority proposes to accept the methodology submitted by BIAL.
Regulatory Asset base considered for return	Average RAB as per books has been considered except for 1st year of operations where the closing RAB has been considered proportionate to the number of days in Operation of the airport (312 days of 365 days)	In view the Airport Operations commencing on 23rd May 2008, the Operator did not have a significant Opening Asset Base as of 1st April 2008, with which the average asset base (as prescribed in Direction 5) could be considered. Hence Authority proposes to consider the submission made by BIAL. The Authority has considered Foreign Exchanges loss / gain in values capitalized to the asset values, and appropriately adjusted the RAB on this account.
Depreciation	Considered as per books	The Authority proposes to consider the proposal submitted by BIAL.
Operating Expenditure	As per audited financials, excluding: Forex gains/ losses Including Bad debts	Bad Debts Provisions are not proposed to be included as part of the Operating Expenditure for computation of shortfall.
Income Tax	Total tax payment (both charged off to P&L and carried as credit in books) has been considered for claim	Submission is proposed to be considered.
Revenue from Operations	As per financials	The Authority noted that, while considering the Aeronautical Income and Non-Aeronautical Income, BIAL has not considered Interest Income which forms part of the "Other Income" in financials. The Interest

Particulars	Claim by BIAL	Observations by Authority
		Income earned is proposed to be included as part of Non-Aeronautical revenue and adjusted from the ARR, in computation of the shortfall. The Authority notes that BIAL has submitted certificate from a Chartered Accountant detailing the Interest received on the Security Deposit received for a hotel project. The Authority proposes to consider the Interest Income, excluding the Interest earned on hotel deposits as part of the Non-Aeronautical Revenues.
Opening P&L Shortfall	Opening accumulated losses as of 1st April 2008 – Rs. 53.3 Crores has been claimed as Shortfall in 2008-09	The Authority proposes to compute WACC considering the full value of Equity invested (without reducing the Accumulated losses). Hence, the Authority proposes not to allow accumulated losses as of Airport opening date (i.e. Rs. 53.3 Crores) to be added to the shortfall computations.
Calculation of Concession Fee and OMSA Fee on the Pre-control shortfall	Reimbursement of OMSA Fee at 2% and Concession Fee at 4% as the same is payable on any revenue earned by BIAL.	Authority has examined the issue of the OMSA fee payable to M/s Unique in Para 17.67.3 below. The Authority has allowed OMSA Fee at 1.29% as was paid by BIAL to M/s Unique (though in the agreement the OMSA Fee has a ceiling of 2%). It proposes to allow the Concession Fee of 4% as per the Concession Agreement.

- The shortfall claim considered by Authority in Consultation Paper no. 14/ 2013-14 dated 26th June 2013 (CP14) for determination of aeronautical tariffs of BIAL for the First Control Period under single till is given in table below:

Table 153: Shortfall claim considered by the Authority

Particulars	FY 2009	FY 2010	FY 2011	Total
Fair rate of return on RAB	132.62	164.27	161.39	458.28
Depreciation	113.46	134.40	135.31	383.17
Opex	146.26	163.60	176.10	485.96
Income Tax	0.86	8.78	29.61	39.25
Aggregate Revenue Requirement	393.20	471.06	502.40	1366.66
Less: Revenue from operations (Aero revenue, non – aero revenue and interest income)	(315.41)	(474.01)	(559.91)	(1349.33)
Net shortfall	77.79	(2.96)	(57.51)	17.32
Add: Calculation of concession fee and OMSA fee on the pre-control period shortfall	4.34	(0.17)	(3.21)	4.17
Total claim	82.13	(3.12)	(60.72)	18.29
Compounding factor	1.18	1.09	1.00	
Compounded value	97.30	(3.41)	(60.72)	33.17

I.I. Shortfall claim considered by the Authority in Consultation Paper no. 22/ 2013-14 dated 24th January 2014 which was an addendum to CP14 (CP22) under shared till

- a) The shortfall claim considered by the Authority after making necessary changes based on EIL report is given below:

Table 154: Shortfall claim considered by the Authority in CP22

Particulars	FY 2009	FY 2010	FY 2011	Total
Fair rate of return on RAB	127.15	160.54	157.74	445.43
Depreciation	109.27	129.51	130.41	369.19
Opex	146.28	163.64	176.08	486
Income Tax	0.86	8.70	29.62	39.18
Aggregate Revenue Requirement	383.56	462.38	493.85	1339.79
Less: Revenue from operations (Aero revenue, non – aero revenue and interest income)	(315.41)	(474.22)	(559.88)	-1349.51
Net shortfall	68.15	(11.83)	(66.02)	-9.7
Add: Calculation of concession fee and OMSA fee on the pre-control period shortfall	3.81	(0.66)	(3.69)	-0.54
Total claim	71.95	(12.49)	(69.71)	-10.25
Compounding factor	1.18	1.09	1.00	
Compounded value	85.24	(13.65)	(69.71)	1.88

I.J. Stakeholder responses and extracts from AERA Act

- a) The authority also noted the response from various stakeholders on the Pre-control period losses. Some of the responses are mentioned below:

British Airways – “...on the issue of pre-control period losses, AERA should not have retrospective jurisdiction over the period prior to its formation in September 2009, as there was already a regulator during that period (the Ministry). **AERA should therefore exclude the period up to September 2009 when assessing pre-control period losses...**”

IATA – “AERA was established by the Indian Government through notification no GSR 317 (E) dated 12 May 2009. Prior to the establishment of AERA, the Ministry of Civil Aviation was the de facto economic regulator. IATA is of the strong view that legally, the Authority does not have jurisdiction over the period prior to its establishment and especially since there was a separate entity performing the regulator’s role at that time i.e. the Ministry. **Therefore, in assessing the pre-control period claim, the period between 24 May 2008 (the airport opening) and May 2009 (the establishment of AERA) should be excluded.** This principle should be observed notwithstanding the magnitude of the pre-control period claim. Therefore, the Authority’s proposed pre-control losses of Rs33.17 Crore should be re-computed...”

- b) In addition to the above comments from stakeholders, the Authority also noted from the AERA act that “The AERA Act came into being on 1st January 2009 when the GoI notified AERA Act. The powers of determination of charges of aeronautical services as well as UDF, etc. were conferred to the Authority by the GoI on 1st September 2009 when Chapter 3 of the AERA Act was notified.”

I.K. Changes proposed by Authority in Second Control Period and recomputed ARR

- a) The Authority made the following changes to BIAL's submission in the Second Control Period:
- Consider the expenses allocation ratio considered by the Authority for the First Control Period for pre-control period also.
 - Consider the asset allocation ratio considered by the Authority for the First Control Period for pre-control period also.
 - The Authority noted that BIAL had considered pre-Airport opening Date opening day losses as part of first year operating expenditure. This was proposed to be disallowed by the Authority.
 - Consider return on equity at 16% against 21.48% considered by BIAL
 - Gearing ratio error and rate multiple corrected
 - Consider CGF as aeronautical revenues
 - Utility recovery which was considered by BIAL as Non-Aero Income adjusted with Opex
 - Interest income considered fully, without excluding interest from cash received from Hotel as Deposit
 - Rental income considered for Land given on lease to Airport Hotel
 - Rental revenues received from Concessionaires rendering Aeronautical Services considered as Aeronautical Income
 - Adjustment to RAB as per EIL report
- b) The over recovery computed and proposed to be deducted from the ARR for the Second Control Period of BIAL as per Table 5 of Second Control Period order is given below:

Table 155: Recomputed pre-control period ARR and (Under) / Over recovery by AERA in Second Control Period order under 40% shared till

Particulars	FY 2009	FY 2010	FY 2011	Total
Average RAB for calculating ARR	1,565.26	1,516.85	1,413.96	
Fair Rate of Return	8.33%	9.16%	9.80%	
Return on Assets	111.47	138.91	138.60	
WC interest	0.00	1.18	0.73	1.91
Depreciation	97.20	116.05	116.27	329.52
Opex	123.08	132.05	136.22	391.35
Estimated IT reimbursement	0.00	3.17	12.08	15.25
Total gross ARR	331.75	391.35	403.90	1,127.00
Less: 40% of non – aero revenues	(33.33)	(38.72)	(52.28)	-124.33
Add: Concession fee on regulated charges	9.64	15.54	17.63	42.81
Net ARR	308.06	368.18	369.25	1,045.49
Actual revenues	241.04	388.46	440.70	1,070.20
Over/ (Under Recovery)	-67.03	20.28	71.45	24.70
Over/ (Under Recovery) from September 2009		11.83	71.45	83.28

Particulars	FY 2009	FY 2010	FY 2011	Total
Over/ (Under Recovery) indexed till 1st April 2016				141.55

I.L. Stakeholder's comments in Second Control Period and Authority's response

- a) Some relevant comments given by various stakeholders on Authority's analysis of pre-control period shortfall is given below:
- APAO: "...We would like to draw the Authority's attention to the Hon'ble TDSAT Order wherein the Tribunal has rejected a technical plea contending that the regulator had no jurisdiction to determine tariffs for a period prior to the notification of its powers in September 2009. The tribunal upheld that there is no express or implied embargo prohibiting the Authority from regulating prior to notification of its powers for tariff determination. In fact, the Hon'ble TDSAT order has clarified that any tariff determination exercise left unfinished by the Central government could be finished by AERA once it was legally constituted. In addition, Para 67 of the Hon'ble TDSAT Order clearly slates that the Central Government was fully aware of the tariff determination exercise by the Authority in the case of DIAL for the period as it has issued communications relating to tariff fixation without any objections. In such a scenario, the Tribunal observed that it would be futile to direct the Central Government to go through the formality of fixing tariffs when it cannot complete the exercise in a meaningful and proper manner so as to avoid retrospect impact and delay. Finally, it was also mentioned that Section 13 of the AERA Act "gives sufficient latitude in selecting an appropriate beginning of the first regulator term of 5 years subject to rules of transparency and fairness. This clearly dismisses the argument of the authority not having jurisdiction over the period prior to notification of its powers."
 - HIAL: "...Also, the appellate tribunal Hon'ble TDSAT in a recent case of Delhi International Airport Limited (DIAL) had dealt with similar issue and ordered the following: "Once AERA was legally constituted from September 2009, the unfinished exercise could have been finished only by AERA. Clearly, the central government has the authority to consult independent expert body for the period between 01.04.2009 and 01.09.2009 when AERA came into existence. The exercise by AERA for that period has been within the knowledge of central government which has issued communications relating to tariff formulation. In absence of any objection from any quarters including central government, it would be futile to direct the Central Government to go through the formality of fixing the tariffs for the 5 months between April'2009 and August'2009 when Central Government cannot exercise in a meaningful and proper manner so as to avoid retrospectively any delay." The above order clearly states that AERA has stepped into MoCA role as far as tariff determination is concerned and any unfinished work of MoCA has to be completed by AERA..."
 - IATA: "...For the First Control Period AERA used a 40% shared till but was clear that the true up mechanism would be made on a Single till basis. However, it is now proposing to change such decision and to adopt a true up on the basis of a 40% shared till on the basis of "expansion needs". AERA should not change its decision solely on the basis of capital expenditure needs as that would spare shareholders from the responsibility to provide adequate capital to finance investments. Moreover, it would constitute prefunding, and on top, the capex will be included in the RAB and the company would be remunerated for it..."
 - Siemens: "...In case of major airports in India, including BIAL as mandated by law, aeronautical tariffs are to be regulated and an airport operator cannot suo moto adjust / increase its tariffs even to recover any losses. In these circumstances, non – consideration

of such losses incurred by the authority would lead to BIAL bearing these losses – which is against the basic principles of economic regulation regime in the country...”

- BIAL’s response to AERA’s treatment basis the EIL report: “...BIAL would like to highlight that while the authority has not considered performance of the airport for the pre-control period before September 2009, the Authority has disallowed costs incurred eve prior to September 2009, based on EIL report (disallowance from opening RAB as of 24th May 2008 by INR 69.45 cr.)...”
 - BIAL also mentioned that “...the CA of BIAL provides for tariff determination either by the Ministry of by the Independent Regulatory Authority (IRA) as the case may be. Initially, the ministry determined the ad – hoc tariffs where final tariffs were to be determined during a subsequent period. The authority is proposing to consider tariffs from September 2009 rather than inception of the airport leaving the tariff determination incomplete for the period from inception of airport to September 2009...”
 - BIAL’s submission on over – recovery: “...BIAL requests the Authority not to reduce purported over recovery until such time that the Hon'ble TDSAT decides on the issue...”
- b) The Authority’s analysis on the various stakeholder comments as well as on the submissions of BIAL is given below:

“The Authority notes that BIAL and the stakeholders supporting its claim for pre-control period losses have placed a good deal of emphasis on the Hon’ble TDSAT order on the fixation of control period for DIAL. In the case of DIAL, the choice of the control period was the main issue. The State Support Agreement of DIAL stipulated that the tariff determination should commence from the fourth year of operations by DIAL and therefore the Authority decided to fix the control period from 1st April 2009 more as a matter of convenience since the financial accounting period starts from 1st April and it would have been cumbersome and time consuming to separate the accounts from 1st September. The Authority is of the view that the Hon'ble TDSAT has upheld this practical stand taken by the Authority in its order relating to first control period order for DIAL. The Hon'ble Tribunal had noted that prior to the formation of AERA if MoCA had started the process of tariff determination it could not have finalised it within the short period available and therefore the unfinished work would have to be rightly entrusted to AERA which was by then in place. This should not be used as the ground for retrospective tariff determination for a period prior to the control period fixed by AERA and a period prior to formation of AERA. Process of going beyond the determined control period could result in never ending claims from other airports viz. AAI airports etc.”

“The Authority also notes BIAL's request to alternatively not determine Pre-control period shortfall / over-recovery till the Appellate Tribunal decides on the appeal filed by BIAL. The Authority had in its Consultation Paper proposed to deduct the over recovery for the period from 1st September 2009 mainly on the ground that the approach and methodology should be consistent in the case of HIAL & BIAL. BIAL had approached the Authority to mitigate its losses during the pre-control period. Normally, the Authority should confine the process of tariff determination only to the control period. In case any Airport Operator claims hardship by way of losses, the Authority might consider it, from the date of its formation. And if there is no hardship, the right approach would be to ignore the transaction prior to the control period and limit itself to the tariff determination for the control period only as decided in the tariff order for the first control period. Besides, the Authority notes that this matter is sub-judice and

the authority would take a suitable view in accordance with the orders of the Appellate tribunal in this matter.

STUDY
ON
ALLOCATION OF ASSETS BETWEEN
AERONAUTICAL AND NON-
AERONAUTICAL ASSETS

for

KEMPEGOWDA INTERNATIONAL AIRPORT,
BENGALURU (BIAL)

(Second Control Period: 2017-2021)

April 2021

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1. OBJECTIVE OF THE STUDY

Bangalore International Airport Limited (also referred as “Bangalore airport” or “BIAL”) 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. It was formed as a joint venture of private and public sector agencies in order to develop and operate the airport. The Karnataka State Industrial and Infrastructure Development Corporation (KSIIDC), a Public sector undertaking of the Government of Karnataka (GoK) and Airports Authority of India (AAI), a Government of India (GoI) undertaking, together hold 26% equity and the strategic joint venture partners hold the remaining 74%. The airport commenced operations in May 2008.

AERA has adopted shared till approach for determination of tariffs of BIAL. Under the shared till approach, 30% of the non-aeronautical revenues are used to cross-subsidize the aeronautical revenues. Aeronautical tariffs under shared till are based on the aeronautical building blocks, that is, aeronautical Regulatory Asset Base (RAB), aeronautical depreciation, aeronautical opex and aeronautical tax.

RAB is the most significant driver for tariff determination as it also has an impact on other building blocks i.e., Fair Rate of Return (FROR), operation costs and depreciation. RAB’s impact on tariff determination process is increasing with significant investments being made to expand capacity. Under the shared till approach, segregation of RAB into Aeronautical (‘Aero’) and Non-aeronautical (‘Non-Aero’) assets becomes an important determinant of tariff determination.

For this purpose, the Regulatory Asset Base is bifurcated between aeronautical and non-aeronautical assets. Bifurcation of regulatory asset base is dependent on many factors such as the usage of the assets, location of the asset, type of revenues generated from the asset, etc. Due to multiplicity of factors, a detailed analysis of assets in the books of account of BIAL is required to be undertaken to determine the aeronautical Regulatory Asset Base.

Therefore, AERA has decided to conduct a study on asset allocation between aeronautical and non-aeronautical assets for true-up of the 2nd control period. Since audited financial statements were available from FY17 to FY20 for the 2nd control period, the analysis of the bifurcation of asset additions till FY20 is based on actuals while the bifurcation for asset addition of FY21 is based on the forecast.

We examined the following documents for this study:

- a) AERA Act, 2008 with its amendment in 2019
- b) Concession Agreement between Government of India and BIAL
- c) Land Lease Agreement of the Bangalore International Airport Limited
- d) Previous AERA orders for BIAL
- e) Previous AERA Orders to study the asset allocation methodology adopted by AERA for other airports
- f) Orders of Telecom Disputes Settlement and Appellate Tribunal (TDSAT)
- g) Audited fixed asset register of BIAL from FY17 to FY20
- h) Forecast of FY21 asset additions
- i) Clarification and details received from BIAL

2. OUR WORK PERFORMED

2.1 Steps for our work performed

- 2.1.1 AERA has undertaken allocation of assets between aeronautical and non-aeronautical assets in its orders and consultation paper for the major airports. The approach and methodology of AERA in these documents has been examined for undertaking this study.
- 2.1.2 Key steps as part of approach under the study are as follows:
- a. Review Concession Agreement of BIAL, AERA Order no. 18/ 2018-19, Order no. 08/ 2014-15 and Order no. 15/ 2014-15 for BIAL, previous AERA Orders for other airports and the respective consultation papers to understand the asset allocation methodology adopted by AERA.
 - b. Review MYTP submission of BIAL to analyse consistency of asset allocation methodology adopted by BIAL for 2nd control period with the documents submitted in support of the methodology. These documents include the auditor's certificate on the asset allocation (attached as Exhibit I), Fixed Asset Register (attached as Exhibit II) and the allocation of terminal area into aeronautical and non-aeronautical.
 - c. Review auditor's certificate to examine whether asset allocation principles adopted by BIAL are in accordance with principles adopted by AERA.
 - d. Review asset category-wise classification done by BIAL into aero, non-aero and common assets.
 - e. Review fixed asset register including the description of the assets of BIAL from FY17 to FY20 for its usage, classification methodology, location and type of revenue generated from the asset.
 - f. Check consistency between the fixed asset register and the financial statements of BIAL from FY17 to FY20.
 - g. Seek clarification and additional details from BIAL to assess asset allocation, as required. These clarifications and details are related to methodology adopted, usage of assets, location of assets, etc.
 - h. Prepare the general principles for the asset allocation into aeronautical, non-aeronautical and common assets to ensure consistent treatment for all the assets.
 - i. Undertake asset wise analysis and classification into aeronautical, non-aeronautical and common assets using the general principles.
 - j. Revise Gross Block from FY17 to FY21 for BIAL based on the revised asset allocation.
- 2.1.3 Verification of Assets: Assessment of the assets commissioned by the airport operator during the second control period is based on the information/ reports provided by the airport operator including audited reports, Fixed Asset Register (FAR), AUCC Approvals, DPRs etc., the observations made during the site-visit and discussions held with the airport operator for clarifications.
- 2.1.4 The study has relied on the CA certificate submitted by the airport operator, audited financial statements of BIAL from FY 2017 to FY 2020 and the information available in the Fixed Asset Register to verify the capital expenditure incurred during the second control period and to understand the nature of the assets. We have not audited the capital expenditure, or any other underlying data submitted by BIAL and relied on the CA's certificate for the same.

3. EXECUTIVE SUMMARY

3.1 Segregation of assets

- 3.1.1 Assets have been segregated into aeronautical, non-aeronautical and common assets for the purpose of asset allocation.
- 3.1.2 We analysed AERA Act, 2008, Concession Agreement of BIAL with Government of India, asset allocation by AERA in its orders/ consultation paper for other airports to understand provisions related to the classification of assets.
- 3.1.3 Review of AERA Act and concession agreement of BIAL was undertaken to define aeronautical services. It was noted that the concession agreement of BIAL with the Government of India defines the “Airport Activities” and “Non-Airport Activities” in Schedule 3. The “Airport Activities” in Schedule 3 of Concession Agreement include aeronautical activities such as runways, taxiways, aprons, etc. as well as non-aeronautical activities such as airline lounges, duty free, banks/ ATM, restaurants, etc. Thus, the list given in “Airport Activities” is a mix of both aeronautical and non-aeronautical services. Therefore, BIAL’s asset are proposed to be bifurcated based on the provisions of the AERA Act, 2008. We have also reviewed the asset allocation methodology adopted by AERA in its orders and consultation papers for other airports. In addition to review of the above documents, study of the asset allocation principles in previous BIAL orders and the directions of TDSAT Orders was also undertaken.
- 3.1.4 Assets are segregated into Aeronautical, Non-aeronautical and Common assets as follows:
- a. **Aeronautical Assets** are assets which are required for performance of the aeronautical services at the airport. Aeronautical services are as defined under the AERA Act. These assets include runways, taxiways, aprons, ARFF related assets, BHS, ground handling, cargo terminals, approach roads, airside lighting, VIP/ reserved lounges, etc. Assets necessary to maintain the service quality of the airport have been considered as aeronautical except those located in the commercial real estate development.
 - b. **Non-aeronautical assets** are assets which are required for performance of the non-aeronautical services at the airport. These assets include car parking, lounges, advertisement, retail plaza, commercial real estate development, etc.
 - c. **Common assets** are assets which are not directly attributable to either aeronautical or non-aeronautical services. These assets include the terminal building, air conditioning, furniture, administrative office of airport company, etc. Common assets are bifurcated by BIAL between aeronautical and non-aeronautical assets based on the ratio of aeronautical and non-aeronautical area of the terminal building. AERA has adopted the approach to allocate the assets based upon terminal area ratio or gross fixed asset ratio. The study proposes to adopt the approach for bifurcation of common assets based on the terminal area ratio. The ratio of aero to non-aero terminal area is taken as average terminal area ratio of 85.73% in the second control period (please refer section 7.2.5).
- 3.1.5 The closing aeronautical RAB of FY16 as per the second control period order is considered as the opening aeronautical RAB of FY17 and closing aeronautical Gross Block of FY16 as per the second control period order is considered as the opening aeronautical Gross Block of FY17 for the study.
- 3.1.6 For the asset allocation study, the bifurcation of the asset addition from FY17 to FY21 has been undertaken.

3.2 Proposed adjustments to investment in RAB for second control period

- 3.2.1 Asset addition is bifurcated into two parts, first is the asset addition in the period from FY17 to FY20 based on the audited fixed asset register while the second is the asset addition in FY21 based on the forecast.

Asset additions from FY17 to FY20

- 3.2.2 Based on the revision of asset allocation methodology adopted for assets of BIAL, a revision in the aeronautical asset addition from FY17 to FY20 is undertaken in the audited Fixed Asset Register of BIAL.
- 3.2.3 Summary of the reclassification of the assets with its impact on the aeronautical asset addition from FY17 to FY20 has been presented in the table below.

Table 1: Revised aeronautical asset addition from FY17 to FY20 based on the asset allocation study

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	Total
(A) Total investments in fixed assets during FY17 to FY20 (as per FAR of BIAL)	226.31	170.30	161.00	2042.42	2,600.03
(B) Aero asset addition to RAB as per BIAL	213.92	135.99	132.02	2,007.23	2,489.16
(C) Proposed adjustment to RAB of BIAL due to change in segregation logic, for reasons below:					
(C.1) Reclassification from aeronautical to common					
Electrical and Power House Equipment	-3.19	-0.60	-0.70	-0.20	-4.69
BIAL App (mobile application)	-0.27	-0.32	0.00	0.00	-0.59
Water harvesting assets	-0.08	0.00	-0.01	-13.20	-13.29
(C.2) Reclassification from aeronautical to non-aeronautical					
Landscape in real estate area	-0.14	0.00	0.00	0.00	-0.14
Car park related asset	-0.17	0.00	0.00	0.00	-0.17
(D) Total proposed adjustments due to changes in segregation logic to RAB (D = C.1 + C.2)	-3.84	-0.92	-0.71	-13.40	-18.87
(E) Adjustment to RAB due to change in terminal area ratio*	-9.23 [^]	-0.14	+15.71 [#]	0.15	+6.49
(F) Total impact due to proposed changes (F = D + E)	-13.06	-1.06	15.00	-13.25	-12.38
(G) Adjusted aero asset additions to RAB during second control period as per this study (G = B + F)	200.86	134.93	147.02	1993.98	2,476.78

[#] Impact due to change in terminal area ratio from 86.31% in FY18 to 85.34% in FY19 by BIAL as per para 6.2.2

* Impact on the asset addition due to the revised average terminal area ratio as per para 7.2.5

[^] Impact on the aeronautical asset addition is due to revision of the terminal area ratio to average terminal area ratio (85.73%) in FY17 from 86.31% in FY16

Asset additions in FY21

- 3.2.4 Following changes to the FY21 asset additions are made to the revised submission of BIAL:
- Enabling works capex of Eastern connectivity tunnel – Excluded as per 2nd control period order for BIAL

- b. Considered express cargo capex as 100% aeronautical instead of BIAL's treatment of express cargo capex as non-aeronautical as per AERA Act, 2008.
- c. Gross block ratio is a composite ratio and a weighted average of aero, common and non-aero assets. Hence, the gross block ratio should be applied on entire capex addition irrespective of it being aero, common or non-aero instead of BIAL's approach of applying it selectively on common assets. Common assets have been segregated in the asset register based on the average terminal area ratio as detailed in 3.1.4 and therefore, the same ratio (85.73%) is applied on the common assets. Based on the above, bifurcation ratio for FY21 capex of airport offices, ITI project and sustaining capex is revised from 91% to terminal area ratio of 85.73%.
- d. Revised actual WPI in FY20 (3.64% to 1.7%) to apply on the special repairs cost of FY21 given in FY19 prices

3.2.5 Based on above, the revised aeronautical asset addition in FY21 has been presented in the table below.

Table 2: Revised aeronautical asset addition for FY21

S no	Projects	Revised submission of BIAL – total additions	Allocation as per BIAL	Aero addition to FY21 as per BIAL	Revised allocation as per the study	Revised Aero addition to FY21 as per the study	Impact of revision
1	Site preparation & Earthworks	21.98	100.00%	21.98	100.00%	21.98	0.00
2	Aircraft Rescue & Fire Fighting	8.86	100.00%	8.86	100.00%	8.86	0.00
3	Airport Offices - Phase I	3.89	91.00%	3.54	85.73%	3.33	0.20
4	Existing Runways/ Taxiway Improvements - Phase 1b	193.94	100.00%	193.94	100.00%	193.94	0.00
5	Eastern Tunnel - Enabling works	86.55	100.00%	86.55	0.00%	0.00	86.55
6	Express Cargo	88.49	0.00%	0.00	100.00%	88.49	-88.49
7	ITI Project	86.60	91.00%	78.81	85.73%	74.24	4.56
8	Sustaining capex	200.59	91.00%	182.54	85.73%	171.97	10.57
	Total	690.90		576.21		562.81	13.40

3.2.6 **Summary:** Based on the above, the total reduction in the aeronautical asset addition on account of these adjustments for the second control period (from FY17 to FY21) is INR 25.78 cr.

Table 3: Revised aeronautical asset addition from FY17 to FY21 based on the asset allocation study

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Aero asset addition to RAB as per BIAL (A)	213.92	135.99	132.02	2,007.23	576.21	3,065.37

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Less: Impact due to proposed changes (refer Table 1 and Table 2) (B)	-13.06 [^]	-1.06	15.00 [#]	-13.25	-13.40	-25.78
Adjusted aero additions to RAB during second control period as per this study (C = A + B)	200.86	134.93	147.02	1993.98	562.81	3,039.60

[#] Impact due to change in terminal area ratio from 86.31% in FY18 to 85.34% in FY19 by BIAL as per para 6.2.2

^{*} Impact on the asset addition due to the revised average terminal area ratio as per para 7.2.5

[^] Impact on the aeronautical asset addition is due to revision of the terminal area ratio to average terminal area ratio (85.73%) in FY17 from 86.31% in FY16

3.2.7 Gross block based on revised asset allocation methodology

3.2.8 Based on the revision of asset allocation methodology adopted for assets of BIAL, a revision in the aeronautical asset addition has been proposed. Summary of the reclassification of the assets as per the study with its impact on the aeronautical asset addition has been presented in the table below.

Table 4: Summary of reclassification of the assets as per the study

S no.	Reclassification	Increase/ decrease to aeronautical assets	Impact on aero gross block (INR cr.)
A	Aeronautical to common (FY17 – FY20)	Decrease	-18.57
B	Aeronautical to non-aeronautical (FY17 – FY20)	Decrease	-0.31
C	FY21 adjustment due to i) change in allocation ratio, ii) exclusion of ECT and iii) express cargo considered as aero	Decrease	-13.40
	Total		-32.27

^{*} difference is due to rounding off

3.2.9 Additional details on the assets reclassified in the previous table are provided below:

Table 5: Revised Gross Block of BIAL of FY21 based on the reclassification of the assets

Particulars*	Aeronautical gross block	Non-aeronautical gross block	Total
Closing gross block as per BIAL (as at 31st March 2021) (A)	6,428.38	576.56	7,004.93
Gross fixed asset ratio before adjustment for FY21	91.77%	8.23%	
Adjustment to gross block on account of first control period aero and non-aero bifurcation[#]	-45.65	45.65	
Adjustment due to change in terminal area ratio (sum of E in Table 24)	6.49	-6.49	
Reclassification of aeronautical assets to common assets			
Buildings – Utilities and Electrical and power house equipment used for terminal building and airport	-4.69	4.69	
BIAL app (mobile application) - Thoughtworks project	-0.59	0.59	

Particulars*	Aeronautical gross block	Non-aeronautical gross block	Total
Water harvesting assets	-13.29	13.29	
Reclassification of aeronautical assets to non-aeronautical assets			
Buildings – Landscaping in the commercial real estate development area	-0.14	0.14	
Car park and advertising related assets under Airport Equipment – Operations related	-0.17	0.17	
Reclassification of FY21 asset			
FY21 asset addition adjustments	-13.40	13.40	
Total adjustments due to reclassification and change in terminal area ratio	-25.78	25.78	
Closing Gross block after adjustments (as on 31st March 2021)	6,356.95	647.99	7,004.93
Gross fixed asset ratio after adjustment for FY21	90.75%	9.25%	
Impact on the gross fixed asset ratio of FY21	-1.02%	1.02%	

* difference is due to rounding off; # in the FAR submitted by BIAL the opening aero Gross Block as on 1 April 2016 was INR 3,363.00 cr. whilst the closing aero Gross Block as per second control period order was INR 3,317.35 cr. The difference between the opening aero Gross Block of FY17 submitted by BIAL and closing aero Gross Block of FY16 assumed by AERA is on account of the revision of the bifurcation of the aeronautical and non-aeronautical assets of the first control period undertaken by AERA.

3.2.10 The year-wise revision in the asset allocation ratio of the Gross Block and the asset additions from FY17 to FY21 has been summarized in the table below:

Table 6: Revised Gross Block and asset additions of BIAL from FY17 to FY21 based on the revised asset allocation

Particulars*	FY17	FY18	FY19	FY20	FY21 [#]	Total
Opening total gross block as per FAR of BIAL (A)	3714.01	3940.32	4110.62	4271.62	6314.03	22,350.59
Net additions after adjustment for disposals (B)	226.31	170.30	161.00	2042.42	690.90	3,290.93
Closing gross block as per FAR of BIAL (C = A + B)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero Gross Block as submitted by BIAL						
Opening aero gross block (D)	3,363.00	3,576.92	3,712.91	3,844.93	5,852.17	20,349.94
Net aero additions after adjustment for disposals (E)	213.92	135.99	132.02	2,007.23	576.21	3,065.37
Closing aero gross block (F = D + E)	3,576.92	3,712.91	3,844.93	5,852.17	6,428.38	23,415.31
Opening non-aero gross block (G = A - D)	351.00	363.39	397.70	426.68	461.87	2,000.65
Net non-aero additions after adjustment for disposals (H = B - E)	12.39	34.31	28.98	35.18	114.69	225.55

Study on allocation of assets between aeronautical and non-aeronautical assets for BIAL

Particulars*	FY17	FY18	FY19	FY20	FY21#	Total
Closing non-aero gross block (I = G + H)	363.39	397.70	426.68	461.87	576.56	2,226.20
Total Gross Block (J = F + I)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero gross block ratio (K = F/J)	90.78%	90.32%	90.01%	92.69%	91.77%	91.32%
Reclassification of assets as per this study						
Opening aero gross block [^] (L)	3,317.35 [^]	3,518.21	3,653.14	3,800.16	5,794.13	20,082.99
Net aero additions after adjustment for disposals (M)	200.86	134.93	147.02	1,993.98	562.81	3,039.60
Closing aero gross block (N = L + M)	3,518.21	3,653.14	3,800.16	5,794.13	6,356.95	23,122.59
Opening non-aero gross block (O = A - L)	396.66	422.11	457.48	471.46	519.90	2,267.60
Net non-aero additions after adjustment for disposals (P = B - M)	25.46	35.37	13.98	48.44	128.09	251.33
Closing non-aero gross block (Q = O + P)	422.11	457.48	471.46	519.90	647.98	2,518.93
Total Gross Block (R = N + Q)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero gross block ratio (S = N/R)	89.29%	88.87%	88.96%	91.77%	90.75%	90.18%
Net impact on the aero additions (T = M - E)	-13.06	-1.06	15.00	-13.25	-13.40	-25.78
Net impact on aero ratio (U = S - K)	-1.49%	-1.45%	-1.05%	-0.92%	-1.02%	-1.14%

* difference is due to rounding off; # forecasted; ^ in the FAR submitted by BIAL the opening aero Gross Block as on 1 April 2016 was INR 3,363.00 cr. whilst the closing aero Gross Block as per second control period order was INR 3,317.35 cr. The difference between the opening aero Gross Block of FY17 submitted by BIAL and closing aero Gross Block of FY16 assumed by AERA is on account of the revision of the bifurcation of the aeronautical and non-aeronautical assets of the first control period undertaken by AERA

3.3 Summary of proposed adjustments in asset classification

3.3.1 A summary of proposed adjustments in asset classification as mentioned in the previous section has been provided below. The details of asset reclassification are available in Section 7.4.

A. Reclassification from aeronautical assets to common assets

3.3.2 Electrical and power house equipment

- a. Reference in the report: 7.4.2
- b. Allocation as per BIAL: Aeronautical
- c. Observation: Power supply infrastructure at an airport provides power to air side, roads, terminal building and forecourts. These equipment include the DG sets, UPS, substations, power distribution board, low tension switchboards, high tension cables, etc. Since, these assets serve both the aeronautical assets as well as the common assets, bifurcation based on the usage is required.
- d. Revised asset allocation: Accordingly, the assets serving the terminal building, forecourts, airport and not identifiable assets are proposed to be classified as common assets.
- e. Impact on RAB for second control period: Reduction of INR 4.69 cr..

3.3.3 BIAL – App (mobile application) (Thoughtworks project) under Software & program licenses

- a. Reference in the report: 7.4.3
- b. Allocation as per BIAL: Aeronautical
- c. Observation: On the query regarding the BIAL – App, BIAL responded that “This is a Customer Oriented Platform-APP exclusively for the Passenger Experience Enhancement - It enables Intimation & Notification of Flight, Boarding information, Wi-Fi connectivity, feedback of airport services etc.” It is noted from the mobile application that in addition to providing flight information, the application also provides the details of the retail, F&B outlets, car parking, etc. Thus, the application provides information of both aeronautical and non-aeronautical services at the airport. Further, BIAL has classified its BIAL Public Portal – www.bengaluruairport.com as a common asset. BIAL App (mobile application) is also assumed to be a similar asset as BIAL public portal.
- d. Revised asset allocation: Accordingly, the costs associated with Thoughtworks project for development of mobile app are proposed to be classified from aeronautical to common assets.
- e. Impact on RAB for second control period: Reduction of INR 0.59 cr.

3.3.4 Water harvesting assets

- a. Reference in the report: 7.4.4
- b. Allocation as per BIAL: Aeronautical
- c. Observation: BIAL has developed water harvesting ponds/ rain sumps to store rain water for use at the airport. It is noted that these rain water sumps serve both aeronautical and non-aeronautical assets.
- d. Revised asset allocation: Accordingly, the costs associated with water harvesting ponds/ rain sumps are classified as common assets.
- e. Impact on RAB for second control period: Reduction of INR 13.29 cr.

B. Reclassification from aeronautical assets to non-aeronautical assets

3.3.5 Buildings – Landscaping in the commercial real estate development area

- a. Reference in the report: 7.4.5
- b. Allocation as per BIAL: Aeronautical
- c. Observation: Landscaping is undertaken by the airport to provide enhanced passenger experience while also meeting the environment sustainability goals of the airport. However, it was noted that landscaping undertaken around the airport hotel has also been considered as aeronautical by BIAL.
- d. Revised asset allocation: Since, the assets forming part of the commercial real estate development are considered as non-aeronautical assets, the capital expenditure for landscaping in and around the commercial real estate development is also considered as non-aeronautical.
- e. Impact on gross block: Due to change in asset allocation methodology, the reduction in gross block of Buildings – Landscaping in FY20 is INR 0.14 cr.
- f. Impact on RAB for second control period: Reduction of INR 0.14 cr.

3.3.6 Car park and advertising related assets under Airport Equipment – Operations related

- a. Reference in the report: 7.4.6
- b. Allocation as per BIAL: Aeronautical
- c. Observation: Car park and advertising related assets are non-aeronautical assets as per past orders of AERA. However, these assets have been considered as aeronautical by BIAL.
- d. Revised asset allocation: Accordingly, the costs associated with car park and advertising related assets are classified as non-aeronautical assets.
- e. Impact on RAB for second control period: Reduction of INR 0.17 cr.

C. Adjustments to proposed asset additions of FY21

3.3.7 Exclusion of enabling works for eastern connectivity tunnel

- a. Reference in the report: 7.4.7
- b. Allocation as per BIAL: Aeronautical
- c. Observation: AERA in its second control period for BIAL had excluded the enabling works for eastern connectivity tunnel. Accordingly, these are excluded from the FY21 asset additions.
- d. Revised asset allocation: Excluded from the FY21 asset addition.
- e. Impact on RAB for second control period: Reduction of INR 86.55 cr.

3.3.8 Express cargo

- a. Reference in the report: 7.4.8
- b. Allocation as per BIAL: Non-Aeronautical
- c. Observation: AERA Act, 2008 considers the cargo, ground handling and fuel services as aeronautical services. Accordingly, the express cargo capital expenditure is considered as aeronautical.
- d. Revised asset allocation: Considered as aeronautical
- e. Impact on RAB for second control period: Increase of INR 88.49 cr.

3.3.9 Revised asset allocation ratio from gross block ratio to terminal area ratio for common assets

- a. Reference in the report: 7.4.9
- b. Allocation as per BIAL: Common
- c. Observation: Gross block ratio is a composite ratio and a weighted average of aero, common and non-aero assets. Hence, the gross block ratio should be applied on entire capex addition irrespective of it being aero, common or non-aero instead of BIAL's approach of

applying it selectively on common assets. Common assets have been segregated in the asset register based on the average terminal area ratio and therefore, the same ratio (85.73%) is applied on the common assets. Based on the above, bifurcation ratio for FY21 capex of airport offices, ITI project and sustaining capex is revised from 91% to terminal area ratio of 85.73%.

d. Revised asset allocation: Revised bifurcation ratio from 91% to 85.73%.

e. Impact on RAB for second control period: Reduction of INR 15.34 cr.

3.3.10 Summary: The total reduction due to the above adjustments in the aeronautical asset addition from FY17 to FY21 as on 31 March 2021 is INR 25.78 cr. (includes adjustment for revision of terminal area ratio).

3.4 Reconciliation of Gross Block

3.4.1 BIAL has made a total investment of INR 2,600.03 cr. in the second control period from FY17 to FY20. The total additions (net of disposals) in aeronautical assets and non-aeronautical assets as per FAR were reconciled with additions (net of disposals) as per audited books. The opening gross block as on 1 April 2016 and the closing gross block as on 31 March 2020 based on the FAR is provided in the table below:

Table 7: Opening gross block as on 1 April 2016 and the closing gross block as on 31 March 2020 as per FAR

S no	Particulars	Amount (INR cr.)
1	Opening Gross Block as on 1 st April 2016 as per FAR	3,714.01
2	Additions including sales/ deletions to the Gross Block from FY17 to FY20 as per FAR	2,600.03
3	Closing Gross Block as per FAR of 31 March 2020	6,314.03

3.4.2 Year-wise net additions to the aeronautical asset base in the second control period has been given in the table below:

Table 8: Year-wise net additions to the aeronautical asset base in the second control period based on the adjustments proposed in the study

Block of assets	Opening aero gross block as on 1 April 2016 (A)	FY17	FY18	FY19	FY20	FY21 [#]	Total addition to aero gross block (B)	Closing aero gross block as on 31 March 2021 (C = A+B)
Buildings1-T,B	1,674.10	57.65	25.89	72.09	179.27	338.04	672.94	2,347.04
Buildings2-RW/TW	122.28	-	42.79	-	1,164.17	215.92	1,422.88	1,545.16
Buildings3-WMS	110.53	10.32	2.05	7.35	276.29	-	296.00	406.53
Buildings4-R	113.75	33.49	4.71	15.42	56.55	-	110.17	223.92
FF	106.81	17.88	8.14	4.81	8.01	-	38.83	145.64
Intangibles	29.60	-	-	-	-	-	-	29.60
PM1	587.32	20.11	23.14	12.88	109.70	-	165.83	753.15

Block of assets	Opening aero gross block as on 1 April 2016 (A)	FY17	FY18	FY19	FY20	FY21 [#]	Total addition to aero gross block (B)	Closing aero gross block as on 31 March 2021 (C = A+B)
PM2-Lighting	349.92	35.31	12.90	13.44	147.37	-	209.02	558.94
PM3-Safety	110.62	18.86	7.81	15.05	18.92	8.86	69.50	180.12
PM4 - ITEquipment	89.46	5.36	4.30	3.92	19.38	-	32.97	122.43
Software	22.97	1.88	3.21	2.05	14.32	-	21.47	44.43
Grand total	3,317.35	200.86	134.93	147.02	1,993.98	562.81	3,039.60	6,356.95

forecasted; * includes change due to terminal area ratio change; non-aero additions are computed by subtracting the aeronautical gross block from the total gross block

3.4.3 The year-wise reconciliation between additions as per FAR and additions as per audited financial statements is shown below. The reconciliation shows a difference of INR 0.54 cr. which has not been included for the purposes of calculation of closing gross block as on 31 March 2020.

Table 9: Comparison of net additions from FY17 to FY20 to the gross block with the audited financials

S no	Block of assets	FY17	FY18	FY19	FY20	Total
1	Total additions as per the FAR (A)	226.31	170.30	161.00	2,042.42	2,600.03
2	Total additions adjusted for disposals/ transfers as per the audited financial statements (B)	225.70	170.29	161.06	2,042.42	2,599.47
3	Difference (C = B - A)	-0.61	0.01	0.06	0.00	-0.54
4	Opening gross block as per FAR as on 1 April 2016 (D)					3,714.01
5	Closing gross block as per FAR as on 31 March 2020 (E = D + B - C)					6,314.03

* difference is due to rounding off

3.5 Summary

3.5.1 BIAL has made an investment of INR 2,600.03 cr. from FY17 to FY20. An investment of INR 690.90 cr. is forecasted by BIAL in FY21. The total investment in the second control period is INR 3,290.93 cr. The investments include development of aeronautical and non-aeronautical assets at the airport.

- 3.5.2 BIAL had classified INR 6,428.38 cr. as gross aeronautical assets and INR 576.56 cr. as gross non-aeronautical assets as on 31 March 2021 with the gross aeronautical to gross non-aeronautical asset bifurcation ratio of 91.77% to 8.23%.
- 3.5.3 For the purposes of the study, the closing aeronautical RAB of FY16 as per the second control period order is considered as the opening aeronautical RAB of FY17 and closing aeronautical Gross Block of FY16 as per the second control period order is considered as the opening aeronautical Gross Block of FY17 for the study.
- 3.5.4 Asset bifurcation methodology is based on the definitions of the aeronautical, non-aeronautical and common assets as per AERA Act and past orders of AERA. Common assets have been classified into aeronautical and non-aeronautical based on the average terminal building area ratio of 85.73% as per para 7.2.5.
- 3.5.5 Assets reclassified from aeronautical to common include the assets related to electrical and power house equipment, BIAL App (mobile application) and water harvesting assets. Assets reclassified from aeronautical to non-aeronautical include the car park and advertising related assets and the landscape assets in the commercial real estate area. Further, the changes made to the asset allocation of FY21 include the consideration of express cargo as aeronautical asset, exclusion of eastern connectivity tunnel and change in allocation ratio to terminal area ratio.
- 3.5.6 Based on the reclassification of the assets (as detailed in section 7.4), the Gross Block has been segregated into aeronautical and non-aeronautical gross block as under (refer Table 28):
- i. Proposed adjusted aeronautical gross block as on 31 March 2021 is INR 6,356.95 cr.
 - ii. Proposed adjusted non-aeronautical gross block as on 31 March 2021 is INR 647.98 cr.
 - iii. Total reduction in the aeronautical RAB for the second control period (FY17 to FY21) as per the study is INR 25.78 cr.
- 3.5.7 As per the study, the revised ratio of gross aeronautical and gross non-aeronautical assets after making the adjustments proposed above is 90.75% to 9.25% as on 31 March 2021.

4. OVERVIEW OF THE MASTER PLAN

4.1.1 As per clause 7.1 of the Concession Agreement, BIAL is required to review the Master Plan every 5 years and based on such review, if necessary, revise the Master Plan to reflect the changed circumstances at BIAL.

4.1.2 Accordingly, BIAL has prepared the Master Plan in 2008, 2011 and 2019. Details of the traffic handling capacity of BIAL under each Master Plan has been provided in the table below:

Table 10: Master Plan prepared by BIAL for 2008, 2011 and 2019

S. no.	Master Plan	Passenger traffic handling capacity (mppa)
1	Master Plan – 2008	40
2	Master Plan – 2011	55
3	Master Plan – 2019	92

4.1.3 BIAL has proposed to undertake the following capital expenditure in the second control period as part of its airport development and capacity enhancement initiatives. This capital expenditure as approved in the tariff issued by AERA for BIAL and as estimated (EAC) to be incurred by BIAL in second control period is as shown below. Some of the projects approved by AERA in the 2nd control period such Terminal 2 Phase I, T2 Apron, South Runway Phase II, etc. have been proposed by BIAL for capitalization in the 3rd control period. Therefore, this EAC is an estimation at this stage and would be finalised as per actuals based on capital expenditure in FY21 and FY22.

Table 11: Capital expenditure approved by AERA in second control period order viz a viz EAC incurred by BIAL

Project	Net Amount approved for 2nd control period (INR cr.)	EAC after adjusting Tax credits (INR cr.)
New south airfield development works	2,011	1,980
T2 Apron 1	385	428
Second Terminal Phase 1	3,607	3,566
Forecourts, roadways and landside development	1,216	1,875
Aircraft maintenance and Airport maintenance	42	41
Rescue and Fire Fighting	7	7
Utilities Phase 1	106	104
Existing Runway, Taxiway improvements	298	217
Design	386	354
PMC		208
Contingency 3%	-	
Add: Pre-Operating Expenses	156	356
ORAT	-	46
Total	8,215	9,183

5. PHYSICAL EXISTENCE OF ASSETS AND INTERNAL CONTROLS

5.1 Physical existence of assets

5.1.1 BIAL had deputed Sreedar Mohan & Associates, Chartered Accountant (CA) firms to conduct physical verification of airport assets. Outcome of the report for FY2019-20 is presented in the table below:

Table 12: Physical verification of BIAL's assets for FY 2020

S. no.	Assets	Verified in year	Net block of assets verified
1	Terminal 1 expansion assets	FY 2019-20	995.90
2	Asset addition of FY19-20 excluding NSPR	FY 2019-20	124.30
3	NSPR asset addition in FY19-20	FY 2019-20	1,772.00
		Total	2,892.20
		Net block as on 31 March 2020	4,064.10
		% covered	71%

5.1.2 The auditor had specified in its report that *due to covid – 19 spread and lockdown, they could not finish the physical verification of assets. Balance asset verification along with tagging of the assets will be completed by the auditor once the lockdown is lifted and work is resumed*

5.2 Brief outline of the capitalization process as per BIAL

A. Capitalization process

5.2.1 After the assets to be capitalized are identified manually from CWIP report, the Senior Executive– Finance & Accounts (Fixed Asset Team) checks the status of the Purchase order (PO) for that asset. If the PO for that asset is closed, then it proceeds for capitalization of that asset.

5.2.2 For the purpose of capitalization, Senior Executive- Finance & Accounts selects the details of particular asset using PO number.

5.2.3 The details which are required for capitalization of asset are as follows:

- a) Quantity
- b) Amount
- c) Asset class: Selected from asset class list
- d) Description of asset
- e) Purchase order: Taken from manually maintained CWIP report
- f) Cost center: Details of cost center
- g) Room: Department
- h) Evaluation group 1: Divided into four categories
 - i. Aero asset
 - ii. Non-Aero asset
 - iii. Common asset
 - iv. Real estate asset
- i) Capitalization date: As per the asset installation certificate.

5.2.4 After all these details are mentioned in the excel, the excel is forwarded to the Senior Manager – Finance & Accounts for the review.

- 5.2.5 The Senior Manager- Finance & Accounts (Fixed Asset Team) reviews the details sent by the executive and if no errors are identified then the approval is given for capitalization of asset.
- 5.2.6 After getting the approval from Senior Manager – Finance & Accounts (Fixed Asset Team), the Senior Executive - Finance & Accounts does the capitalization of asset in SAP.
- 5.2.7 The process of capitalization of asset in SAP consists of three steps:
- a) Creation of asset code in asset master
 - b) Posting of Journal entry for capitalization
 - c) Clearing of AUC and CWIP
- 5.2.8 After receiving the bill for capitalization, Manager – Finance & Accounts (Fixed Asset Team) requests the concerned user department to provide Bill of quantity (BOQ) details for the respective bill.
- 5.2.9 User department prepares Bill of quantity (BOQ) and forwards it to Manager – Finance & Accounts (Fixed Asset Team) for capitalization of asset.
- 5.2.10 Manager – Finance & Accounts (Fixed Asset Team) reviews the Bill of quantity and identifies the assets which are to be capitalized separately and sends the details of assets to be capitalized separately along with the other details as mentioned in the capitalization process to Senior Manager – Finance & Accounts (Fixed Asset Team) for review.
- 5.2.11 Senior Manager – Finance & Accounts (Fixed Asset Team) reviews the Bill of quantity (BOQ) and verifies whether assets have been segregated separately into correct asset and asset classes. If the assets are segregated correctly, Senior Manager – Finance & Accounts (Fixed Asset Team) gives approval for capitalization of asset.

5.3 Suggestions on the Fixed Asset Register for regulatory purposes

5.3.1 More clarity required in the asset descriptions of the Fixed Asset Register

Some of the asset descriptions in the current fixed asset register does not provide the details of the use/ location of the capital expenditure undertaken by BIAL. For the purposes of the study, we have requested for additional information from BIAL regarding such asset descriptions to examine these aspects. BIAL, during the asset addition process itself, should bring clarity to the asset description covering the use/ location/ purpose of the capital expenditure for ease in regulatory classification.

5.3.2 Details of disposals should be part of the Fixed Asset Register

BIAL's fixed asset register provides the details of the additions during a year after adjustment of the disposal of the assets. Therefore, the segregation between the actual addition of the assets and the disposal of the assets is not available in the fixed asset register. BIAL should include the details of disposal as part of the fixed asset register to bring clarity and transparency.

5.3.3 Updating the asset allocation in the Fixed Asset Register as per the tariff order of AERA

Opening aeronautical Gross Block of FY17 and opening aeronautical RAB of FY17 in the fixed asset register submitted by BIAL did not match with the AERA approved closing aeronautical Gross Block of FY16 and closing aeronautical RAB of FY16. BIAL should revise its fixed asset register as per the AERA orders.

5.3.4 Addition of project-wise information submitted to AERA in the fixed asset register

The fixed asset register does not provide the project-wise total capital expenditure. Therefore, it is difficult to compare the projected capital expenditure approved by AERA in its order for a particular project with the actual capital expenditure incurred by BIAL for it. BIAL should include the same terminology used by it during the submission to AERA for the asset capitalized in the fixed asset register.

5.4 Summary

- 5.4.1 We have reviewed the classification of asset into Aero or Non-Aero or common based on the description of the assets as given in the fixed assets register provided by BIAL. Additionally, as part of this study, we have raised multiple queries and requests for clarifications to BIAL. For the purposes of analysis under this report, we have assessed the justification/ clarifications/ additional data as provided by BIAL on our queries.
- 5.4.2 The internal controls and documentation at BIAL are generally in line with the standard practices. Following suggestions are made to BIAL to improve the fixed asset register for regulatory purposes:
- a) More clarity required in the asset descriptions of the Fixed Asset Register
 - b) Details of disposals should be part of the Fixed Asset Register
 - c) Updating the asset allocation in the Fixed Asset Register as per the tariff orders of AERA
 - d) Addition of project-wise information submitted to AERA in the fixed asset register

6. ASSET ALLOCATION METHODOLOGY AS PER BIAL FOR SECOND CONTROL PERIOD

6.1 Asset allocation methodology submitted by BIAL

- 6.1.1 BIAL has prepared a bifurcation methodology based on the internal company methodology/ policy as certified by the management of BIAL. BIAL has submitted an auditor certificate from M/s Sreedar Mohan which has performed the agreed upon procedures to allocate the assets into aeronautical and non-aeronautical assets from FY17 to FY20.
- 6.1.2 For the purpose of allocation of assets, BIAL has bifurcated the assets into following categories:
- a) Aeronautical Assets – *“Those assets which are necessary or required for the performance of Aeronautical Services and such other assets as an Airport Company procures in accordance with the written directions of the Government of India for or in relation to provision of any Reserved Activities including intangible assets, power house equipment and water management system which are considered as directly related to the Aeronautical services.”*
 - b) Non-aeronautical Assets – *“All assets required or necessary for the performance of Non-Aeronautical Services at the airport.”*
 - c) Intangible Assets – *“Includes certain legal and other expenses incurred during the construction period towards various agreements, viz. Concession Agreement, Communication, Navigation and Surveillance and Air Traffic Management (CNS/ ATM) Agreement, Operations and Management Services Agreement, State Support Agreement and the Land lease agreement.”*
 - d) Common Assets – *“All assets not specifically identifiable to Aeronautical Assets and Non-Aeronautical Assets. These include the terminal building, air conditioning, office equipment, security equipment and airport equipment which are not directly attributable to aeronautical and non-aeronautical.”*
- 6.1.3 Aeronautical services as per BIAL mean the provision of the following facilities and services:
- a) Provision of flight operation assistance and crew support systems;
 - b) Ensuring the safe and secure operation of the Airport, excluding national security interest;
 - c) Movement and parking of aircraft and control facilities;
 - d) General maintenance and upkeep of the Airport;
 - e) Rescue and firefighting services;
 - f) Movement of staff and passengers and their inter-change between all modes of transport at the Airport;
 - g) Aerodrome control services;
 - h) Airfield;
 - i) Airfield lighting;
 - j) Airside and landside access roads, trumpet flyover and forecourts including writing, traffic signals, signage and monitoring;
 - k) Apron and aircraft parking area;
 - l) Apron control and allocation of aircraft stands;
 - m) Operation and maintenance of passenger boarding and disembarking systems;
 - n) Arrivals concourses and meeting areas;
 - o) Baggage systems including outbound and reclaim;
 - p) Bird scaring;
 - q) Check-in concourse;

- r) Cleaning, heating, lighting and air-conditioning public areas;
- s) Customs and immigration halls;
- t) Emergency services;
- u) Facilities for the disabled and other special needs people;
- v) Flight information and public-address systems;
- w) Water drainage;
- x) Guidance systems and marshalling;
- y) Information desks;
- z) Inter-terminal transit systems;
- aa) Lifts, escalators and passenger conveyors;
- bb) Loading bridges;
- cc) Lost property;
- dd) Passenger and hand baggage search;
- ee) Piers and gate rooms;
- ff) Policing and general security;
- gg) Infrastructure/ Facilities for Post Offices;
- hh) Infrastructure/ Facilities for Public telephones;
- ii) Runways;
- jj) Signage;
- kk) Software Programs and licenses required for operation of Airport;
- ll) Taxiways;
- mm) Toilets and nursing mothers' room;
- nn) Waste and refuse treatment and disposal;
- oo) X-Ray service for carry on and checked-in luggage;
- pp) VIP / special lounges; and
- qq) Any other services deemed to be necessary for the safe and efficient operation of the Airport.

6.1.4 Non-aeronautical services as per BIAL mean the following facilities and services:

- a) Aircraft cleaning services;
- b) Airline Lounges
- c) Cargo handling;
- d) Cargo terminals;
- e) Ground handling services;
- f) Hangars;
- g) Heavy maintenance services for aircraft;
- h) Observation terrace;
- i) Banks/ATM·;
- j) Bureaux de change;
- k) Business center;
- l) Conference center;
- m) Duty free sales;
- n) Flight catering services;
- o) Freight consolidators/forwarders or agents;
- p) General retail shops;
- q) Hotel/Motels;
- r) Hotel reservation services
- s) Line maintenance services;

- t) Locker rental;
- u) Logistic centers;
- v) Messenger services;
- w) Porter services;
- x) Restaurant, bar and other refreshment facilities;
- y) Special Assistance services;
- z) Tourist information services;
- aa) Travel agency;
- bb) Vehicle fuelling services;
- cc) Vehicle rental;
- dd) Vehicle parking;
- ee) Vending machine;
- ff) Warehouses;
- gg) Welcoming services;
- hh) Other services related to passenger services at the airport, if the same are non-aeronautical in nature.

6.1.5 Common assets have been classified into aeronautical and non-aeronautical by BIAL based on the area of terminal building used for aeronautical and non-aeronautical services.

6.2 Terminal area ratio

6.2.1 Area of terminal building bifurcated between aeronautical, non-aeronautical and common as submitted by BIAL from FY17 to FY20 is specified in the table below:

Table 13: Terminal building area bifurcation from FY17 to FY20

S. no.	Usage	Total area (sq. m.) - FY17 and FY18	Total area (sq. m.) - FY19 and FY20
A	Passenger Areas & Aero Functions Area	98268	99539
B	Common Areas	45583	45390
C	Non-Aero - Outlets with Detail Break/ List	15586	17096
	Total	159437	162025
	Aero ratio	86.31%	85.34%
	Non-aero ratio	13.69%	14.66%

6.2.2 It is noted that the terminal area ratio has been revised by BIAL from 86.31% in FY18 to 85.34% in FY19. Thus, aeronautical gross block computed based on the terminal area ratio has reduced from FY18 to FY19. Aeronautical asset addition of a year is computed as the difference between aeronautical gross block of the respective year and the aeronautical gross block of the previous year. There is an impact on the aeronautical asset addition of FY19 on account of reduction in the aeronautical gross block from FY18 to FY19

6.2.3 It is noted that the report by Inter-Ministerial Group (IMG) on norms and standards for determining the capacity of airport terminals released in September 2008 and revised in January 2009 has recommended the non-aeronautical area in the terminal building for airports with less than 10 mppa in the range of 8% to 12% of the total terminal area while for airports with more than 10 mppa capacity non-aeronautical area recommended is up to 20% of the total terminal area. For Bangalore Airport, it is noted that the non-aeronautical area of the terminal building is between the 12% to 20% range recommended by IMG report.

6.3 Bifurcation of Gross Block as submitted by BIAL

6.3.1 The bifurcated gross block into aeronautical and non-aeronautical as assessed by BIAL is provided in the table below:

Table 14: Gross block bifurcation into aero and non-aero as per BIAL

Particulars*	FY17	FY18	FY19	FY20	FY21#
Aeronautical Gross Block	3,576.92	3,712.91	3,844.93	5,852.17	6,428.38
Non-aeronautical Gross Block	363.39	397.70	426.68	461.87	576.56
Total Gross Block	3,940.32	4,110.62	4,271.62	6,314.03	7,004.93
Non-aero ratio	9.22%	9.68%	9.99%	7.31%	8.23%

* difference is due to rounding off; # forecasted

6.3.2 It is noted that the non-aero ratio of the gross block is lower in FY20 (7.26%) as compared to FY17, FY18 and FY19. The reason behind the lower non-aero ratio of gross block in FY20 is because of commissioning of the New South Parallel Runway (NSPR) and associated works (asset cost of approximately INR 1,700 cr.) in FY20 which are 100% aeronautical in nature.

6.3.3 The detailed break-up of the gross block as submitted by BIAL is given in the table below:

Table 15: Detailed Gross block of FY21 bifurcation into aero and non-aero as per BIAL

S no	Asset Group#	A / N	Aero INR cr.	Non-Aero INR cr.	Total INR cr.	% Aero	% NAR	Basis
1.01	Airport Equipment - Operations Related	A	524.67	-	524.67	100%	0%	Elevators, Escalators, PBB, counters, CUTE, CUSS, BHS, etc.,
1.02	Apron	A	524.71	-	524.71	100%	0%	Apron and Airfield parking Area
1.03	Buildings - Canopy	A	25.76	-	25.76	100%	0%	Movement of Passengers and Staff
1.04	Buildings - Landscaping	A	11.2	-	11.2	100%	0%	Aesthetic look for passengers
1.05	Buildings - Operations, Security, ARFF Related	A	179.96	-	179.96	100%	0%	Operations, ARFF, Security, Safety etc.,
1.06	Buildings - Utilities	A	6.99	-	6.99	100%	0%	PowerHouse equipment building
1.07	Buildings - Water Management System	A	12.27	-	12.27	100%	0%	Water management and water drainage equipment building
1.08	Communication Equipment - PAS, Voice alarm, Security	A	58.27	-	58.27	100%	0%	PAS, Voice alarm, Security etc.,

Study on allocation of assets between aeronautical and non-aeronautical assets for BIAL

S no	Asset Group [#]	A / N	Aero INR cr.	Non-Aero INR cr.	Total INR cr.	% Aero	% NAR	Basis
1.09	Intangibles-CNS/ ATM Agreement	A	24.9	-	24.9	100%	0%	CNS / ATM agreement for ATM's
1.10	Intangibles-OMS Agreement	A	4.7	-	4.7	100%	0%	Operation and Maintenance agreement
1.11	Large Vehicles	A	52.15	-	52.15	100%	0%	Safe and Secure operations of the Airport
1.12	Power House Equipment	A	353.84	-	353.84	100%	0%	Power House equipment
1.13	Roads	A	297.18	-	297.18	100%	0%	Movement of Passengers and Staff
1.14	Roads (Trumpet)	A	141.45	-	141.45	100%	0%	Movement of Passengers and Staff
1.15	Runway	A	271.19	-	271.19	100%	0%	Runway - Aeronautical Services
1.16	Safety and security equipment	A	177.99	-	177.99	100%	0%	Safe and Secure operations of the Airport
1.17	Taxiway	A	366.1	-	366.1	100%	0%	Taxiway - Aeronautical Services
1.18	Water Management System	A	418.91	-	418.91	100%	0%	Water management and water drainage equipment building
1.19	Earthwork	A	775.11	-	775.11	100%	0%	Earthwork relating to NSPR
1.20	New South Parallel Runway (NSPR)	A	132.76	-	132.76	100%	0%	NSPR Runway
1.21	Lighting & Beacons Airside	A	98.62	-	98.62	100%	0%	Apron, Runways, Taxiways and other airside areas lighting
	Sub-Total (Aeronautical)		4,458.73	0.00	4,458.73	100%	0%	
2.01	Airport Equipment - Car Parking	N	-	4.4	4.4	0%	100%	Equipment deployed at car park area
2.02	Buildings - Non Aero	N	-	82.72	82.72	0%	100%	Car park, cargo village, airline building, GSE, ATC etc.,
2.03	Parking & Cargo Assets	N	-	72.9	72.9	0%	100%	Car park area and cargo village asset

Study on allocation of assets between aeronautical and non-aeronautical assets for BIAL

S no	Asset Group [#]	A / N	Aero INR cr.	Non-Aero INR cr.	Total INR cr.	% Aero	% NAR	Basis
2.04	Airline offices, Lounges & Others	N	-	18.07	18.07	0%	100%	Airline offices and Transit lounge assets
2.05	Advertising Signage	N	-	8	8	0%	100%	Advertising Signage assets
2.06	Pop-Up Retail Plaza (Quad)	N	-	4.61	4.61	0%	100%	Popup retail (Quad) assets
2.07	Express cargo	N	-	88.49	88.49	0%	100%	Express cargo
	Sub-Total (Non-Aeronautical)		0	279.19	279.19	0%	100%	
3.01	Air-conditioning	C	83.72	13.67	97.39	85.96%	14.04%	ARFF, Customs and other Airside area classified in Aero and PTB and other areas categorised based on area
3.02	Buildings - AC Plant	C	4.01	0.69	4.7	85.34%	14.66%	Apportioned based on area
3.03	Buildings - Others	C	42.36	7.02	49.38	85.78%	14.22%	Admin block and Project office asset apportioned based on area
3.04	Buildings - PTB Related	C	1,360.68	214.69	1,575.37	86.37%	13.63%	Apportioned based on area
3.05	Electrical installation	C	77.13	13.25	90.37	85.34%	14.66%	PTB Area asset pertaining to Aeronautical services are included under Aeronautical (Similarly, NAR)
3.06	Furniture and fixtures	C	147.36	6.98	154.34	95.48%	4.52%	Passenger seating, Gates, immigration customs included in AERO. Common assets are apportioned based on area.
3.07	IT Equipment	C	124.44	17.67	142.11	87.57%	12.43%	Hardware provided to counters, AOCC, operations, safety, security etc., captured under Aero. Asset deployed in parking area captured under non-aero. Common asset like SAP, hardware

Study on allocation of assets between aeronautical and non-aeronautical assets for BIAL

S no	Asset Group [#]	A / N	Aero INR cr.	Non-Aero INR cr.	Total INR cr.	% Aero	% NAR	Basis
								system to common dept apportioned based on area.
3.08	Lighting & Beaconing	C	39.52	6.79	46.31	85.34%	14.66%	Captured based on location
3.09	Small Vehicles	C	17.44	1.86	19.3	90.36%	9.64%	Follow-me, Get-away, safety vehicle assigned to Aero and other administrative vehicles have been apportioned based on area.
3.10	100% Depreciation	C	5.9	1.08	6.98	84.50%	15.50%	Apportioned based on usage in to aero and non-aero and others based on area
3.11	Communication Equipment	C	3.79	0.65	4.44	85.34%	14.66%	Apportioned based on usage in to aero and non-aero and others based on area
3.12	Office Equipment	C	16.92	2.03	18.95	89.27%	10.73%	Apportioned based on usage in to aero and non-aero and others based on area
3.13	Software & program licenses	C	44.97	10.1	55.07	81.66%	18.34%	Apportioned based on the usage of the Software
3.14	Roads - Common areas	C	1.43	0.25	1.68	85.34%	14.66%	Apportioned based on usage in to aero and non-aero and others based on area
	Sub-Total (Common)		1,969.67	296.73	2,266.39	86.91%	13.09%	
	Total		6,428.40	575.92	7,004.31	91.78%	8.22%	

* in the audited IGAAP accounts, two assets relating to canopy with WDV of Re 1 but with gross block and accumulated depreciation of Rs. 38 crores were removed from the gross block itself. Hence, the difference in the gross block between the numbers as per auditor certificate and the audited FAR. # difference is due to rounding off

6.4 Summary

6.4.1 BIAL has segregated the assets into aeronautical, non-aeronautical and common assets based on the internal company methodology/ policy certified by the management. Common assets have been classified into aeronautical and non-aeronautical by BIAL based on the area of terminal building used for aeronautical and non-aeronautical services. The non-aeronautical to

total gross block ratio as proposed by BIAL is 8.23% for FY21, 7.31% for FY20, 9.99% for FY19, 9.68% for FY18 and 9.22% for FY17.

7. REVISION OF THE ASSET ALLOCATION METHODOLOGY

7.1 Review of the documents

- 7.1.1 As part of the study, we reviewed the AERA Act to understand the extent of the aeronautical services. AERA Act defines the “aeronautical service” as follows (An extract of clause 2 - Definitions from the AERA Act, 2008 on the aeronautical services):

“aeronautical service” means any service provided—

- (i) for navigation, surveillance and supportive communication thereto for air traffic management;*
- (ii) for the landing, housing or parking of an aircraft or any other ground facility offered in connection with aircraft operations at an airport;*
- (iii) for ground safety services at an airport;*
- (iv) for ground handling services relating to aircraft, passengers and cargo at an airport;*
- (v) for the cargo facility at an airport;*
- (vi) for supplying fuel to the aircraft at an airport; and*
- (vii) for a stakeholder at an airport, for which the charges, in the opinion of the Central Government for the reasons to be recorded in writing, may be determined by the Authority;”*

- 7.1.2 It was noted that the concession agreement of BIAL with the Government of India defines the “Airport Activities” and “Non-Airport Activities” in Schedule 3 of the agreement. It is noted that the “Airport Activities” in Schedule 3 of Concession Agreement includes aeronautical activities such as runways, taxiways, aprons, etc. as well as non-aeronautical activities such as airline lounges, duty free, banks/ ATM, restaurants, etc. Thus, the list given in “Airport Activities” is a mix of both aeronautical and non-aeronautical services.
- 7.1.3 Additionally, it is noted that the Concession Agreement does not offer any further information on the aeronautical and non-aeronautical services. Therefore, BIAL’s assets are proposed to be bifurcated based on the provisions of the AERA Act, 2008.
- 7.1.4 We have also reviewed the asset allocation methodology adopted by AERA in its orders and consultation papers for other airports.
- 7.1.5 In addition to review of the above documents, study of the asset allocation principles in previous BIAL orders and the decisions of TDSAT judgements was also undertaken.

7.2 Basis for allocation of assets of BIAL

- 7.2.1 Aeronautical Assets are assets which are required for performance of the aeronautical services at the airport. The aeronautical services for classification of aeronautical assets are as defined under the AERA Act. These aeronautical assets include runways, taxiways, aprons, ARFF related assets, BHS, ground handling, cargo terminals, approach roads, airside lighting, VIP/ reserved lounges, etc. Assets necessary to maintain the service quality of the airport are proposed to be considered as aeronautical except those located in the commercial real estate development.
- 7.2.2 Non-aeronautical assets are assets which are required for performance of the non-aeronautical services at the airport. These assets include car parking, lounges, advertisement, retail plaza, commercial real estate development, etc.
- 7.2.3 Common assets are assets which are not directly attributable to either aeronautical or non-aeronautical services. These assets include the terminal building, air conditioning, furniture, administrative office of airport company, etc.

- 7.2.4 Common assets are bifurcated by BIAL between aeronautical and non-aeronautical based on the ratio of aeronautical and non-aeronautical area of the terminal building. AERA has adopted the approach to allocate the assets based upon terminal area ratio or gross fixed asset ratio. The study proposes to adopt the approach for bifurcation of common assets based on the terminal area ratio.
- 7.2.5 BIAL has submitted the terminal area ratio of 86.31% in FY17 and FY18 while for FY19 and FY20 the terminal area ratio submitted by BIAL is 85.34%. As explained in para 6.2.2, due to the change of terminal area ratio from FY18 to FY19, there is an impact of aeronautical asset addition of FY19. As per the directions from AERA, a consistent terminal area ratio throughout the second control period is applied on the common assets to determine the aeronautical asset addition. The revised terminal area ratio of 85.73% is computed based on the average terminal area ratio of the second control period (assuming FY21 terminal area ratio equal to FY20 terminal area ratio, that is, 85.34%).

Table 16: Revision of terminal area ratio for second control period

S no.	Terminal area ratio	2017	2018	2019	2020	2021
1	As per BIAL	86.31%	86.31%	85.34%	85.34%	85.34%
2	Revised	85.73%	85.73%	85.73%	85.73%	85.73%
	Difference	0.58%	0.58%	-0.39%	-0.39%	-0.39%

* difference is due to rounding off

- 7.2.6 We have reviewed the category wise allocation of assets as aeronautical, non-aeronautical or common as provided by BIAL. The category wise allocation has been assessed based on nature of service, location of asset, revenue generation etc. The category-wise general principles for bifurcation of assets have been provided in the table below. We have also assessed the impact of revised asset allocation methodology on the Gross Block of FY20. In the table below type “A” refers to “Aeronautical Asset”, type “N” refers to “Non-aeronautical Asset” and “C” refers to “Common Asset”. The differences in the classification of assets as per BIAL and as proposed have been highlighted.

Table 17: General principles of asset allocation

S. no.	Asset Category [#]	Asset Sub-category/ Description	Type* (BIAL)	Type* (Revised)	Impact on reclassified assets on Aero Gross Block of FY20 (INR cr.)
1	Airport Equipment - Operations Related	Passenger Boarding Bridges	A	A	-0.17
		Baggage Handling System, CUTE, CUSS	A	A	
		Elevators, escalators, travellers	A	A	
		Flight Information Display System (FIDS)	A	A	

S. no.	Asset Category [#]	Asset Sub-category/ Description	Type* (BIAL)	Type* (Revised)	Impact on reclassified assets on Aero Gross Block of FY20 (INR cr.)
		Car park and advertising related assets	A	N	
2	Apron	Apron	A	A	-
		Airfield parking area	A	A	
3	Buildings - Canopy	Canopy	A	A	-
4	Buildings - Landscaping	Horticulture within the Terminal	A	A	-0.14
		Horticulture at boulevard and central area	A	A	
		Horticulture at VVIP building	A	A	
		Horticulture at airport hotel	A	N	
5	Buildings - Operations, Security, ARFF Related	ARFF building	A	A	-
		Toilets for operations, security and ARFF	A	A	
		Compound/ perimeter wall	A	A	
		Security related assets	A	A	
6	Buildings - Utilities	Power house equipment building serving airside	A	A	-
		Power house equipment building serving airport	A	A	
7	Buildings - Water management system	Water management building	A	A	-
		Water drainage equipment building	A	A	
		Fire water pump room and fire drill pit	A	A	
		STP related and sewage pipe networks	A	A	

S. no.	Asset Category#	Asset Sub-category/ Description	Type* (BIAL)	Type* (Revised)	Impact on reclassified assets on Aero Gross Block of FY20 (INR cr.)
8	Communication Equipment - PAS, Voice alarm, Security	Public address system (PAS)	A	A	-
		Voice alarm	A	A	
		Security	A	A	
		TMRS	A	A	
9	Intangibles – Agreements	Concession Agreement, State Support Agreement, land lease agreement - Legal and other expenses during construction	A	A	-
		CNS/ ATM Agreement	A	A	
10	Intangibles-OMS Agreement	Intangibles-OMS Agreement	A	A	-
11	Large vehicles	Fire, water tankers, security related vehicles	A	A	-
12	Electrical & Power House Equipment	Electrical and Power house equipment for airside, NSPR and apron	A	A	-4.69
		Electrical and Power house equipment for roads, traffic signals	A	A	
		Wiring of CCTV	A	A	
		Electrical for VVIPs	A	A	
		Electrical for CNS/ ATM	A	A	
		Electrical for sewage/ STP	A	A	
		Electrical works for toilets, immigration area	A	A	
		Electrical works for terminal building and forecourt	A	C	
13	Roads	Roads - civil works	A	A	-

S. no.	Asset Category [#]	Asset Sub-category/ Description	Type* (BIAL)	Type* (Revised)	Impact on reclassified assets on Aero Gross Block of FY20 (INR cr.)
		Landscaping for roads	A	A	
14	Roads (Trumpet)	Approach road	A	A	-
15	Runway	Runway	A	A	-
16	Safety and security equipment	CCTV	A	A	-
		Fire related	A	A	
		Explosive detection System	A	A	
		Access control system	A	A	
		Baggage X-BIS	A	A	
17	Taxiway	Taxiway	A	A	-
18	Water management system	Airside - NSPR, runway, taxiway, apron	A	A	-13.29
		STP related and sewage pipe networks	A	A	
		Public Health Engineering works	A	A	
		Water harvesting assets	A	C	
19	Earthwork	New runway related earthwork	A	A	-
20	Lighting & Beaconing Airside	Lighting and beconing - Airside	A	A	-
21	Airport Equipment - Car Parking	CCTV	N	N	-
		Fire protection equipment	N	N	
		Car park equipment	N	N	
22	Buildings - Non Aero	Cargo village	N	N	-
		Airline building	N	N	
23	Roads - Parking & Cargo road	Car parking (remote and terminal) including pavement works	N	N	-

S. no.	Asset Category [#]	Asset Sub-category/ Description	Type* (BIAL)	Type* (Revised)	Impact on reclassified assets on Aero Gross Block of FY20 (INR cr.)
		Electrical and sanitary/ drainage works in car park/ cargo village area	N	N	
		Staff parking	N	N	
24	Airlines & Lounges	Lounges including transit lounges	N	N	-
		Electrical works in lounges	N	N	
25	Advertising Signage	Advertising signage	N	N	-
26	Pop-Up Retail Plaza (Quad)	Retail plaza - Quad	N	N	-
27	Air-conditioning	Air-conditioning - Aero area	A	A	
		Air-conditioning - non-aero area	N	N	-
		Air-conditioning - common area	C	C	
28	Buildings - AC Plant	Building - AC plant	C	C	-
29	Buildings - Others	New Project Office	C	C	
		Staff canteen	C	C	-
		Alpha 2 and Alpha 3	C	C	
30	Buildings - PTB Related	Façade work	C	C	
		Civil and electrical works	C	C	-
		Interiors	C	C	
		BIAL office in Terminal building	C	C	
31	Electrical installation	Electrical installation	C	C	-
32	Furniture and fixtures	Passenger seating furniture	A	A	
		Trolleys	A	A	-
		Artwork	A	A	
		Furniture at boarding gate, check-in counters	A	A	
		Furniture in non-aeronautical area	N	N	
		Furniture in common area - offices, etc.	C	C	
33	IT Equipment	Computers	C	C	
		Biometric readers	C	C	-
		Servers	C	C	
34	Lighting & Beacons	Lighting & Beacons - Terminal	C	C	-
35	Small Vehicles	Used for Airside operations	A	A	
		Used by Parking/ Non Aero team	N	N	-
		Used by Projects/ Finance/HR/ Admin/ Other supporting team	C	C	

S. no.	Asset Category [#]	Asset Sub-category/ Description	Type* (BIAL)	Type* (Revised)	Impact on reclassified assets on Aero Gross Block of FY20 (INR cr.)
36	Communication Equipment	Communication Equipment	C	C	-
37	Office Equipment	Office equipment - related to aero	A	A	-0.01
		Office equipment - related to non-aero	N	N	
		Office equipment - non-identifiable	C	C	
		Office equipment – BIAL App (mobile application)	A	C	
38	Software & program licenses	E-POS, parking related software	N	N	-0.58
		Camera software, CUTE, AODB, ATRS, BMS	A	A	
		Universal Flight Information System (UFIS)	A	A	
		BIAL App (mobile application)	A	C	
		Smart Airport Framework	A	A	
		Security software	A	A	
		E-business suite software	A	A	
39	Roads - Common areas	Roads - Common areas	C	C	-
40	100% Depreciation (asset depreciated in one year)	Furniture, q managers, light fixtures, etc. depreciated in one year	C	C	-0.01
		Thoughtwork project (BIAL App) assets	A	C	
	Total				-18.87

* A – Aeronautical Asset, N – Non-aeronautical Asset, C - Common Asset

difference is due to rounding off

7.3 Reclassification of assets

7.3.1 The summary of impact on aero asset addition as a result of reclassification of assets is shown below.

Table 18: Summary of reclassification of assets as per the study

S no.	Reclassification	Increase/ decrease to aeronautical assets	Impact on aero gross block (INR cr.)
A	Aeronautical to common (FY17 – FY20)	Decrease	-18.57
B	Aeronautical to non-aeronautical (FY17 – FY20)	Decrease	-0.31
C	FY21 adjustment due to i) change in allocation ratio,	Decrease	-13.40

S no.	Reclassification	Increase/ decrease to aeronautical assets	Impact on aero gross block (INR cr.)
	ii) exclusion of ECT and iii) express cargo considered as aero		
	Total		-32.27

* difference is due to rounding off

7.4 Details of the proposed adjustment to the asset classification is provided below:

7.4.1 The details of the proposed adjustments and rationale for reclassification of assets are provided as follows.

A. Reclassification from Aeronautical to common

7.4.2 Electrical and power house equipment

- Allocation as per BIAL: Aeronautical
- Observation: Power supply infrastructure at the airport provides power to air side, roads, terminal building and forecourts. These equipment include DG sets, UPS, substations, power distribution board, low tension switchboards, high tension cables, etc. BIAL has considered these assets as aeronautical irrespective of whether these assets serve airside or terminal facilities. Since, these assets serve both aeronautical assets as well as the common assets, bifurcation based on the usage is required. BIAL, as requested, provided the bifurcation of these assets based on their usage - airside use, terminal use, forecourts/ roads use, entire airport use and non-identifiable usage.
- Revised asset allocation: Accordingly, the assets serving the terminal building, forecourts, airport and not identifiable assets have been considered as common assets.
- Impact on RAB for second control period: Reduction of INR 4.69 cr.

Table 19: Reclassification of Utilities and Electrical and power house equipment

S no.	Asset*	Asset code	Capitalization date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
1	Forecourt Electrical works	420000408	1-Mar-17	12.25	85.73%	10.50	1.75
2	Forecourt Skidata Electrical works	420000411	1-Mar-17	4.23	85.73%	3.62	0.60
3	Forecourt HDPE & PVC conduits for ICT work	420000410	1-Mar-17	2.74	85.73%	2.35	0.39
4	Electrical Works-PESC Phase 1 & 2 A	420000424	1-Mar-17	0.87	85.73%	0.74	0.12
5	COMPACT SUBSTATION	420000605	2-Jul-18	0.65	85.73%	0.56	0.09
6	Electric Works-Collection Well	420000416	1-Mar-17	0.65	85.73%	0.56	0.09

S no.	Asset*	Asset code	Capitalization date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
7	415V 3Phase Power Distribution Board	420000656	6-Dec-18	0.63	85.73%	0.54	0.09
8	400 KVA Diesel Generator	420000606	2-Jul-18	0.48	85.73%	0.41	0.07
9	360 KVA Power Distribution Board	420000658	6-Dec-18	0.45	85.73%	0.39	0.06
10	Civil-TCL electrical installations	420000625	4-Sep-18	0.43	85.73%	0.37	0.06
11	ESH12 410W AGMFR ROCKET BATTERY, VIETNAM	420000530	12-Jan-18	0.42	85.73%	0.36	0.06
12	Led Street Light fixture and accessories	420000456	15-Jul-17	0.37	85.73%	0.32	0.05
13	ELECTRICAL WORKS	420000514	1-Oct-17	0.34	85.73%	0.30	0.05
14	Electrical-3rd Kerb	420000446	1-Jun-17	0.33	85.73%	0.29	0.05
15	11Mt Octagonal pole with Lighting Luminary	420000602	2-Jul-18	0.30	85.73%	0.26	0.04
16	Potable Pumping to MPH-(Grundfos CR 90-3 with VFD)	420000441	1-May-17	0.29	85.73%	0.25	0.04
17	PART - C: ELECTRICAL WORKS	420000726	12-Feb-20	0.27	85.73%	0.23	0.04
18	Three inline Pumps with Multiple VFD	420000671	2-Apr-19	0.26	85.73%	0.22	0.04
19	Centralised Critical Electrical Monitor system	420000498	15-Oct-17	0.23	85.73%	0.20	0.03
20	ESH12 410W AGMFR ROCKET BATTERY	420000609	17-Aug-18	0.22	85.73%	0.19	0.03
21	Surface Well - Rejuvenation Electrical installation	420000360	30-Aug-16	0.21	85.73%	0.18	0.03
22	Sub distribution board panels	420000414	1-Mar-17	0.21	85.73%	0.18	0.03
23	Car charging DBs (IP-57) (Copper Busbar)	420000419	1-Mar-17	0.21	85.73%	0.18	0.03
24	RO 2M3/HR WITH 10 KL TANK	420000624	16-Oct-18	0.20	85.73%	0.17	0.03
25	Other assets	-	-	5.64	85.73%	4.84	0.81
	Total			32.87		28.18	4.69

* difference is due to rounding off

7.4.3 BIAL – App (Thoughtworks project) under Software & program licenses

- Allocation as per BIAL: Aeronautical
- Observation: As a response to a query regarding the BIAL – App, BIAL mentioned that “This is a Customer Oriented Platform-APP exclusively for the Passenger Experience Enhancement - It enables Intimation & Notification of Flight, Boarding information, Wi-Fi connectivity, feedback of airport services etc.” It is noted from the mobile application that in addition to providing the flight information, the application also provides the details of the retail, F&B outlets, car parking, etc. Hence, the application provides the information of both aeronautical and non-aeronautical services. Further, BIAL has classified its BIAL Public Portal – www.bengaluruairport.com as a common asset. BIAL App (mobile application) is also assumed to be a similar asset as BIAL public portal.
- Revised asset allocation: Accordingly, the costs associated with Thoughtworks project for development of mobile app are classified from aeronautical to common assets.
- Impact on RAB for second control period: Reduction of INR 0.59 cr.

Table 20: Reclassification of BIAL App (Thoughtworks project)

S no.	Asset*	Asset code	Capitalization date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
1	BIAL App - Thought Works Project Phase 2	370000206	1-Apr-17	2.24	85.73%	1.92	0.32
2	BIAL App - Thought Works Project	370000196	15-Sep-16	1.79	85.73%	1.54	0.26
3	DELL POWEREDGE R530 SERVER, 1CPU,16 GB- Thoughtwork	360000917	15-Sep-16	0.05	85.73%	0.05	0.01
4	Beacons for Thoughtwork Project	240000470	15-Sep-16	0.04	85.73%	0.04	0.01
5	Switches and Cables for Thoughtworks Project	360000911	15-Sep-16	0.01	85.73%	0.01	0.00
6	Apple Iphone 6S Plus- Thoughtwork	400000692	13-Apr-16	0.01	85.73%	0.00	0.00
7	Samsung Galaxy S7 Edge 32GB. Thought Works	400000689	13-Apr-16	0.01	85.73%	0.00	0.00
8	Apple Iphone 5S,16GB- Thoughtwork	400000691	13-Apr-16	0.00	85.73%	0.00	0.00
9	Samsung Tab for Thoughtworks BIAL App	360000913	15-Sep-16	0.00	85.73%	0.00	0.00

S no.	Asset*	Asset code	Capitalization date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
10	Sony Xperia T2 Ultra Black-Thoughtworks Projects	400000687	3-Apr-16	0.00	85.73%	0.00	0.00
11	Micromax Mobile Canvas 5- Thoughtwork	400000690	13-Apr-16	0.00	85.73%	0.00	0.00
12	Apple iPhone 4S 8GB Black-Thought work Project	400000688	13-Apr-16	0.00	85.73%	0.00	0.00
	Total			4.16		3.57	0.59

7.4.4 Water harvesting assets

- Allocation as per BIAL: Aeronautical
- Observation: BIAL has developed water harvesting ponds/ rain sumps to store rain water for use at the airport. It is noted that these rain water sumps serve both aeronautical and non-aeronautical assets.
- Revised asset allocation: Accordingly, the costs associated with water harvesting ponds/ rain sumps are classified as common assets.
- Impact on RAB for second control period: Reduction of INR 13.29 cr.

Table 21: Reclassification of water harvesting assets

S no.	Asset	Asset code	Capitalization Date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
1	Soil, Waste, Vent And Rain Water Pipes - Arrival L0	320000090	1-Sep-16	0.29	85.73%	0.24	0.04
2	Soil,Waste,Vent And Rain Water Pipes-Phe-T1A R -L1	320000086	1-Sep-16	0.14	85.73%	0.12	0.02
3	Soil, Waste, Vent And Rain Water Pipes - Area 11	320000088	1-Sep-16	0.11	85.73%	0.09	0.02
4	Rain Water Pipeline work at P8	320000112	20-Jan-18	0.06	85.73%	0.05	0.01

S no.	Asset	Asset code	Capitalization Date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
5	Pond no. 3, 4 and 5 in the NSPR contract	320000140	6-Dec-19	92.50	85.73%	79.30	13.20
	Total			93.09		79.81	13.29

* difference is due to rounding off

B. Reclassification from aeronautical assets to non-aeronautical assets

7.4.5 Buildings – Landscaping in the commercial real estate development area

- Allocation as per BIAL: Aeronautical
- Observation: Landscaping is undertaken by the airport to provide enhanced passenger experience while also meeting the environment sustainability goals of the airport. However, it was noted that landscaping undertaken around the airport hotel has also been considered as aeronautical by BIAL.
- Revised asset allocation: Since, the assets forming part of the commercial real estate development are considered as non-aeronautical assets, the capital expenditure for landscaping in and around the commercial real estate development is also considered as non-aeronautical.
- Impact on RAB for second control period: Reduction of INR 0.14 cr.

Table 22: Reclassification of landscaping in the commercial real estate development area

S no.	Asset	Asset code	Capitalization Date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
1	Plants Around Airport Hotel	540000004	2-Feb-17	0.14	0.0%	0.00	0.14
	Total			0.14		0.00	0.14

7.4.6 Car park and advertising related assets under Airport Equipment – Operations related

- Allocation as per BIAL: Aeronautical
- Observation: Car park and advertising related assets are non-aeronautical assets which have been considered as aeronautical by BIAL.
- Revised asset allocation: Accordingly, the costs associated with car park and advertising related assets are classified as non-aeronautical assets.
- Impact on RAB for second control period: Reduction of INR 0.17 cr.

Table 23: Reclassification of car park and advertising related assets under Airport equipment – operations related

S no.	Asset	Asset code	Capitalization Date	Aero gross block as per BIAL (FY20)	Allocation ratio for FY20 %	Revised aero gross block (FY20)	Impact (INR cr.)
				A	B	C=A*B	D=A-C
1	Parking display unit at Landside Traffic	340001318	6-Apr-16	0.15	0.00%	0.00	0.15
2	Signages adjacent to main access road	530000013	10-Jan-17	0.03	0.00%	0.00	0.03
	Total			0.17		0.00	0.17

* difference is due to rounding off

C. Adjustments to proposed asset additions of FY21

7.4.7 Exclusion of enabling works for eastern connectivity tunnel

- Allocation as per BIAL: Aeronautical
- Observation: AERA in its second control period for BIAL had excluded the enabling works for eastern connectivity tunnel. Accordingly, these are excluded from the FY21 asset additions.
- Revised asset allocation: Excluded from the FY21 asset addition.
- Impact on RAB for second control period: Reduction of INR 86.55 cr.

7.4.8 Express cargo

- Allocation as per BIAL: Non-Aeronautical
- Observation: AERA Act, 2008 considers the cargo, ground handling and fuel services as aeronautical services. Accordingly, the express cargo capital expenditure is considered as aeronautical.
- Revised asset allocation: Considered as aeronautical
- Impact on RAB for second control period: Increase of INR 88.49 cr.

7.4.9 Revised asset allocation ratio from gross block ratio to terminal area ratio for common assets

- Allocation as per BIAL: Common
- Observation: Gross block ratio is a composite ratio and a weighted average of aero, common and non-aero assets. Hence, the gross block ratio should be applied on entire capex addition irrespective of it being aero, common or non-aero instead of BIAL's approach of applying it selectively on common assets. Common assets have been segregated in the asset register based on average terminal area ratio and therefore, the same ratio (85.73%) is applied on the common assets. Based on the above, bifurcation ratio for FY21 capex of airport offices, ITI project and sustaining capex is revised from 91% to terminal area ratio of 85.73%.
- Revised asset allocation: Revised bifurcation ratio from 91% to 85.73%.
- Impact on RAB for second control period: Reduction of INR 15.34 cr.

D. Clarifications from BIAL on the asset classification

- 7.4.10 Additionally, we had sought details for the following asset classifications. These assets were not reclassified based on the responses received from BIAL.

7.4.11 Buildings - Canopy

- a. Allocation as per BIAL: Aeronautical
- b. Observation: BIAL clarified that “the canopy mainly consists of glass canopy for 3rd Kerb for vehicular movement, pedestrian canopy to facilitate movement of passengers from kerbside to bus and airport parking facilities. As the canopy is for vehicle and passenger facilitation it is considered as aero asset”. Further, on the retail/ F&B outlets in the canopy area, BIAL has clarified that “All the F&B /Retail outlets in the kerb/forecourt area are within the roof of the terminal kerb area. The said roof area is not in the Building- Canopy listed in the FAR”.
- c. Revised asset allocation: Based on the clarification from BIAL, since the asset is not used for non-aeronautical activities, no change is proposed in the asset allocation methodology.
- d. Impact: Nil

7.4.12 Roads - Trumpet

- a. Allocation as per BIAL: Aeronautical
- b. Observation: On the query regarding Roads – Trumpet forming part of the airport boundary, BIAL clarified that “The trumpet commences from the National Highway and comes into the airport boundary. At the time of Airport opening, the Government had not provided proper connectivity to Airport and BIAL has built a Trumpet Flyover on National Highway to connect to the Airport”. BIAL has provided the details of the communication between Government of Karnataka and BIAL on the construction of trumpet interchange. Initially, as part of the State Government Support Agreement, it was the responsibility of NHAI to construct the trumpet interchange. However, later in 2007, GoK asked BIAL to construct the trumpet interchange and gave the land on lease to BIAL for 20 years. Further, on the query regarding the road serving airport as well as proposed commercial real estate development, BIAL clarified that “There is only one Main access from the NH to the airport, that is via the Trumpet Flyover.” Approach roads are an integral part of the airport and essential for airport connectivity. It is noted that the land for trumpet interchange is given on lease by GoK to BIAL and further GoK had asked BIAL to construct the trumpet interchange. Further, it is noted that the commercial real estate development is limited at BIAL and therefore the primary use of the Trumpet road is by the passengers and airport staff.
- c. Revised asset allocation: Based on the clarification from BIAL, no change is proposed in the asset allocation methodology.
- d. Impact: Nil

7.4.13 Infrastructure for BAHF towers under Electrical Installations

- a. Allocation as per BIAL: Common
- b. Observation: The asset appeared to be related to the Bangalore Airport Hotel Limited, a 100% owned subsidiary of BIAL which provides non-aeronautical services (operates a hotel in airport vicinity). On the query to BIAL regarding the asset, BIAL clarified that “this asset is Common Passive Mobile Infrastructure (CPMI) is located in the area marked as BAHF premises. However, this asset is for the infrastructure network coverage across the AIRPORT Campus. The CPMI is infrastructure deployed for mobile coverage in the airport. BIAL is responsible to ensure that the passengers get mobile connectivity seamlessly even while transiting from the airport till airport perimeter. The placement of the CPMI is to derive maximum connectivity to passengers and placed at various locations

within the airport. One of the CPMI is located in the area marked as BAHL premises and is not specific to BAHL but for the benefit of passengers transiting from the airport.”

- c. Revised asset allocation: Based on BIAL’s clarification, no change is proposed in the asset allocation for this asset.
- d. Impact: Nil

7.4.14 Earthwork for NSPR and associated works

- a. Allocation as per BIAL: Aero
- b. Observation: BIAL is undertaking many expansion projects in parallel which include the construction of Terminal 2, MMTH and NSPR and associated works. On the query to BIAL regarding the area for which the earthwork was undertaken, BIAL clarified that “The Earthwork (600000001) which is capitalised as a separate asset is for NSPR and includes apron portion. This cost does not relate to any earthworks for Terminal 2, MMTH / Terminal 3 or any other area.”
- c. Revised asset allocation: Based on BIAL’s clarification, no change is proposed in the asset allocation for this asset.
- d. Impact: Nil

7.5 Proposed adjustments to investment in RAB from FY17 to FY21

Asset additions from FY17 to FY20

- 7.5.1 Based on the revision of asset allocation methodology adopted for assets of BIAL, a revision in the aeronautical asset addition from FY17 to FY20 is undertaken based on the audited Fixed Asset Register of BIAL.
- 7.5.2 Summary of the reclassification of the assets with its impact on the aeronautical asset addition from FY17 to FY20 has been presented in the table below.

Table 24: Revised aeronautical asset addition from FY17 to FY20 based on the asset allocation study

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	Total
(A) Total investments in fixed assets during FY17 to FY20 (as per FAR of BIAL)	226.31	170.30	161.00	2042.42	2,600.03
(B) Aero asset addition to RAB as per BIAL	213.92	135.99	132.02	2,007.23	2,489.16
(C) Proposed adjustment to RAB due to change in segregation logic, for reasons below:					
(C.1) Reclassification from aeronautical to common					
Electrical and Power House Equipment	-3.19	-0.60	-0.70	-0.20	-4.69
BIAL App (mobile application)	-0.27	-0.32	0.00	0.00	-0.59
Water harvesting assets	-0.08	0.00	-0.01	-13.20	-13.29
(C.2) Reclassification from aeronautical to non-aeronautical					
Landscape in real estate area	-0.14	0.00	0.00	0.00	-0.14
Car park related asset	-0.17	0.00	0.00	0.00	-0.17

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	Total
(D) Total proposed adjustments due to changes in segregation logic to RAB (D = C.1 + C.2)	-3.84	-0.92	-0.71	-13.40	-18.87
(E) Adjustment to RAB due to change in terminal area ratio *	-9.23 [^]	-0.14	+15.71 [#]	0.15	+6.49
(F) Total impact due to proposed changes (F = D + E)	-13.06	-1.06	15.00	-13.25	-12.38
(G) Adjusted aero additions to RAB during second control period as per this study (G = B + F)	200.86	134.93	147.02	1993.98	2,476.78

Impact due to change in terminal area ratio from FY18 to FY19 by BIAL as per para 6.2.2

* Impact on the asset addition due to the revised average terminal area ratio as per para 7.2.5

[^] Impact on the aeronautical asset addition is due to revision of the terminal area ratio to average terminal area ratio (85.73%) in FY17 from 86.31% in FY16

Asset additions in FY21

7.5.3 Following changes to the FY21 asset additions are made to the revised submission of BIAL:

- Enabling works capex of Eastern connectivity tunnel – Excluded as per 2nd control period order
- Considered express cargo capex as 100% aeronautical instead of BIAL's treatment of express cargo capex as non-aeronautical as per AERA Act, 2008
- Gross block ratio is a composite ratio and a weighted average of aero, common and non-aero assets. Hence, the gross block ratio should be applied on entire capex addition irrespective of it being aero, common or non-aero instead of BIAL's approach of applying it selectively on common assets. Common assets have been segregated in the asset register based on the average terminal area ratio as detailed in 7.2.4 and 7.2.5 and therefore, the same ratio (85.73%) is applied on the common assets. Based on the above, bifurcation ratio for FY21 capex of airport offices, ITI project and sustaining capex is revised from 91% to terminal area ratio of 85.73%.
- Revised actual WPI in FY20 (3.64% to 1.7%) to apply on the special repairs cost of FY21 given in FY19 prices

7.5.4 Based on above, the revised aeronautical asset addition in FY21 has been presented in the table below.

Table 25: Revised aeronautical asset addition for FY21

S no	Projects	Revised submission of BIAL – total additions	Allocation as per BIAL	Aero addition to FY21 as per BIAL	Revised allocation as per the study	Revised aero addition to FY21	Impact of revision
1	Site preparation & Earthworks	21.98	100.00%	21.98	100.00%	21.98	0.00
2	Aircraft Rescue & Fire Fighting	8.86	100.00%	8.86	100.00%	8.86	0.00

S no	Projects	Revised submission of BIAL – total additions	Allocation as per BIAL	Aero addition to FY21 as per BIAL	Revised allocation as per the study	Revised aero addition to FY21	Impact of revision
3	Airport Offices - Phase I	3.89	91.00%	3.54	85.73%	3.33	0.20
4	Existing Runways / Taxiway Improvements - Phase 1b	193.94	100.00%	193.94	100.00%	193.94	0.00
5	Eastern Tunnel - Enabling works	86.55	100.00%	86.55	0.00%	0.00	86.55
6	Express Cargo	88.49	0.00%	0.00	100.00%	88.49	-88.49
7	ITI Project	86.60	91.00%	78.81	85.73%	74.24	4.56
8	Sustaining capex	200.59	91.00%	182.54	85.73%	171.97	10.57
	Total	690.90		576.21		562.81	13.40

7.5.5 Summary: Based on the above, the total reduction in the aeronautical asset addition on account of these adjustments for the second control period (from FY17 to FY21) is INR 25.78 cr.

Table 26: Revised aeronautical asset addition from FY17 to FY21 based on the asset allocation study

Particulars (In INR Cr.)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Aero asset addition to RAB as per BIAL (A)	213.92	135.99	132.02	2,007.23	576.21	3,065.37
Less: Impact due to proposed changes (refer Table 1 and Table 2) (B)	-13.06 [^]	-1.06	15.00 [#]	-13.25	-13.40	-25.78
Adjusted aero additions to RAB during second control period as per this study (C = A + B)	200.86	134.93	147.02	1993.98	562.81	3,039.60

[#] Impact due to change in terminal area ratio from 86.31% in FY18 to 85.34% in FY19 by BIAL as per para 6.2.2

^{*} Impact on the asset addition due to the revised average terminal area ratio as per para 7.2.5

[^] Impact on the aeronautical asset addition is due to revision of the terminal area ratio to average terminal area ratio (85.73%) in FY17 from 86.31% in FY16

7.6 Revised Gross Block

7.6.1 Based on the proposed revisions, adjustments to the gross block was prepared to determine the revised gross block. The details of adjustment to Gross Block of FY21 have been presented in the table below:

Table 27: Revised Gross Block of BIAL of FY21 based on the revised asset allocation – asset category-wise

Particulars*	Aeronautical gross block	Non-aeronautical gross block	Total
Closing gross block as per BIAL (as at 31st March 2021) (A)	6,428.38	576.56	7,004.93
Gross fixed asset ratio before adjustment for FY21	91.77%	8.23%	
Adjustment to gross block on account of first control period aero and non-aero bifurcation#	-45.65	45.65	
Adjustment due to change in terminal area ratio (sum of E in Table 24)	6.49	-6.49	
Reclassification of aeronautical assets to common assets			
Buildings – Utilities and Electrical and power house equipment used for terminal building and airport	-4.69	4.69	
BIAL app (mobile application) - Thoughtworks project	-0.59	0.59	
Water harvesting assets	-13.29	13.29	
Reclassification of aeronautical assets to non-aeronautical assets			
Buildings – Landscaping in the commercial real estate development area	-0.14	0.14	
Car park and advertising related assets under Airport Equipment – Operations related	-0.17	0.17	
Reclassification of FY21 asset			
FY21 asset addition adjustments	-13.40	13.40	
Total adjustments due to reclassification and change in terminal area ratio	-25.78	25.78	
Closing Gross block after adjustments (as on 31st March 2021)	6,356.95	647.99	7,004.93
Gross fixed asset ratio after adjustment for FY21	90.75%	9.25%	
Impact on the gross fixed asset ratio of FY21	-1.02%	1.02%	

* difference is due to rounding off; # in the FAR submitted by BIAL the opening aero Gross Block as on 1 April 2016 was INR 3,363.00 cr. whilst the closing aero Gross Block as per second control period order was INR 3,317.35 cr. The difference between the opening aero Gross Block of FY17 submitted by BIAL and closing aero Gross Block of FY16 assumed by AERA is on account of the revision of the bifurcation of the aeronautical and non-aeronautical assets of the first control period undertaken by AERA.

7.6.2 The year-wise revision in the asset allocation ratio of the Gross Block and the asset additions for the second control period (from FY17 to FY21) has been summarized in the table below:

Table 28: Revised Gross Block and asset additions of BIAL from FY17 to FY21 based on the revised asset allocation

Particulars*	FY17	FY18	FY19	FY20	FY21#	Total
Opening total gross block as per FAR of BIAL (A)	3714.01	3940.32	4110.62	4271.62	6314.03	22,350.59
Total additions adjusted for disposals (B)	226.31	170.30	161.00	2042.42	690.90	3,290.93
Closing gross block (C = A + B)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero Gross Block as submitted by BIAL						

Study on allocation of assets between aeronautical and non-aeronautical assets for BIAL

Particulars*	FY17	FY18	FY19	FY20	FY21#	Total
Opening aero gross block (D)	3,363.00	3,576.92	3,712.91	3,844.93	5,852.17	20,349.94
Net aero additions after adjustment for disposals (E)	213.92	135.99	132.02	2,007.23	576.21	3,065.37
Closing aero gross block (F = D + E)	3,576.92	3,712.91	3,844.93	5,852.17	6,428.38	23,415.31
Opening non-aero gross block (G = A - D)	351.00	363.39	397.70	426.68	461.87	2,000.65
Net non-aero additions after adjustment for disposals (H = B - E)	12.39	34.31	28.98	35.18	114.69	225.55
Closing non-aero gross block (I = G + H)	363.39	397.70	426.68	461.87	576.56	2,226.20
Total Gross Block (J = F + I)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero gross block ratio (K = F/J)	90.78%	90.32%	90.01%	92.69%	91.77%	91.32%
As per reclassification of assets						
Opening aero gross block^ (L)	3,317.35	3,518.21	3,653.14	3,800.16	5,794.13	20,082.99
Net aero additions after adjustment for disposals (M)	200.86	134.93	147.02	1,993.98	562.81	3,039.60
Closing aero gross block (N = L + M)	3,518.21	3,653.14	3,800.16	5,794.13	6,356.95	23,122.59
Opening non-aero gross block (O = A - L)	396.66	422.11	457.48	471.46	519.90	2,267.60
Net non-aero additions after adjustment for disposals (P = B - M)	25.46	35.37	13.98	48.44	128.09	251.33
Closing non-aero gross block (Q = O + P)	422.11	457.48	471.46	519.90	647.98	2,518.93
Total Gross Block (R = N + Q)	3940.32	4110.62	4271.62	6314.03	7004.93	25,641.51
Aero gross block ratio (S = N/R)	89.29%	88.87%	88.96%	91.77%	90.75%	90.18%
Net impact on the aero additions (T = M - E)	-13.06	-1.06	15.00	-13.25	-13.40	-25.78
Net impact on aero ratio (U = S - K)	-1.49%	-1.45%	-1.05%	-0.92%	-1.02%	-1.14%

difference is due to rounding off; # forecasted; ^ in the FAR submitted by BIAL the opening aero Gross Block as on 1 April 2016 was INR 3,363.00 cr. whilst the closing aero Gross Block as per second control period order was INR 3,317.35 cr. The difference between the opening aero Gross Block of FY17 submitted by BIAL and closing aero Gross Block of FY16 assumed by AERA is on account of the revision of the bifurcation of the aeronautical and non-aeronautical assets of the first control period undertaken by AERA

7.7 Summary

7.7.1 BIAL had classified INR 6,428.38 cr. as gross aeronautical assets and INR 576.56 cr. as gross non-aeronautical assets as on 31 March 2021 with the gross aeronautical to gross non-aeronautical asset bifurcation ratio of 91.77% to 8.23%.

- 7.7.2 Based on the reclassification of the assets (as detailed in section 7.4), the Gross Block has been segregated into aeronautical and non-aeronautical gross block as under:
- i. Proposed adjusted aeronautical gross block as on 31 March 2021 is INR 6,356.95 cr.
 - ii. Proposed adjusted non-aeronautical gross block as on 31 March 2021 is INR 647.98 cr.
 - iii. Total reduction in the aeronautical RAB for the second control period (FY17 to FY21) as per the study is INR 25.78 cr.
- 7.7.3 The revised ratio of gross aeronautical and gross non-aeronautical assets after making the adjustments proposed above is 90.75% to 9.25% as on 31 March 2021.

8. OVERALL SUMMARY OF THE STUDY

- 8.1.1 BIAL has made an investment of INR 2,600.03 cr. from FY17 to FY20. An investment of INR 690.90 cr. is forecasted by BIAL in FY21. The total investment in the second control period is INR 3,290.93 cr. The investments include development of aeronautical and non-aeronautical assets at the airport.
- 8.1.2 Major projects undertaken by BIAL in the second control period are commissioning of New South Parallel Runway and associated works – these include Site Preparatory works, 4000 M Code F and CAT IIIB runway, Dual Parallel Taxiways, Rapid Exit Taxiways, Aircraft Rescue and Fire Fighting (ARFF), Perimeter Roads, Gate House and CCR Hall, NAVAIDS infra and southern access roads. Other major works whose work is in progress are Terminal 2 (Phase I), and Multi-Modal Transport Hub.
- 8.1.3 BIAL had classified INR 6,428.38 cr. as gross aeronautical assets and INR 576.56 cr. as gross non-aeronautical assets as on 31 March 2021 with the gross aeronautical to gross non-aeronautical asset bifurcation ratio of 91.77% to 8.23%.
- 8.1.4 For the purposes of the study, the closing aeronautical RAB of FY16 as per the second control period order is considered as the opening aeronautical RAB of FY17 and closing aeronautical Gross Block of FY16 as per the second control period order is considered as the opening aeronautical Gross Block of FY17 for the study.
- 8.1.5 Asset bifurcation methodology is based on the definitions of the aeronautical, non-aeronautical and common assets as per AERA Act and past orders of AERA. Common assets have been classified into aeronautical and non-aeronautical based on the average terminal building area ratio of 85.73% as per para 7.2.5.
- 8.1.6 Assets reclassified from aeronautical to common include the assets related to electrical and power house equipment, BIAL App (mobile application) and water harvesting assets. Assets reclassified from aeronautical to non-aeronautical include the car park and advertising related assets and the landscape assets in the commercial real estate area. Further, the changes made to the asset allocation of FY21 include the consideration of express cargo as aeronautical asset, exclusion of eastern connectivity tunnel and change in allocation ratio to terminal area ratio.
- 8.1.7 Based on the reclassification of the assets (as detailed in section 7.4), the Gross Block has been segregated into aeronautical and non-aeronautical gross block as under (Refer Table 28):
- i. Proposed adjusted aeronautical gross block as on 31 March 2021 is INR 6,356.95 cr.
 - ii. Proposed adjusted non-aeronautical gross block as on 31 March 2021 is INR 647.98 cr.
 - iii. Total reduction in the aeronautical RAB for the second control period (FY17 to FY21) as per the study is INR 25.78 cr.
- 8.1.8 The revised ratio of gross aeronautical and gross non-aeronautical assets after making the adjustments proposed above is 90.75% to 9.25% as on 31 March 2021.

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10. GLOSSARY

Table 29: Glossary

Abbreviation	Expansion
A	Aeronautical
AAI	Airports Authority of India
AERA	Airports Economic Regulatory Authority of India
AOCC	Airport Operations Control Centre
ARFF	Aircraft Rescue and Fire Fighting
ATC	Air Traffic Controller
BAHL	Bangalore Airport Hotel Limited
BHS	Baggage Handling System
BIAL	Bangalore International Airport Limited
C	Common
CAPEX	Capital Expenditure
CCR	Constant Current Regulator
CCTV	Closed Circuit Television
CNS/ ATM	Communications, Navigation and Surveillance Systems for Air Traffic Management
CPMI	Common Passive Mobile Infrastructure
CUSS	Common User Self Service
CUTE	Common User Terminal Equipment
DG	Diesel Generator
EPC	Engineering Procurement Construction
FAR	Fixed Asset Register
F&B	Food and Beverage
FIDS	Flight Information Display Systems
GAAP	Generally Accepted Accounting Principles
GoI	Government of India
GoK	Government of Karnataka
GSE	Ground Support Equipment
HDPE/ PVC	High Density Polyethylene/ Poly Vinyl Chloride
IT	Information Technology
ICT	Information Communication Technology
KSIIDC	Karnataka State Industrial and Infrastructure Development Corporation
MMTH	Multi-Modal Transport Hub
MPPA	Million Passengers Per Annum
MYTP	Multi-Year Tariff Proposal
N	Non-aeronautical
NAVAIDS	Navigational Aids
NAR	Non-Aeronautical Revenues
NSPR	New South Parallel Runway
OPEX	Operational Expenditure
PAS	Public Address System
PO	Purchase Order
PTB	Passenger Terminal Building

Abbreviation	Expansion
RAB	Regulated Asset Base
TDSAT	Telecom Disputes Settlement and Appellate Tribunal
T1	Terminal 1
T2	Terminal 2
UPS	Uninterruptible Power Source
VDGS	Visual Docking Guidance System

EXHIBIT I – Terms of reference for the study

AERA has stipulated the scope of work for the asset allocation study in Clause 3.1 (v) of the RFP No. 01/ 2020-21 for engagement of consultants to assist AERA in determination of tariffs of BIAL for aeronautical services. Scope of work related to asset allocation study has been mentioned below:

“3.1 (v) - Asset / OPEX segregation between Aero and Non Aero.”

EXHIBIT II – AUDITOR CERTIFICATE SUBMITTED BY BIAL ON ASSET ALLOCATION

Report on Agreed-upon procedures related to the allocation of fixed assets into Aeronautical and Non-Aeronautical

We, Sreedar Mohan and Associates, Chartered Accountants performed agreed upon procedures to M/s Bangalore International Airport Limited, company registered under companies act 2013, having registered office at Administration Block, Devanahalli, Bangalore - 560 300 and enclosed the statement showing allocation of Fixed assets based on the books of accounts produced to us as at 31 March 2017.

The statement of allocation of fixed assets into Aeronautical and Non-Aeronautical enclosed in the Annexure 1 and is performed based on the allocation methodology / policy as certified by the Management in Annexure 2.


The engagement was executed in accordance with the Standard on Related Services (SRS) 4400, "Engagements to Perform Agreed-upon Procedures regarding Financial Information", issued by the Institute of Chartered Accountants of India.

The report is issued at the request of the management to submit to the Airports Economic Regulatory Authority of India ('AERA') and not to be distributed or used for any other purpose.

For Sreedar Mohan and Associates

Chartered Accountants

Firm registration number: 0226545



CA Srinath Koppu

Partner

Membership no: 226545



Place: Bangalore

Date: 15th Jul 2020

UDIN: 20226545AAAAEQ9351



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Bangalore International Airport Limited

Annexure 1

Statement showing allocation of fixed assets (Gross Block(GB)) as at 31 March 2017 of BIAL

(Amount In Rs crore)						
Particulars as at	Aeronautical Value (GB)	% of Aeronautical	Non-Aeronautical (GB)	% of Non-Aeronautical	Total	% Total
31 March 2017	3,576.94	90.79%	362.78	9.21%	3,939.72	100%

Notes:

- Aeronautical, Non-Aeronautical and common assets based on the basis of allocation provided in Annexure 2 and the common assets are further classified in to Aeronautical and Non-Aeronautical as mentioned below.
- Common assets classified into Aeronautical and Non-Aeronautical in the below table as per guidelines enumerated in Annexure 2.

(Amount in Rs crore)			
Common Assets	Aeronautical Gross Block	Non-Aeronautical Gross Block	Total of Common Assets Value
31 March 2017	1,366.07	216.67	1,582.74



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Annexure 3

Basis for Bifurcation of Fixed Assets into Aeronautical and Non Aeronautical

1. Definitions as per company's policy

1.1 "Aeronautical Assets" shall mean those assets which are necessary or required for the performance of Aeronautical Services as defined below and such other assets as an Airport Company procures in accordance with the written directions of the Government of India for or in relation to provision of any Reserved Activities including intangible assets, power house equipment and water management system which are considered as directly related to the Aeronautical services.

1.2 "Aeronautical Services" means the provision of the following facilities and services:

1. Provision of flight operation assistance and crew support systems;
2. Ensuring the safe and secure operation of the Airport, excluding national security interest;
3. Movement and parking of aircraft and control facilities;
4. General maintenance and upkeep of the Airport;
5. Rescue and firefighting services;
6. Movement of staff and passengers and their inter-change between all modes of transport at the Airport;
7. Aerodrome control services;
8. Airfield;
9. Airfield lighting;
10. Airside and landside access roads, trumpet flyover and forecourts including writing, traffic signals, signage and monitoring;
11. Apron and aircraft parking area;
12. Apron control and allocation of aircraft stands;
13. Operation and maintenance of passenger boarding and disembarking systems;
14. Arrivals concourses and meeting areas;
15. Baggage systems including outbound and reclaim;
16. Bird scaring;
17. Check-in concourse;
18. Cleaning, heating, lighting and air-conditioning public areas;
19. Customs and immigration halls;
20. Emergency services;
21. Facilities for the disabled and other special needs people;
22. Flight information and public-address systems;
23. Water drainage;
24. Guidance systems and marshalling;
25. Information desks;
26. Inter-terminal transit systems;
27. Lifts, escalators and passenger conveyors;



28. Loading bridges;
29. Lost property;
30. Passenger and hand baggage search;
31. Piers and gate rooms;
32. Policing and general security;
33. Infrastructure/ Facilities for Post Offices;
34. Infrastructure/ Facilities for Public telephones;
35. Runways;
36. Signage;
37. Software Programs and licenses required for operation of Airport;
38. Taxiways;
39. Toilets and nursing mothers room;
40. Waste and refuse treatment and disposal;
41. X-Ray service for carry on and checked-in luggage;
42. VIP / special lounges; and
43. Any other services deemed to be necessary for the safe and efficient operation of the Airport.

1.3 “Non-Aeronautical Assets” shall mean all assets required or necessary for the performance of Non-Aeronautical Services at the Airport as defined below.

1.4 “Non-Aeronautical Services” shall mean the following facilities and services:

1. Aircraft cleaning services;
2. Airline Lounges;
3. Cargo handling;
4. Cargo terminals;
5. Ground handling services;
6. Hangars;
7. Heavy maintenance services for aircraft;
8. Observation terrace;
9. Banks/ATM;
10. Bureaux de change;
11. Business center;
12. Conference center;
13. Duty free sales;
14. Flight catering services;
15. Freight consolidators/forwarders or agents;
16. General retail shops;
17. Hotel/Motels;
18. Hotel reservation services;
19. Line maintenance services;
20. Locker rental;



21. Logistic centers;
22. Messenger services;
23. Porter services;
24. Restaurant, bar and other refreshment facilities;
25. Special Assistance services;
26. Tourist information services;
27. Travel agency;
28. Vehicle fueling services;
29. Vehicle rental;
30. Vehicle parking;
31. Vending machine;
32. Warehouses;
33. Welcoming services;
34. Other services related to passenger services at the airport, if the same are non-aeronautical in nature.

1.5 “Intangible assets” includes certain legal and other expenses incurred during the construction period towards various agreements, viz. Concession Agreement, Communication, Navigation and Surveillance and Air Traffic Management (CNS/ ATM) Agreement, Operations and Management Services Agreement, State Support Agreement and the Land lease agreement.

1.6 “Common Assets” shall mean all assets not specifically identifiable to Aeronautical Assets and Non-Aeronautical Assets.

2. Classification of Common Assets into Aeronautical and Non-aeronautical assets

Sl.No	Common Asset Group	Location / Description	Key used
1	Air Conditioning, Office Equipment, Security equipment and Airport Equipment (wherever not directly attributable to Aeronautical and Non-aeronautical)	All	Area
2	Building and other assets which are not directly attributable in the Location specified	Common area ATC Block	Area
		Terminal Building	Area

The following is the key used for the bifurcation of common assets into Aeronautical and Non-aeronautical assets

Sl.No	Key for Bifurcation	Basis for Key
1	Area for the period ended March 2017	The area of the Terminal Building used for Aeronautical and Non-aeronautical services (i.e. 86.31% and 13.69% respectively)



Report on Agreed-upon procedures related to the allocation of fixed assets into Aeronautical and Non-Aeronautical

We, Sreedar Mohan and Associates, Chartered Accountants performed agreed upon procedures to M/s Bangalore International Airport Limited, company registered under companies act 2013, having registered office at Administration Block, Devanahalli, Bangalore - 560 300 and enclosed the statement showing allocation of Fixed assets based on the books of accounts produced to us as at 31 March 2018.

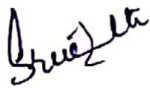
The statement of allocation of fixed assets into Aeronautical and Non-Aeronautical enclosed in the Annexure 1 and is performed based on the allocation methodology / policy as certified by the Management in Annexure 2.

The engagement was executed in accordance with the Standard on Related Services (SRS) 4400, "Engagements to Perform Agreed-upon Procedures regarding Financial Information", issued by the Institute of Chartered Accountants of India.

The report is issued at the request of the management to submit to the Airports Economic Regulatory Authority of India ('AERA') and not to be distributed or used for any other purpose.

For Sreedar Mohan and Associates
Chartered Accountants

Firm registration number: 0127226



CA Srinath Koppu
Partner

Membership no: 226545



Place: Bangalore

Date: 15th Jul 2020

UDIN: 20226545AAAAER8411



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Bangalore International Airport Limited**Annexure 1****Statement showing allocation of fixed assets (Gross Block(GB)) as at 31 March 2018 of BIAL****(Amount in Rs crore)**

Particulars as at	Aeronautical Value (GB)	% of Aeronautical	Non-Aeronautical (GB)	% of Non-Aeronautical	Total	% Total
31 March 2018	3,712.93	90.34%	397.08	9.66%	4,110.01	100%

Notes:

- Aeronautical, Non-Aeronautical and common assets based on the basis of allocation provided in Annexure 2 and the common assets are further classified in to Aeronautical and Non-Aeronautical as mentioned below.
- Common assets classified into Aeronautical and Non-Aeronautical in the below table as per guidelines enumerated in Annexure 2.

(Amount in Rs crore)

Common Assets	Aeronautical Gross Block	Non-Aeronautical Gross Block	Total of Common Assets Value
31 March 2018	1,393.94	221.09	1,615.03



Annexure 3**Basis for Bifurcation of Fixed Assets into Aeronautical and Non Aeronautical****1. Definitions as per company's policy**

1.1 "Aeronautical Assets" shall mean those assets which are necessary or required for the performance of Aeronautical Services as defined below and such other assets as an Airport Company procures in accordance with the written directions of the Government of India for or in relation to provision of any Reserved Activities including intangible assets, power house equipment and water management system which are considered as directly related to the Aeronautical services.

1.2 "Aeronautical Services" means the provision of the following facilities and services:

1. Provision of flight operation assistance and crew support systems;
2. Ensuring the safe and secure operation of the Airport, excluding national security interest;
3. Movement and parking of aircraft and control facilities;
4. General maintenance and upkeep of the Airport;
5. Rescue and firefighting services;
6. Movement of staff and passengers and their inter-change between all modes of transport at the Airport;
7. Aerodrome control services;
8. Airfield;
9. Airfield lighting;
10. Airside and landside access roads, trumpet flyover and forecourts including writing, traffic signals, signage and monitoring;
11. Apron and aircraft parking area;
12. Apron control and allocation of aircraft stands;
13. Operation and maintenance of passenger boarding and disembarking systems;
14. Arrivals concourses and meeting areas;
15. Baggage systems including outbound and reclaim;
16. Bird scaring;
17. Check-in concourse;
18. Cleaning, heating, lighting and air-conditioning public areas;
19. Customs and immigration halls;
20. Emergency services;
21. Facilities for the disabled and other special needs people;
22. Flight information and public-address systems;
23. Water drainage;
24. Guidance systems and marshalling;
25. Information desks;



26. Inter-terminal transit systems;
27. Lifts, escalators and passenger conveyors;
28. Loading bridges;
29. Lost property;
30. Passenger and hand baggage search;
31. Plers and gate rooms;
32. Policing and general security;
33. Infrastructure/ Facilities for Post Offices;
34. Infrastructure/ Facilities for Public telephones;
35. Runways;
36. Signage;
37. Software Programs and licenses required for operation of Airport;
38. Taxiways;
39. Toilets and nursing mothers room;
40. Waste and refuse treatment and disposal;
41. X-Ray service for carry on and checked-in luggage;
42. VIP / special lounges; and
43. Any other services deemed to be necessary for the safe and efficient operation of the Airport.

1.3 “Non-Aeronautical Assets” shall mean all assets required or necessary for the performance of Non-Aeronautical Services at the Airport as defined below.

1.4 “Non-Aeronautical Services” shall mean the following facilities and services:

1. Aircraft cleaning services;
2. Airline Lounges;
3. Cargo handling;
4. Cargo terminals;
5. Ground handling services;
6. Hangars;
7. Heavy maintenance services for aircraft;
8. Observation terrace;
9. Banks/ATM;
10. Bureaux de change;
11. Business center;
12. Conference center;
13. Duty free sales;
14. Flight catering services;
15. Freight consolidators/forwarders or agents;
16. General retail shops;
17. Hotel/Motels;
18. Hotel reservation services;
19. Line maintenance services;



20. Locker rental;
21. Logistic centers;
22. Messenger services;
23. Porter services;
24. Restaurant, bar and other refreshment facilities;
25. Special Assistance services;
26. Tourist information services;
27. Travel agency;
28. Vehicle fueling services;
29. Vehicle rental;
30. Vehicle parking;
31. Vending machine;
32. Warehouses;
33. Welcoming services;
34. Other services related to passenger services at the airport, if the same are non-aeronautical in nature.

1.5 “Intangible assets” includes certain legal and other expenses incurred during the construction period towards various agreements, viz. Concession Agreement, Communication, Navigation and Surveillance and Air Traffic Management (CNS/ ATM) Agreement, Operations and Management Services Agreement, State Support Agreement and the Land lease agreement.

1.6 “Common Assets” shall mean all assets not specifically identifiable to Aeronautical Assets and Non-Aeronautical Assets.

2. Classification of Common Assets into Aeronautical and Non-aeronautical assets

Sl.No	Common Asset Group	Location / Description	Key used
1	Air Conditioning, Office Equipment, Security equipment and Airport Equipment (wherever not directly attributable to Aeronautical and Non-aeronautical)	All	Area
2	Building and other assets which are not directly attributable in the Location specified	Common area ATC Block	Area
		Terminal Building	Area

The following is the key used for the bifurcation of common assets into Aeronautical and Non-aeronautical assets

Sl.No	Key for Bifurcation	Basis for Key
1	Area for the period ended March 2018	The area of the Terminal Building used for Aeronautical and Non-aeronautical services (i.e. 86.31% and 13.69% respectively)



Report on Agreed-upon procedures related to the allocation of fixed assets into Aeronautical and Non-Aeronautical

We, Sreedar Mohan and Associates, Chartered Accountants performed agreed upon procedures to M/s Bangalore International Airport Limited, company registered under companies act 2013, having registered office at Administration Block, Devanahalli, Bangalore - 560 300 and enclosed the statement showing allocation of Fixed assets based on the books of accounts produced to us as at 31 March 2019.

The statement of allocation of fixed assets into Aeronautical and Non-Aeronautical enclosed in the Annexure 1 and is performed based on the allocation methodology / policy as certified by the Management in Annexure 2.


The engagement was executed in accordance with the Standard on Related Services (SRS) 4400, "Engagements to Perform Agreed-upon Procedures regarding Financial Information", issued by the Institute of Chartered Accountants of India.

The report is issued at the request of the management to submit to the Airports Economic Regulatory Authority of India ('AERA') and not to be distributed or used for any other purpose.

For Sreedar Mohan and Associates

Chartered Accountants

Firm registration number: 01201229



CA Srinath Koppu

Partner

Membership no: 226545



Place: Bangalore

Date: 15th Jul 2020

UDIN: 20226545AAAAES7575



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Bangalore International Airport Limited**Annexure 1****Statement showing allocation of fixed assets (Gross Block(GB)) as at 31 March 2019 of BIAL**

Particulars as at	Aeronautical Value (GB)	% of Aeronautical	Non-Aeronautical (GB)	% of Non-Aeronautical	(Amount in Rs crore)	
					Total	% Total
31 March 2019	3,844.99	90.03%	426.02	9.97%	4,271.01	100%

Notes:

- Aeronautical, Non-Aeronautical and common assets based on the basis of allocation provided in Annexure 2 and the common assets are further classified in to Aeronautical and Non-Aeronautical as mentioned below.
- Common assets classified into Aeronautical and Non-Aeronautical in the below table as per guidelines enumerated in Annexure 2.

Common Assets	Aeronautical Gross Block	Non-Aeronautical Gross Block	(Amount in Rs crore)	
			Total of Common Assets Value	
31 March 2019	1,386.90	238.20	1,625.10	



Annexure 3

Basis for Bifurcation of Fixed Assets into Aeronautical and Non Aeronautical

1. Definitions as per company's policy

1.1 "Aeronautical Assets" shall mean those assets which are necessary or required for the performance of Aeronautical Services as defined below and such other assets as an Airport Company procures in accordance with the written directions of the Government of India for or in relation to provision of any Reserved Activities including intangible assets, power house equipment and water management system which are considered as directly related to the Aeronautical services.

1.2 "Aeronautical Services" means the provision of the following facilities and services:

1. Provision of flight operation assistance and crew support systems;
2. Ensuring the safe and secure operation of the Airport, excluding national security interest;
3. Movement and parking of aircraft and control facilities;
4. General maintenance and upkeep of the Airport;
5. Rescue and firefighting services;
6. Movement of staff and passengers and their inter-change between all modes of transport at the Airport;
7. Aerodrome control services;
8. Airfield;
9. Airfield lighting;
10. Airside and landside access roads, trumpet flyover and forecourts including writing, traffic signals, signage and monitoring;
11. Apron and aircraft parking area;
12. Apron control and allocation of aircraft stands;
13. Operation and maintenance of passenger boarding and disembarking systems;
14. Arrivals concourses and meeting areas;
15. Baggage systems including outbound and reclaim;
16. Bird scaring;
17. Check-in concourse;
18. Cleaning, heating, lighting and air-conditioning public areas;
19. Customs and immigration halls;
20. Emergency services;
21. Facilities for the disabled and other special needs people;
22. Flight information and public-address systems;
23. Water drainage;
24. Guidance systems and marshalling;
25. Information desks;
26. Inter-terminal transit systems;



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27. Lifts, escalators and passenger conveyors;
28. Loading bridges;
29. Lost property;
30. Passenger and hand baggage search;
31. Piers and gate rooms;
32. Policing and general security;
33. Infrastructure/ Facilities for Post Offices;
34. Infrastructure/ Facilities for Public telephones;
35. Runways;
36. Signage;
37. Software Programs and licenses required for operation of Airport;
38. Taxiways;
39. Toilets and nursing mothers room;
40. Waste and refuse treatment and disposal;
41. X-Ray service for carry on and checked-in luggage;
42. VIP / special lounges; and
43. Any other services deemed to be necessary for the safe and efficient operation of the Airport.

1.3 “Non-Aeronautical Assets” shall mean all assets required or necessary for the performance of Non-Aeronautical Services at the Airport as defined below.

1.4 “Non-Aeronautical Services” shall mean the following facilities and services:

1. Aircraft cleaning services;
2. Airline Lounges;
3. Cargo handling;
4. Cargo terminals;
5. Ground handling services;
6. Hangars;
7. Heavy maintenance services for aircraft;
8. Observation terrace;
9. Banks/ATM;
10. Bureaux de change;
11. Business center;
12. Conference center;
13. Duty free sales;
14. Flight catering services;
15. Freight consolidators/forwarders or agents;
16. General retail shops;
17. Hotel/Motels;
18. Hotel reservation services;
19. Line maintenance services;
20. Locker rental;



21. Logistic centers;
22. Messenger services;
23. Porter services;
24. Restaurant, bar and other refreshment facilities;
25. Special Assistance services;
26. Tourist information services;
27. Travel agency;
28. Vehicle fueling services;
29. Vehicle rental;
30. Vehicle parking;
31. Vending machine;
32. Warehouses;
33. Welcoming services;
34. Other services related to passenger services at the airport, if the same are non-aeronautical in nature.

1.5 "Intangible assets" includes certain legal and other expenses incurred during the construction period towards various agreements, viz. Concession Agreement, Communication, Navigation and Surveillance and Air Traffic Management (CNS/ ATM) Agreement, Operations and Management Services Agreement, State Support Agreement and the Land lease agreement.

1.6 "Common Assets" shall mean all assets not specifically identifiable to Aeronautical Assets and Non-Aeronautical Assets.

2. Classification of Common Assets into Aeronautical and Non-aeronautical assets

Sl.No	Common Asset Group	Location / Description	Key used
1	Air Conditioning, Office Equipment, Security equipment and Airport Equipment (wherever not directly attributable to Aeronautical and Non-aeronautical)	All	Area
2	Building and other assets which are not directly attributable in the Location specified	Common area ATC Block	Area
		Terminal Building	Area

The following is the key used for the bifurcation of common assets into Aeronautical and Non-aeronautical assets

Sl.No	Key for Bifurcation	Basis for Key
1	Area for the period ended March 2019	The area of the Terminal Building used for Aeronautical and Non-aeronautical services (i.e. 85.34% and 14.66% respectively)



Report on Agreed-upon procedures related to the allocation of fixed assets Into Aeronautical and Non-Aeronautical

We, Sreedar Mohan and Associates, Chartered Accountants performed agreed upon procedures to M/s Bangalore International Airport Limited, company registered under companies act 2013, having registered office at Administration Block, Devanahalli, Bangalore - 560 300 and enclosed the statement showing allocation of Fixed assets based on the books of accounts produced to us as at 31 March 2020.

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For Sreedar Mohan and Associates

Chartered Accountants

Firm registration number: 0127228



CA Srinath Koppu

Partner

Membership no: 226545



Place: Bangalore

Date: 15th Jul 2020

UDIN: 20226545AAAET1410



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Bangalore International Airport Limited

Annexure 1

Statement showing allocation of fixed assets (Gross Block (GB)) as at 31 March 2020 of BIAL

(Amount in Rs crore)

Particulars as at	Aeronautical Value (GB)	% of Aeronautical	Non-Aeronautical (GB)	% of Non-Aeronautical	Total	% Total
31 March 2020	5,891.14	92.74%	461.20	7.26%	6,352.34	100%

Notes:

- Aeronautical, Non-Aeronautical and common assets based on the basis of allocation provided in Annexure 2 and the common assets are further classified in to Aeronautical and Non-Aeronautical as mentioned below.
- Common assets classified into Aeronautical and Non-Aeronautical in the below table as per guidelines enumerated in Annexure 2.

(Amount in Rs crore)

Common Assets	Aeronautical Gross Block	Non-Aeronautical Gross Block	Total of Common Assets Value
31 March 2020	1,416.78	243.33	1,660.11



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Annexure 3

Basis for Bifurcation of Fixed Assets into Aeronautical and Non Aeronautical

1. Definitions as per company's policy

1.1 "Aeronautical Assets" shall mean those assets which are necessary or required for the performance of Aeronautical Services as defined below and such other assets as an Airport Company procures in accordance with the written directions of the Government of India for or in relation to provision of any Reserved Activities including intangible assets, power house equipment and water management system which are considered as directly related to the Aeronautical services.

1.2 "Aeronautical Services" means the provision of the following facilities and services:

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3. Movement and parking of aircraft and control facilities;
4. General maintenance and upkeep of the Airport;
5. Rescue and firefighting services;
6. Movement of staff and passengers and their inter-change between all modes of transport at the Airport;
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10. Airside and landside access roads, trumpet flyover and forecourts including writing, traffic signals, signage and monitoring;
11. Apron and aircraft parking area;
12. Apron control and allocation of aircraft stands;
13. Operation and maintenance of passenger boarding and disembarking systems;
14. Arrivals concourses and meeting areas;
15. Baggage systems including outbound and reclaim;
16. Bird scaring;
17. Check-in concourse;
18. Cleaning, heating, lighting and air-conditioning public areas;
19. Customs and immigration halls;
20. Emergency services;
21. Facilities for the disabled and other special needs people;
22. Flight information and public-address systems;
23. Water drainage;
24. Guidance systems and marshalling;
25. Information desks;



26. Inter-terminal transit systems;
27. Lifts, escalators and passenger conveyors;
28. Loading bridges;
29. Lost property;
30. Passenger and hand baggage search;
31. Piers and gate rooms;
32. Policing and general security;
33. Infrastructure/ Facilities for Post Offices;
34. Infrastructure/ Facilities for Public telephones;
35. Runways;
36. Signage;
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41. X-Ray service for carry on and checked-in luggage;
42. VIP / special lounges; and
43. Any other services deemed to be necessary for the safe and efficient operation of the Airport.

1.3 “Non-Aeronautical Assets” shall mean all assets required or necessary for the performance of Non-Aeronautical Services at the Airport as defined below.

1.4 “Non-Aeronautical Services” shall mean the following facilities and services:

1. Aircraft cleaning services;
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4. Cargo terminals;
5. Ground handling services;
6. Hangars;
7. Heavy maintenance services for aircraft;
8. Observation terrace;
9. Banks/ATM;
10. Bureaux de change;
11. Business center;
12. Conference center;
13. Duty free sales;
14. Flight catering services;
15. Freight consolidators/forwarders or agents;
16. General retail shops;
17. Hotel/Motels;
18. Hotel reservation services;



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19. Line maintenance services;
20. Locker rental;
21. Logistic centers;
22. Messenger services;
23. Porter services;
24. Restaurant, bar and other refreshment facilities;
25. Special Assistance services;
26. Tourist information services;
27. Travel agency;
28. Vehicle fueling services;
29. Vehicle rental;
30. Vehicle parking;
31. Vending machine;
32. Warehouses;
33. Welcoming services;
34. Other services related to passenger services at the airport, if the same are non-aeronautical in nature.

1.5 “Intangible assets” includes certain legal and other expenses incurred during the construction period towards various agreements, viz. Concession Agreement, Communication, Navigation and Surveillance and Air Traffic Management (CNS/ ATM) Agreement, Operations and Management Services Agreement, State Support Agreement and the Land lease agreement.

1.6 “Common Assets” shall mean all assets not specifically identifiable to Aeronautical Assets and Non-Aeronautical Assets.

2. Classification of Common Assets into Aeronautical and Non-aeronautical assets

Sl.No	Common Asset Group	Location / Description	Key used
1	Air Conditioning, Office Equipment, Security equipment and Airport Equipment (wherever not directly attributable to Aeronautical and Non-aeronautical)	All	Area
2	Building and other assets which are not directly attributable in the Location specified	Common area ATC Block	Area
		Terminal Building	Area

The following is the key used for the bifurcation of common assets into Aeronautical and Non-aeronautical assets

Sl.No	Key for Bifurcation	Basis for Key
1	Area for the period ended March 2020	The area of the Terminal Building used for Aeronautical and Non-aeronautical services (i.e. 85.34% and 14.66% respectively)



EXHIBIT III – FIXED ASSET REGISTER FROM FY17 TO FY20

[illegible]

EXHIBIT IV – ASSET ADDITIONS FOR FY21

S no	Projects	Revised submission of BIAL – total additions	Allocation as per BIAL	Aero addition to FY21 as per BIAL	Revised allocation as per the study	Revised Aero addition to FY21 as per the study	Impact of revision
1	Site preparation & Earthworks	21.98	100.00%	21.98	100.00%	21.98	0.00
2	Aircraft Rescue & Fire Fighting	8.86	100.00%	8.86	100.00%	8.86	0.00
3	Airport Offices - Phase I	3.89	91.00%	3.54	85.73%	3.33	0.20
4	Existing Runways/ Taxiway Improvements - Phase 1b	193.94	100.00%	193.94	100.00%	193.94	0.00
5	Eastern Tunnel - Enabling works	86.55	100.00%	86.55	0.00%	0.00	86.55
6	Express Cargo	88.49	0.00%	0.00	100.00%	88.49	-88.49
7	ITI Project	86.60	91.00%	78.81	85.73%	74.24	4.56
8	Sustaining capex	200.59	91.00%	182.54	85.73%	171.97	10.57
	Total	690.90		576.21		562.81	13.40

***STUDY ON OPERATION AND
MAINTENANCE COSTS***

for

***KEMPEGOWDA INTERNATIONAL AIRPORT,
BENGALURU (BIAL)
(Second Control Period: 2017-2021)***

May 2021

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GLOSSARY

Abbreviation	Expansion
AAI	Airports Authority of India
ACI	Airport Council International
AERA	Airports Economic Regulatory Authority of India
ALOP	Advance loss of profit
AOD	Airport Opening Date
AOL	Airport operator's liability
ARFF	Aviation Rescue and Fire Fighting
ASQ	Airport Service Quality
ASSOCHAM	Associated Chambers of Commerce and Industry of India
ATM	Air Traffic Movement
BESCOM	Bangalore Electricity Supply Company Limited
BHS	Baggage Handling System
BIAL	Bangalore International Airport Limited
CA	Concession Agreement
CAGR	Compounded Annual Growth Rate
CEO	Chief Operating Officer
CFO	Chief Financial Officer
CII	Confederation of Indian Industry
CNS	Communication, Navigation and Surveillance
CSR	Corporate Social Responsibility
CXO	Chief Experience Officer
DGM	Deputy General Manager
DIAL	Delhi International Airport Limited
EoI	Expression of Interest
ERP	Enterprise Resource Planning
F&A	Finance and Accounting
F&B	Food and Beverages
FY	Financial Year
GL	General Ledger
GoI	Government of India
GoK	Government of Karnataka
GRN	Goods Receipt Note
HIAL	Hyderabad International Airport Limited
HOD	Head of Department
HR	Human Resource
HRD	Human Resource Development
IAR	Industrial all risk
ICT	Information and Communication Technology
INR	Indian Rupee
KL	Kilo Litres
KSIIDC	Karnataka State Industrial and Infrastructure Development Corporation
kVA	Kilo Volt Amperes
kWH	Kilowatt Hour

Abbreviation	Expansion
LLA	Land Lease Agreement
MAG	Minimum Annual Guarantee
MD	Managing Director
MIAL	Mumbai International Airport Limited
MIS	Management Information System
MPPA	Million Passengers per Annum
MTD	Month till Date
MYTP	Multi Year Tariff Proposal
O&M	Operations & Maintenance
PO	Purchase Order
PPP	Public Private Partnership
PR	Purchase Requisition
RFP	Request for Proposal
RFQ	Request for Quotation
SAP	Systems Applications and Products
TDSAT	Telecom Disputes Settlement and Appellate Tribunal
VP	Vice President
WPI	Wholesale Price Index
YTD	Year till Date

EXECUTIVE SUMMARY

AERA is undertaking the tariff determination exercise for Bangalore airport for the 3rd control period (FY 2022 to FY 2026). As part of the tariff determination process, it has stipulated the scope of work which includes reviewing and examining the O&M costs incurred by the airport (BIAL) for the previous control period (2nd control period – FY 2017 to FY 2021). The study uses the actual numbers for the period FY17-FY20 based on the audited IGAAP financial statements of BIAL while the numbers for FY21 are based on the unaudited numbers from Apr, 2020 to December, 2020 and forecasted for January, 2020 to March, 2021 (since the actuals were not available at the time of preparation of this report).

This report aims to allocate the operational expenditure incurred by BIAL into aeronautical and non-aeronautical components and to understand the efficiency of the operational expenditure for the 2nd control period before considering them as part of the tariff determination process for BIAL.

To understand the guidelines and previous precedence on the methodology to segregate the operational expenses, the documents analysed include AERA Act, 2008, Concession Agreement of BIAL with Government of India, consultation paper and AERA orders for BIAL and for other airports. The summary of the study is produced in the table below:

Table 1: Summary of the study

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Total operating expenses - As per MYTP submission of BIAL (refer Table 12)	371.84	412.54	463.99	530.40	511.31	2,290.07
Total operating expenses - As per the study (refer Table 15)	370.93	411.66	463.00	530.46	465.26	2,241.31
Aero operating expenses - As approved by AERA in 2nd control period order (refer Table 35)	323.36	357.26	395.60	443.59	515.25	2,035.06
Aero operating expenses - As per MYTP submission of BIAL (refer Table 11)	332.05	367.33	406.02	463.89	464.20	2,033.48
Aero operating expenses - As per the study	323.22	358.70	369.63	422.36	408.47	1,882.38

*1. numbers for FY17-FY20 are based on actuals while numbers for FY21 are forecasted 2. AERA has not provided data on total opex in its second control period order for BIAL

The operational expenditure allocation ratio submitted by BIAL as part of its MYTP submission is given in Table 10. It is noted that BIAL has used the MIS data for the allocation between aeronautical and non-aeronautical operational expenditure. For the study, the total operational expenditure is considered based on the audited financial statements based on IGAAP after the adjustments as per section 2.4 for allocation between aeronautical and non-aeronautical components as given in Table 15. The study undertook an evaluation of the submissions by BIAL on the allocation of the operation and maintenance costs. The study has determined the revised approach for allocation of the operations and maintenance costs as given below.

The operations and maintenance costs have been bifurcated into aeronautical, non-aeronautical and common costs based on the provisions of the AERA Act, 2008.

The bifurcation of the personnel cost, operation and maintenance cost, general administration cost, marketing and advertising cost (except collection charges which are considered as aeronautical expense) is undertaken as per below (Please refer to section 2.5):

- a) These major expenses are sub-divided into sub-cost centres.

- b) Each sub-cost centre is categorized into aeronautical, non-aeronautical and common and the expenses within that sub-cost centre are also categorized accordingly as given in Table 16.
- c) These common costs except for marketing and advertisement expenses have been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses within the major cost head, please refer Table 17 for sample computation).
- d) Marketing and advertisement expenses are bifurcated based on 85:15 ratio which is the average for previous years.
- e) Sub-cost centres whose allocation is changed from aeronautical to common include quality management, corporate affairs, terminal operations, ops, planning and project co-ordination, innovation lab, landside maintenance – special equipment, utility – water supply, utility – power supply, corporate communication, chief operations officer, customer engagement and service quality and president – airport operations.

The bifurcation of the remaining expenses is undertaken as per below (Please refer to Table 18):

- a) Concession fee – Since the tariff computation for BIAL is undertaken on hybrid till, the aeronautical concession fee for BIAL is computed as 4% of the aeronautical revenues. The study has considered the CGF revenues as part of the aeronautical revenues for computing the aeronautical concession fee.
- b) CSR expenses – Computed based on the aeronautical profit before tax for BIAL.
- c) Donations and waivers and bad debts – These expenses have been excluded as per AERA's second control period order for BIAL.
- d) Land lease rent and rates and taxes – Land usage by BIAL has been primarily for airport with very low utilization under real estate development till FY 2020 and it is forecasted to remain the same in FY 2021. Accordingly, the lease rent and rates and taxes are considered as aeronautical.
- e) Utility cost – The utility cost has been adjusted for the utility recoveries from aeronautical concessionaires as per AERA's second control period order for BIAL. The net amount has been considered as aeronautical expenses.
- f) Insurance cost – These expenses are bifurcated based on the revised asset ratio.

The forecast for FY 2021 is revised based on the data available till December 2020. Therefore, the impact in the FY 2021 is a combination of this revision and the revised segregation logic.

The operational expenditure allocation ratio based on the revised segregation methodology is summarized in the table below:

Table 2: Revised segregation logic for O&M costs as per this study vis-à-vis those proposed by BIAL for second control period

Operational expenditure*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021
Personnel Expenses	90.44%	91.05%	89.71%	88.94%	88.94%
Operations & Maintenance	83.62%	84.78%	82.66%	84.49%	89.64%
Lease Rent	100.00%	100.00%	100.00%	100.00%	100.00%
Utility (Net)	100.00%	100.00%	100.00%	100.00%	100.00%
Insurance	89.29%	88.87%	88.96%	91.98%	90.93%
Rates & Taxes (other than IT)	100.00%	100.00%	100.00%	100.00%	100.00%

Study on Operation and Maintenance costs for BIAL

Operational expenditure*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021
Collection cost	100.00%	100.00%	100.00%	100.00%	100.00%
Marketing and Advertising	89.82%	83.60%	85.17%	84.80%	84.80%
Total General Administration Costs	95.10%	91.27%	63.34%	59.03%	90.00%
Total operational expenditure – Study	87.14%	87.14%	79.83%	79.62%	87.79%
Total operational expenditure – BIAL	89.30%	89.04%	87.51%	87.46%	90.79%

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

The change in the operational expenditure ratio (submitted by BIAL as against considered in the study) based on the study is given below:

Table 3: Change in the operational expenditure allocation ratio based on this study vis-à-vis those proposed by BIAL for second control period

Operational expenditure*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021
Personnel Expenses	-3.67%	-3.06%	-3.13%	-3.16%	-3.16%
Operations & Maintenance	-5.01%	-4.63%	-4.95%	-4.52%	-0.06%
Lease Rent	0.00%	0.00%	0.00%	0.00%	0.00%
Utility (Net)	0.00%	0.00%	0.00%	0.00%	0.00%
Insurance	-1.50%	-1.47%	-1.07%	1.95%	0.90%
Rates & Taxes (other than IT)	0.00%	0.00%	0.00%	0.00%	0.00%
Collection cost	0.00%	0.00%	0.00%	0.00%	0.00%
Marketing and Advertising	-4.86%	-5.91%	-3.11%	-1.62%	-1.62%
Total General Administration Costs	-3.95%	-6.42%	-31.58%	-32.30%	-1.33%
Total operational expenditure	-2.16%	-1.91%	-7.67%	-7.84%	-2.99%

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

The revised operational expenditure as per the study is given below:

Table 4: Year wise adjusted operating and maintenance expenses for the second control period as per this study

Operating expenses adjustments*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	107.37	110.43	137.41	174.29	187.78	717.27
O&M	83.03	98.97	96.93	117.09	120.09	516.11
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utility	36.45	41.92	34.86	34.22	23.41	170.86
Insurance	1.57	2.22	1.94	3.25	5.64	14.62
Rates & taxes (other than IT)	8.72	6.55	9.36	8.90	8.29	41.82
Marketing & Advertising	7.90	9.02	12.93	10.77	6.07	46.68
CSR	2.14	4.22	6.98	6.85	5.21	25.41
General admin costs	23.40	27.34	17.28	19.90	24.09	112.02

Operating expenses adjustments*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Total operating expenses – Aero	283.59	314.08	331.52	389.51	395.26	1713.96
Waiver and bad debts	0.00	0.00	0.00	0.00	0.00	0.00
Concession fee	39.63	44.62	38.11	32.85	13.21	168.42
Total operating expenditure – Aero as per the study	323.22	358.70	369.63	422.36	408.47	1882.38
Total Operating expenditure – Aero as per BIAL	332.05	367.33	406.02	463.89	464.20	2,033.48

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

The impact of the revised segregation methodology (difference between aeronautical operational expenditure given in Table 4 vis-a-vis aeronautical operational expenditure submitted by BIAL given in **Error! Reference source not found.**) is summarized in the table below:

Table 5: Impact of the segregation methodology on aeronautical operational expenditure incurred by BIAL as per this study vis-à-vis those proposed by BIAL for second control period

Operating expenses adjustments*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	-8.64	-7.84	-9.18	-11.88	-15.69	-53.23
O&M	-0.89	0.13	-2.21	-0.03	-0.18	-3.18
Lease Rent	0.00	0.00	0.00	0.00	0.00	0.00
Utility	-1.27	-0.72	0.18	-2.23	-9.68	-13.72
Insurance	-0.02	-0.04	-0.03	0.06	-2.06	-2.10
Rates & taxes (other than IT)	0.00	0.02	0.00	0.00	-0.87	-0.86
Marketing & Advertising	-0.18	-0.23	-2.39	-9.11	-9.54	-21.46
CSR	-1.58	-0.59	-9.02	-12.66	-11.21	-35.05
General admin costs	-3.18	-6.31	-11.41	-12.84	-11.92	-45.67
Sub-total operating expenses - Aero	-15.78	-15.59	-34.06	-48.69	-61.15	-175.27
Concession fee	6.96	7.56	8.82	9.90	5.42	38.65
Waiver and bad debts	0.00	-0.60	-11.15	-2.74	0.00	-14.49
Total Operating expenditure – Aero	-8.82	-8.63	-36.38	-41.53	-55.73	-151.10

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

The airport operator, that is, BIAL had proposed a total operational expenditure of INR 2,290.07 cr., the aeronautical operational expenditure as INR 2,033.48 cr. and the non-aeronautical operational expenditure as INR 256.59 cr. for the second control period.

Based on the study, the total operational expenditure is INR 2,241.31 cr. (based on audited financial statements) and the proposed aeronautical operational expenditure is INR 1,882.38 cr. for the second control period. Thus, resulting in a reduction of INR 151.10 cr. in the aeronautical operational expenditure for the second control period. The opex allocation ratio for the second control period as submitted by BIAL is 88.80% while that considered in the study is 83.99%.

The details of BIAL's budgeting and review process, cost reduction measures undertaken by BIAL are given in section 2.1, section 3.1 and section 3.3 respectively. The suggestions for accounting the operational expenditure include usage of data from audited financial statements instead of MIS for

regulatory purposes, segregate cost centres to determine costs incurred within and outside the terminal and broaden the cost centres as given in section 2.6.

The report also analyses the operational expenditure projected by AERA in the second control period order of BIAL and the actual expenditure incurred by BIAL for the second control period as given in section 3.2. It has been observed that the actual operational expenditure is less than the forecasted operational expenditure.

The trend analysis of various components of the inflation adjusted operational expenditure is undertaken only for the period FY 2017 to FY 2020 in comparison to the increase in the passenger traffic and capacity augmentation as given in Section 3. The operational expenditure for FY 2021 has not been considered for the trend analysis as FY 2021 has been severely affected by COVID-19 pandemic with a drastic reduction in passengers. The operational expenditure of FY 2021 cannot be directly compared with the previous years as the utilization of the asset has fallen while the airport might have taken some time for adjustment to the new normal.

Based on the trend analysis and as per details provided by BIAL, the key reasons for increase in cost heads are given below:

- a) Personnel cost – Personnel cost has increased from FY18 to FY19; however, it is noted that the employee cost per pax has seen a decreasing trend from FY 2018 to FY 2019 due to increase in the passenger traffic. The increase in the personnel cost from FY19 to FY20 is on account of the commissioning of the new south parallel runway in December 2019 and increase in the area of operations. Due to capacity addition by BIAL, the employee cost per pax has increased which is expected to gradually fall with the increase in utilization levels. The increase in the personnel cost from FY20 to FY21 is on account of the full year cost of the employees who joined in FY20 as well as the induction/hiring of the employees who were already given offers by BIAL.
- b) Operational and maintenance (O&M) expenses - The O&M expenses as a % of gross block has increased from FY 2017 to FY 2019 due to increase in minimum wages and increased utilization of the terminal and single runway. The increase in O&M expenses in the FY 2020 is on account of the commissioning of the new south parallel runway. The O&M expenses as a % of assets has decreased in FY 2020 due to increase in the asset base.
- c) Marketing and Advertising - More than 85% of the expenses are attributable to two major heads namely Aviation marketing and contracts and BDMS – Marketing. The Aviation marketing and contracts constitutes roadshows, pinnacle event, airline route launches, sponsorships and travel expenses while BDMS marketing constitutes branding, brochures, event management and social and digital marketing. Increased spend on branding and marketing of the airport has resulted in increased cost/pax over these years. BIAL has not provided the justification for the increase in marketing and advertising costs. Therefore, the marketing and advertising expenses have been considered as per Table 46 based on the growth in passenger traffic and inflation.

The trend in costs with respect to growth in traffic and capacity augmentation indicate that BIAL has maintained the efficiency in operational costs during the second control period.

The report analyses BIAL's O&M costs with respect to its performance (Internal benchmarking). It is observed from internal benchmarking that for the period FY12 – FY21, the inflation adjusted costs per pax at BIAL has decreased for major heads except O&M which has shown a marginal increase due to the increase in capacity at the airport. It is also observed that the passenger mix at BIAL is predominantly domestic which constitutes more than 80% of total traffic at BIAL.

The report also analyses BIAL's O&M costs with respect to the performance of its competition (External benchmarking). The external benchmarking has been undertaken with similar private airports in India namely DIAL, HIAL and MIAL. It is noted during this review that the airports differ from each other in many ways such as layout of the terminal building, capacity of the runway/ terminal/ apron, passenger mix, natural or man-made disruptions (like runway recarpeting) in operations, outsourcing of services, cost of living of a city, etc. These differences have significant impact on the operational expenditure at the airport. Additionally, airports may follow varied approaches towards outsourcing of

services. This can result in costs being recorded under different heads of operational expenditure for different airports. The difference on account of outsourcing is addressed to an extent while comparing overall costs between airports. It is noted that the metrics related to overall (total) operational expenditure incurred by BIAL for the period FY 2017 – FY 2020 appears reasonable in range of other private airports in India.

These costs submitted by BIAL during the second control period are based on the information/reports provided by BIAL including audited reports, department-wise operational expenditure, etc. and the observations made during the site visit and discussions held with the airport operator for clarifications.

The study has relied on the CA certificate submitted by BIAL, audited financial statements of BIAL from FY 2017 to FY 2020 and the information available in the department wise breakup of operational expenses to verify the expenses incurred during the second control period and to understand the nature of the expenses. We have not audited the operational expenses, or any other underlying data submitted by BIAL and relied on the CA's certificate for the same.

OUR WORK PERFORMED

Key steps as part of approach under the study are as follows:

- a) Review Concession Agreement of BIAL, AERA Order no. 18/ 2018-19, Order no. 08/ 2014-15 and Order no. 15/ 2014-15 for BIAL, previous AERA Orders for other airports and the respective consultation papers to understand the opex allocation methodology adopted by AERA
- b) Review MYTP submission of BIAL to analyse consistency of operational expenditure allocation methodology adopted by BIAL for 2nd control period with the documents submitted in support of the methodology. These documents include the auditor's certificate on the allocation of expenses (attached as Annexure I) and year-wise aero and non-aero split of expenses for the period FY 2017 – FY 2020.
- c) Review auditor certificate to examine whether asset allocation principles adopted by BIAL are in accordance with principles adopted by AERA
- d) Review category-wise expenses bifurcation into aero, non-aero and common
- e) Check consistency between the operational expenses and the financial statements of BIAL from FY17 to FY20
- f) Based on the reviews, seek clarification and additional details from BIAL to assess operational expenditure allocation. These clarifications and details are related to the methodology adopted, usage of expenses (like utility), etc.
- g) Prepare the general principles for the opex allocation into aeronautical, non-aeronautical and common assets. These principles ensure consistent treatment for opex.
- h) Undertake analysis and bifurcation of operational expenses into aeronautical, non-aeronautical and common using the general principles.
- i) Revise the operational expenditure from FY17 to FY20 for BIAL based on the revised allocation.
- j) Undertake trend analysis of the operational expenditure for the period from FY17 to FY20 for which audited financial statements were available and compare it with the increase in airport operations. Examine the probable reasons for increase in the various components of the operational expenditure.
- k) Undertake internal and external benchmarking exercise for per pax/ per ATM/ % gross block costs year-on-year with other comparable major airports.

1 BACKGROUND

1.1 Objective of the assignment

The objective of this study is to undertake the analysis of Operations & Maintenance costs incurred by BIAL to bifurcate these costs into aeronautical and non-aeronautical costs and understand the efficiency in O&M costs for the 2nd control period before considering them as part of the tariff determination process for BIAL.

Since audited financial statements were available from FY 2017 to FY 2020 for the 2nd control period, the analysis of the bifurcation of operation and maintenance expenditure is based on actuals till FY 2020. The operations and maintenance costs for FY 2021 is based on the forecast. For the study below documents were examined:

- a) AERA Act, 2008 with its amendment in 2019
- b) Concession Agreement between Government of India and BIAL
- c) Land Lease Agreement of Bangalore International Airport Limited
- d) Previous AERA orders for BIAL (1st and 2nd CP)
- e) Previous AERA Orders to study the methodology adopted by AERA
- f) Orders of Telecom Disputes Settlement and Appellate Tribunal for BIAL (TDSAT)
- g) Audited financial statement of BIAL from FY 2017 to FY 2020
- h) Clarification and details received from BIAL

1.2 Profile of Bangalore International Airport Limited (BIAL)

Bangalore International Airport Limited (also referred as “Bangalore airport” or “BIAL”) 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. It was formed as a joint venture of private and public sector agencies in order to develop and operate the airport. The Karnataka State Industrial and Infrastructure Development Corporation (KSIIDC), a Public sector undertaking of the Government of Karnataka (GoK) and Airports Authority of India (AAI), a Government of India (GoI) undertaking, together hold 26% equity and the strategic joint venture partners hold the remaining 74%.

The GoI signed a concession agreement (CA) with BIAL on 5th July 2004. The CA defined the terms and conditions under which BIAL, as a private company, is entitled to build and run the airport. The terms of the concession are for a period of 30 years with an option to BIAL to extend the concession period by 30 years. As per the CA, the activities of customs, immigration, quarantine, security and meteorological service will be performed by the relevant government agencies at the airport and the Communication, Navigation and Surveillance (CNS) and air traffic management (ATM) will be performed by AAI. BIAL shall, in consideration for the grant of concession by GoI, pay to GoI a fee amounting to four percent (4%) of the gross revenue annually.

The GoK extended a soft loan of Rs. 350 crores to BIAL as a state support for which a State Support Agreement (SSA) was executed by GoK with BIAL. Further, GoK has also provided a total of 4008 acres of land on a lease rent and a Land lease agreement (LLA) was also executed in this regard.

At the time of financial closure and commencement of construction, the initial phase of Bengaluru International Airport (renamed as Kempegowda International Airport on 17th July 2013) was designed for handling about 4.5 million passengers per annum and the project cost was Rs. 1411.79 crore. However, owing to significant increase in aviation traffic, BIAL redesigned the initial phase midway through the implementation of the project, increasing the capacity of the airport to 11.4 million passengers per annum and the project cost to Rs. 1930.29 crore, so that the airport, at the Airport Opening Date (AOD), had the requisite capacity to handle the aviation traffic at the required/ prescribed service levels. The additional cost was met by increase in debt from lenders. Subsequently, certain project extension works were taken up with a supplemental expenditure budget of Rs. 540 crores (which

was funded partly by raising additional equity from the shareholders and partly by further additional debt from lenders) taking the total project cost to Rs. 2470.29 crores.

The airport commenced operations on 24th May 2008. The shareholding pattern of the company as per BIAL is given below:

Table 6: Shareholding pattern as per BIAL's submission (FY 2020)

Shareholder	Shareholding (in %)
Fairfax Holdings	54%
Siemens Project Ventures GmbH	20%
Airports Authority of India – (GoI)	13%
Karnataka State Industrial Infrastructure Development Corporation Limited (GoK)	13%
Total	100%

1.3 Traffic Analysis

1.3.1 Passenger Traffic

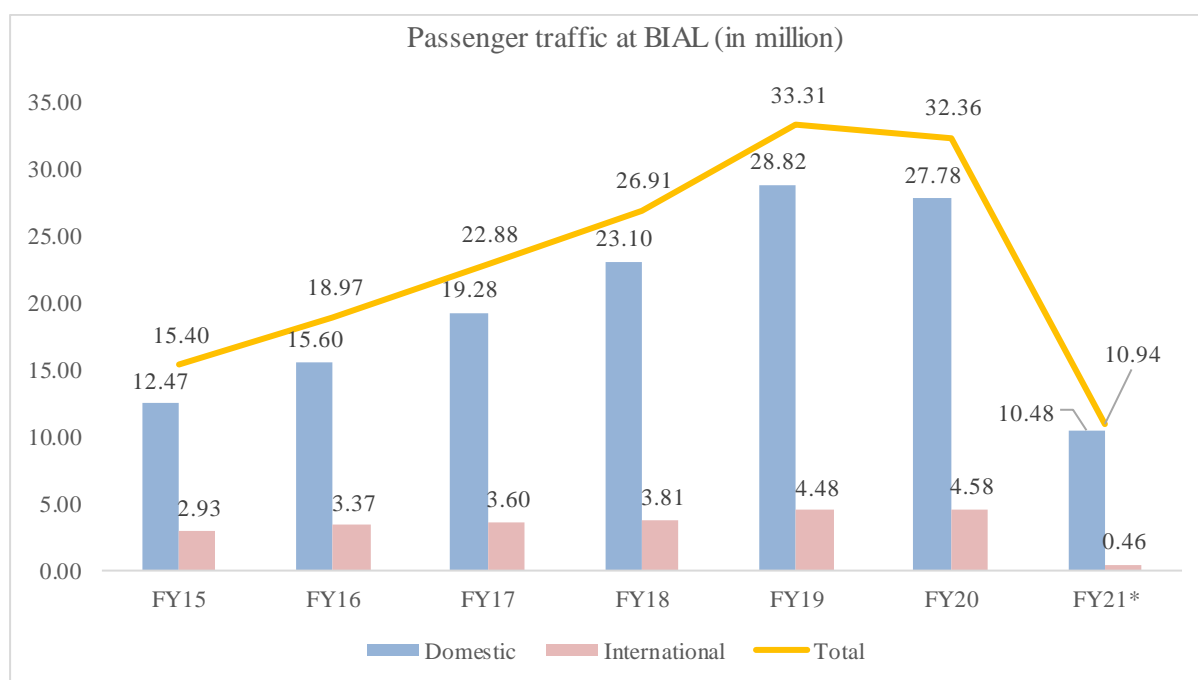
Passenger traffic at BIAL grew at a CAGR of 17.4% and 9.3% for FY 2015 – FY 2020 for domestic passengers and international Passengers respectively. The passenger traffic trend at BIAL over the last seven years is given in the table below:

Table 7: Passenger traffic at BIAL (million pax)

Traffic (in mppa)	2015	2016	2017	2018	2019	2020	2021*	Total
Domestic	12.47	15.60	19.28	23.10	28.82	27.78	10.48	137.53
International	2.93	3.37	3.60	3.81	4.48	4.58	0.46	23.23
Total	15.40	18.97	22.88	26.91	33.31	32.36	10.94	160.77

Source: AAI *Traffic for FY21 is forecasted based on actuals till February 2021

Figure 1: Passenger traffic at BIAL (FY 2015 – 2021)



Source: AAI *Traffic for FY21 is forecasted based on actuals till February 2021

1.3.2 Air Traffic Movements (ATMs)

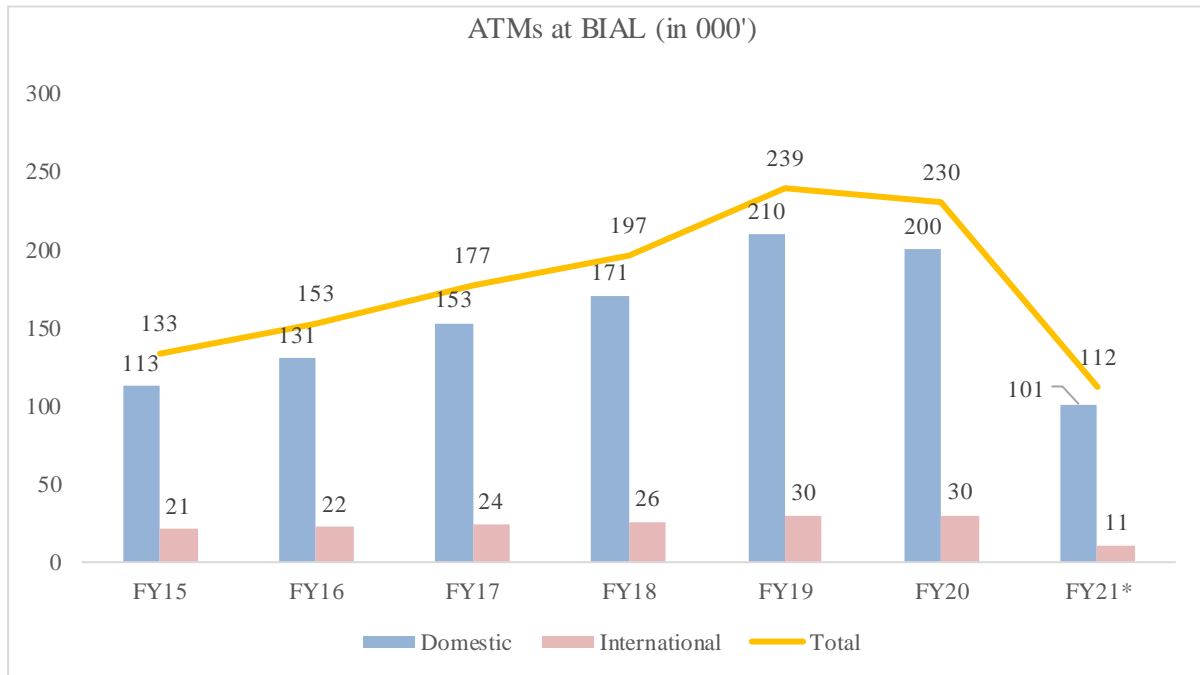
Air traffic movements (ATMs) at BIAL grew at a CAGR of 12.2% and 7.8% for FY 2015 – FY 2020 for domestic ATMs and international ATMs respectively. The air traffic movements trend at BIAL over the last seven years is given in the table below:

Table 8: Air traffic movements at BIAL (in '000)

ATMs (in '000)	2015	2016	2017	2018	2019	2020	2021*	Total
Domestic	113	131	153	171	210	200	101	1,078
International	21	22	24	26	30	30	11	165
Total	133	153	177	197	239	230	112	1,242

Source: AAI *Traffic for FY21 is forecasted based on actuals till February 2021

Figure 2: ATMs at BIAL (FY2015 – 2021)



Source: AAI *Traffic for FY21 is forecasted based on actuals till February 2021

1.3.3 Cargo traffic

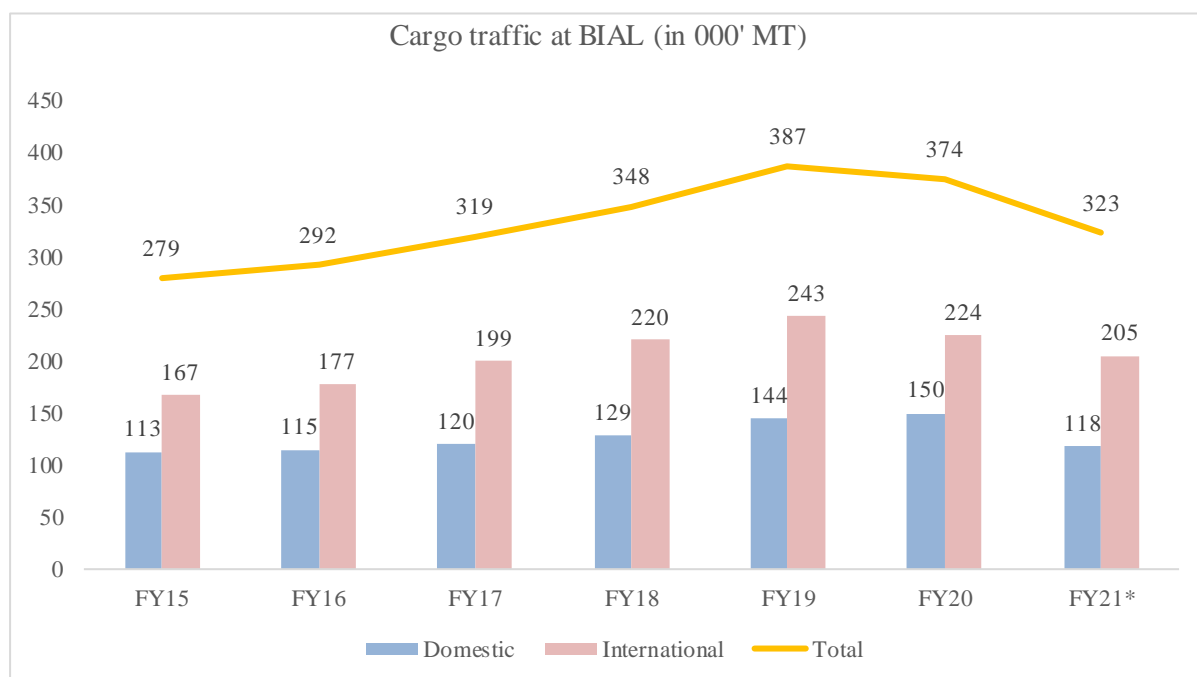
Cargo traffic at BIAL grew at a CAGR of 5.9% and 6.1% for FY 2015 – FY 2020 for domestic cargo and international cargo respectively. The cargo traffic trend at BIAL over the last seven years is given in the table below:

Table 9: Cargo traffic at BIAL (in MT)

Cargo (in MT)	2015	2016	2017	2018	2019	2020	2021*	Total
Domestic	112,687	114,646	119,878	128,504	144,223	150,009	118,153	888,100
International	166,788	177,304	199,466	219,899	242,626	224,053	204,662	1,434,798
Total	279,475	291,950	319,344	348,403	386,849	374,062	322,815	2,322,898

Source: AAI *Traffic for FY21 is forecasted based on actuals till February 2021

Figure 3: Cargo traffic at BIAL (FY2015 – 2021)



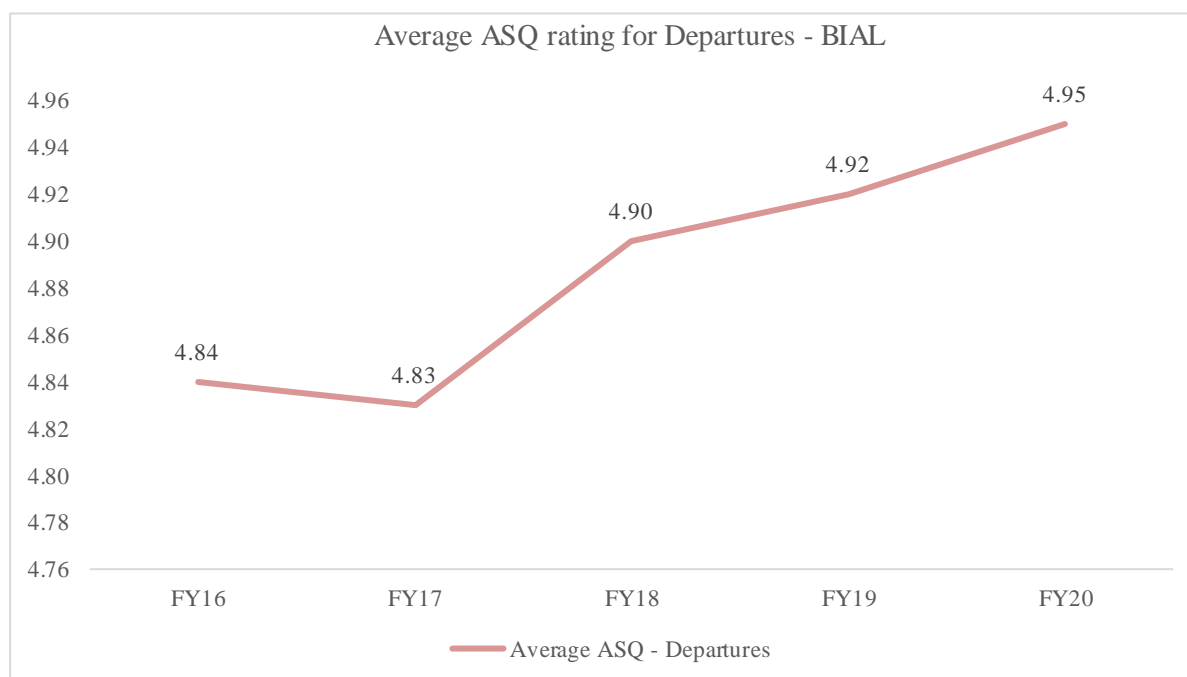
Source: AAI *Traffic for FY21 is forecasted based on actuals till February 2021

1.4 Airport Service Quality (ASQ)

BIAL has submitted that it has undertaken several initiatives to increase customer delight and improve service quality at the airport.

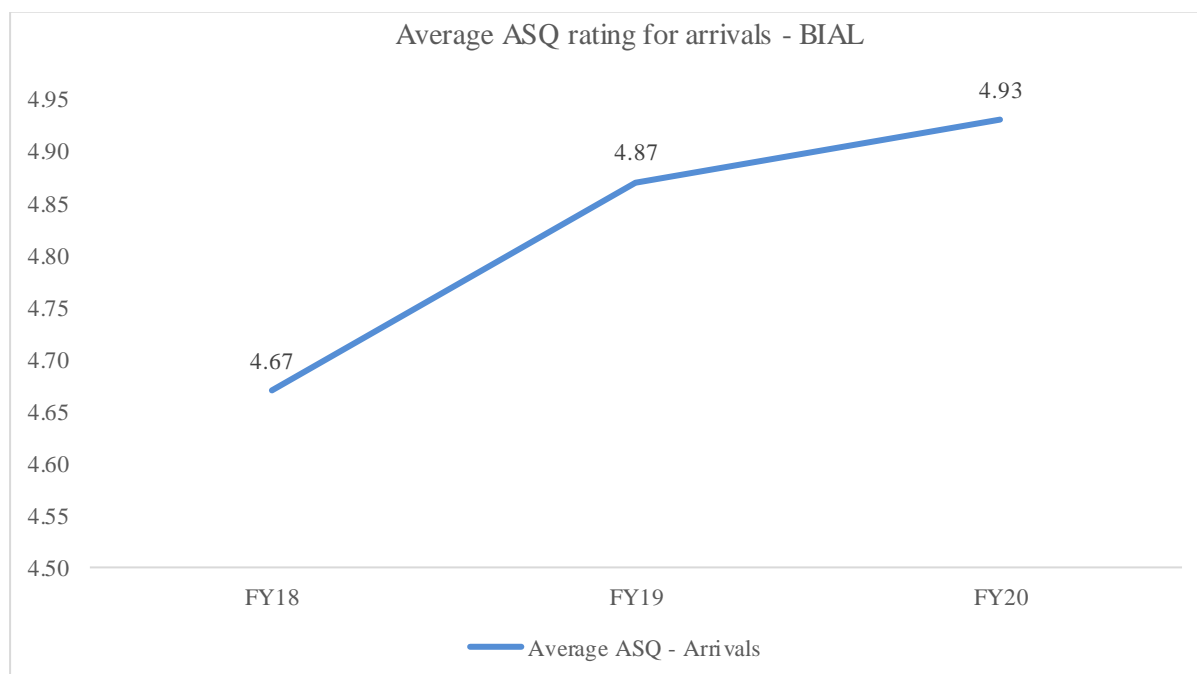
As submitted by BIAL, these initiatives have resulted in departure Air Service Quality (ASQ) rating increasing from 4.84 in Q2 (2016) to 4.97 in Q2 (2020). In addition, BIAL submitted that it has started participating in the arrival survey from Q2 (2018) and that has also increased over the years. The ASQ trend over the years for departures and arrivals is shown in the below graphs:

Figure 4: ASQ rating for departures at BIAL as per BIAL's submission



Source: BIAL

Figure 5: ASQ rating for arrivals at BIAL as per BIAL's submission



Source: BIAL

As submitted by BIAL, following are the recognitions and awards received by it:

a) Customer Experience

- i. World's best airport in ASQ arrivals and best in Asia Pacific (25 – 40 mppa)
- ii. First airport to receive the best airport award in departures and arrival category
- iii. Skytrax award for best regional airport in India and Central Asia (2017, 2018 and 2020)
- iv. Best greenfield airport – Cargo at India cargo awards 2020
- v. Best airport at ASSOCHAM awards on Civil aviation and cargo

b) People

- i. Golden peacock HR excellence award
- ii. World HRD congress – Times Ascent – Dream companies to work
- iii. World HRD congress – Global HR excellence award for managing health at work

c) Sustainability

- i. Retained Airport carbon accreditation level 3+ i.e. neutrality level for carbon management process
- ii. CII GreenCo Star performers Awards 2019
- iii. Energy efficient unit at the national energy awards for excellence in energy management 2018 by CII

d) Others

- i. Moodies award 2020 for CSR programme Namma Shikshana for best CSR/cause advocacy
- ii. Moodies award for the Music terminal part of BIAL's 10-year anniversary celebration
- iii. Director general ACI world appreciated the role played by BIAL in fostering improvements in safety across aerodrome operations worldwide

1.5 Chapter Summary

- i. BIAL was formed as a joint venture of private and public sector agencies in order to develop and operate the airport. The Karnataka State Industrial and Infrastructure Development Corporation (KSIIDC), a Public sector undertaking of the Government of Karnataka (GoK) and Airports Authority of India (AAI), a Government of India (GoI) undertaking, together hold 26% equity and the strategic joint venture partners hold the remaining 74%.
- ii. The airport commenced operations on 24th May 2008 with a capacity of handling 11.4 million passengers.
- iii. Passenger traffic at BIAL grew at a CAGR of 17.4% and 9.3% for FY 2015 – FY 2020 for domestic passengers and international Passengers respectively.
- iv. Air traffic movements (ATMs) at BIAL grew at a CAGR of 12.2% and 7.8% for FY 2015 – FY 2020 for domestic ATMs and international ATMs respectively.
- v. Cargo traffic at BIAL grew at a CAGR of 5.9% and 6.1% for FY 2015 – FY 2020 for domestic and international cargo respectively.
- vi. BIAL through its endeavour to increase customer delight has seen its Air Quality Service (ASQ) increasing from 4.84 in Q2 (2016) to 4.97 in Q2 (2020) for departure ASQ and increasing from 4.67 (FY 2018) to 4.93 (FY2020) for arrival ASQ.
- vii. BIAL has also been rewarded for its initiatives in the forms of various recognitions and awards.

2 SEGREGATION OF COSTS FOR THE SECOND CONTROL PERIOD

2.1 Cost Collection Methodology

The process of aggregation of costs and their allocation into respective cost centres as submitted by BIAL is given below:

2.1.1 Purchase Controls

BIAL has a procurement policy to establish uniform procedures, define responsibilities, provide guidance, controls and checks in place. In addition, BIAL has a delegation of authority/authority matrix with the limits of various approving authorities. The construct of the delegation of authority is in such a way that for any transaction, joint approval by minimum two approvers is required.

The purchase controls can be further classified as procurement related control and process related control, the details for which are as follows:

2.1.1.1 Procurement related control

The procurement related control includes:

- a) Budgeted spends: These are budgeted as part of annual planning exercise undertaken by BIAL and approved by BIAL's Board. These spends include opex, sustaining capex and the future expansion related capex spends.
- b) Contingency spends: Utilization of contingency up to 80% of the approved contingency amounts must be approved jointly by the CFO and MD & CEO. Contingency disbursement report showing the drawdown needs to be brought to the notice of the Board, at its subsequent meeting. Any utilization of contingency amount in excess of 80% of the AERA approved amounts must also be reviewed and approved by the Management Committee/Board. Exceeding the contingency beyond AERA approved levels is not permitted, unless specifically examined and approved by the Board of BIAL.
- c) Tendering process: All procurements are made by BIAL through its web portal (less than INR 50 Lakhs) and BIAL tendering website (above INR 50 Lakhs) for the purpose of transparency, market competitiveness and market/price discovery. Manual submission of tenders is strictly restricted by BIAL.
- d) Direct online procurement: To meet out exigencies and to encourage online procurement (where better rates are available online), procurement through corporate credit card, subject to maximum limit of Rs. 2 Lakhs/transaction is allowed by BIAL.

2.1.1.2 Process related control

The process related control includes:

- a) Process controls at various stages of procurement include controls relating to direct enquires, RFQ/RFP/EoI process depending on the value on proposed contract/works, process related to single source procurement and limited tender approach, pre-bid meetings, evaluation of submitted proposals, negotiation, selection of vendor, award of contract, repeat orders, rate contract etc.
- b) BIAL has adopted certain clauses from the Karnataka Transparency in Public Procurements Act, 1999.

2.1.1.3 Cost centre tagging process at Purchase Order stage

BIAL submitted that it carries out Enterprise Resource Planning (ERP) through SAP that integrates various departments and/or process such as Operations, HR, Finance, Procurement, Marketing, etc into a single system.

BIAL has around 49 cost centres for mapping of costs to the relevant cost centre through ERP. All PRs are mapped to the relevant cost centres. A two-stage mapping is followed by BIAL – Initiating cost centre and End user cost centre. Though initiating cost centre could be E&M, ICT, etc. based on the technical requirements, End user cost centre captures the cost centre that will be utilizing the product/service procured. BIAL has submitted that this approach helps them in mapping the costs as Aero/Non-Aero/Common based on end user identification.

Cost centre tagging is undertaken by BIAL as part of its annual budgeting exercise which becomes the source document for mapping cost centre at PR level. This flows into all subsequent documents such as Purchase order, Goods receipt document, Invoice accounting document and expense reporting/Fixed asset register (in case of capex spend). Any change in cost centre at PR level triggers subsequent approval process.

All PR have to be approved by the Cost Centre Head, Finance Controlling team and by Head of Department based on the value limits as defined in delegation of authority. BIAL submitted that this ensures only approved spends are being requisitioned to be procured and the details of cost centre, budget allocation, etc are documented properly and correctly in the document.

BIAL submitted that it engages with independent external auditors to scrutinise all the Purchase Orders and the related documents to ensure that all awarded Purchase Orders are in line with the requirements mentioned in the Procurement Policy.

BIAL submitted that the independent auditors appointed for providing report on cost allocation of expenses, also audits the expenses accounted in various departments. This ensures that cost centres are correctly tagged in the Purchase Order and subsequent documents to provide true and fair view of cost allocation between Aero and Non-Aero.

2.1.1.4 Invoice accounting process

The invoice accounting process submitted by BIAL is described below:

- a) On receipt of materials/services, concerned stores/user department generates GRN in SAP upon verification with PO. A bill booking annexure is prepared and approved. Bill Booking Annexure includes copy of GRN entry, CRF, Installation certification (in case of capex), Bill and other essential supporting documents for booking the bill.
- b) Senior Executive – F&A (Payable team) checks the completeness of the Bill Booking annexure with appropriate approvals and submits it to DGM-F&A/VP/Head-F&A as per authorization matrix. Accounts Payable Executive checks the approvals and verifies the Bill Booking annexure with the supporting documents to ensure compliance with the PO terms/SLA.
- c) Non-PO expenses, which are only for emergency/ certain one-time / non-recurring expenses etc. are routed through Finance Controllers for a thorough review and verification before the same is processed by the Finance team. Finance & Accounts (Payable team) accounts for and releases the payment towards Non-PO expenses that are not routed via PO/ WO, upon receipt of documents from user department.

2.1.1.5 Purchase order amendment controls

BIAL has submitted the internal controls with specific guidelines on purchase order amendments which covers both capex and opex related POs as described below:

A. Purchase order amendment for Capex

The process submitted by BIAL is as follows:

- a) Capex PO amendments are classified under two categories:
 - i. Change initiated by External Agencies (Contractor's/Consultant's/Suppliers engaged by BIAL) through a Change Request process.
 - ii. Change initiated by BIAL team members.

- b) All such Purchase order amendments require approval from Change Management Committee which comprises Chief of the department along with CFO. The committee is responsible to ensure that the PO amendment is in line with the approved process. The Committee meets periodically to review such requests for amendment.
- c) Approval of Purchase order amendments: Cumulative changes up to 20% of the original contract value shall be managed and approved by CFO and MD & CEO. Any cumulative changes above 20% of the original contract value shall be approved by the Management Committee/Board. Any deviation to the above shall be reported in the subsequent Audit Committee meeting.
- d) Without prior approval, no change approval shall be provided to the External Agency. MIS on all changes are sent periodically to CFO and MD & CEO with time and cost overruns.

B. Purchase order amendment for operational expenditure

BIAL's internal policy guidelines mandates that all Purchase order evaluations are jointly approved as per the value limit prescribed in the authority matrix/delegation of authority. In case of opex purchase order amendment, all such cases are routed for approval one level above.

As part of BIAL's monthly financial book closing, open purchase orders for all departments are reviewed in detail and action taken for short closing orders, where works were completed.

Detailed explanation is obtained from respective user departments where orders must be kept open for reasons such as performance, delivery milestones to be met etc. In case of capex open purchase orders, the same is also validated against the capital work in progress accounted so far.

Apart from monthly internal review, quarterly audit and review of open PO is also done by statutory auditors as part of quarterly financial performance reporting.

2.2 Expenses segregation principles adopted by BIAL

2.2.1 Segregation logic adopted by BIAL as per their MYTP submission

BIAL has submitted the auditor's certificate from Sreedar Mohan and Associates on the allocation of expenses (excluding depreciation, finance costs and tax expenses) based on the books of accounts of BIAL from FY 2017 to FY 2020.

The auditor has given the statement of allocation of expenses into aeronautical and non-aeronautical based on the allocation methodology/ policy certified by the management of BIAL.

BIAL in its submission has divided the operational costs into following major heads:

- a) Personnel Cost
- b) Operation and maintenance cost
- c) General administrative cost
- d) Marketing and advertisement expenses
- e) Concession fee
- f) Utility cost
- g) Land lease rent
- h) Rates and taxes
- i) Insurance cost

BIAL has bifurcated the personnel cost, operation and maintenance cost, general administrative cost and marketing and advertisement expenses based on the department wise cost centres as follows:

- a) BIAL has segregated these expenses into 32 major cost centres which are then further segregated into 63 sub-cost centres.

- b) All the expenditure in a sub-cost centre attributable directly to aeronautical or non-aeronautical services were allocated accordingly.
- c) Expenditure in the remaining sub-cost centres, which cannot be directly attributable to either aeronautical or non-aeronautical heads, are considered as common expenses.
- d) These common expenses for personnel expenses, O&M expenses and general administration expenses have been segregated into aeronautical and non-aeronautical based on the expense allocation ratio (computed based on directly attributable cost for the particular expense) for the year being computed.
- e) The common expenses for marketing and advertisement expenses (excluding collection charges) have been bifurcated by BIAL based on the average ratio of earlier years, that is, 85:15 while the collection charges have been considered as 100% aeronautical.

BIAL has bifurcated the remaining expenses as follows:

- a) Concession fee – Bifurcated based on the revenue ratio.
- b) Land lease rent and rates and taxes – BIAL has submitted that out of the total 4008 acres of land leased to BIAL, a significant portion of the land is being used for airport related activities. Hence, the entire property and other tax amounts and the land lease rent is classified as aeronautical. BIAL submitted that till FY20 the land specifically used for the current non-airport activities is negligible and it is forecasted to remain same for FY21 also.
- c) Utility cost – Utility cost (net of recovery) has been considered by BIAL as aeronautical.
- d) Insurance cost – These expenses are bifurcated based on asset ratio.

The allocation ratio submitted by BIAL as part of its MYTP submission is given in the table below:

Table 10: Allocation ratio submitted by BIAL as part of their MYTP submission

Operational expenditure*	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Personnel Expenses	94.11%	94.11%	92.83%	92.10%	92.10%
Operations & Maintenance	88.63%	89.41%	87.61%	89.01%	89.70%
Lease Rent	100.00%	100.00%	100.00%	100.00%	100.00%
Utility (Net)	100.00%	100.00%	100.00%	100.00%	100.00%
Insurance	90.79%	90.34%	90.03%	90.03%	90.03%
Rates & Taxes (other than IT)	100.00%	100.00%	100.00%	100.00%	100.00%
Collection cost	100.00%	100.00%	100.00%	100.00%	100.00%
Marketing and Advertising	94.68%	89.51%	88.27%	86.42%	86.42%
Total General Administration Costs	99.05%	97.69%	94.92%	91.33%	91.33%
Total operational expenditure - BIAL	89.30%	89.04%	87.51%	87.46%	90.79%

*numbers for FY17-FY20 are based on actuals as submitted by BIAL while numbers for FY21 are forecasted by BIAL

The aeronautical operational expenditure submitted by BIAL as part of its MYTP submission is given below:

Table 11: Aeronautical operational expenditure submitted by BIAL as part of their MYTP submission

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	116.01	118.27	146.58	186.17	203.47	770.50
O&M	83.92	98.84	99.15	117.12	120.27	519.29
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utility	37.72	42.64	34.68	36.45	33.08	184.58
Insurance	1.60	2.26	1.97	3.19	7.70	16.72
Rates & taxes (other than IT)	8.72	6.53	9.36	8.90	9.16	42.68
Marketing & Advertising	8.09	9.25	15.31	19.88	15.61	68.14
CSR	3.72	4.81	16.00	19.51	16.42	60.46
General admin costs	26.59	33.65	28.69	32.74	36.01	157.68
Total operating expenses - Aero	299.37	329.67	365.58	438.20	456.40	1,889.23
Less: Disallowance - Interest/hotel cost						-
Concession fee	32.67	37.06	29.29	22.95	7.80	129.76
Waiver and bad debts	-	0.60	11.15	2.74	-	14.49
Total Operating Expenditure – Aero	332.05	367.33	406.02	463.89	464.20	2,033.48

*numbers for FY17-FY20 are based on actuals submitted by BIAL while numbers for FY21 are forecasted by BIAL

2.3 Segregation principles and methodology applied in study

The sub-cost centres submitted by BIAL have been reviewed and a basis is developed for segregating them into aeronautical, non-aeronautical and common. Broadly, the principles for segregation of costs are as follows:

- Aeronautical costs:** Costs incurred for operation and maintenance of aeronautical assets. Aeronautical services are as defined under the AERA Act. These include costs incurred on runways, taxiways, aprons, ARFF related assets, BHS, ground handling, cargo terminals, approach roads, airside lighting etc.
- Non-aeronautical costs:** Costs incurred for operation and maintenance of non-aeronautical assets. These include costs incurred on car parking, lounges, advertisement, commercial real estate development, etc.
- Common costs:** Common costs are the costs which benefit both Aeronautical and Nonaeronautical activities. Common costs are apportioned between aeronautical and non-aeronautical based on an appropriate methodology.

2.4 Reconciliation of total costs with audited financials

This section reviews reconciliation of the costs submitted as part of the MYTP submission by BIAL for the 2nd control period and actual costs as per the audited financial statements from FY17 to FY20. The audited financial statements for FY21 are not available and therefore, the data for FY21 is taken as per the submission of BIAL for comparison purposes in Table 12, Table 13 and Table 14.

Table 12: Total Operating expenditure as per the MYTP submission of BIAL

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Personnel expenses	123.27	125.67	157.90	202.14	220.92	829.90
O&M	94.69	110.55	113.17	131.58	134.08	584.07
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utility	37.72	42.64	34.68	36.45	33.08	184.58
Insurance	1.76	2.50	2.19	3.54	8.56	18.55

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Rates & taxes (other than IT)	8.72	6.53	9.36	8.90	9.16	42.68
Marketing & Advertising	8.25	9.60	16.47	21.86	17.79	73.97
CSR	3.72	4.81	16.00	19.51	16.42	60.46
General admin costs	26.84	34.44	30.23	35.85	39.43	166.80
Total operating expenses	317.98	350.16	393.84	474.08	494.12	2,030.18
Less: Disallowance - Interest/hotel cost	0.00	0.00	0.00	0.00	0.00	0.00
Concession fee	53.86	61.78	59.00	53.59	17.19	245.40
Waiver and bad debts	-	0.60	11.15	2.74	-	14.49
Total operating expenditure	371.84	412.54	463.99	530.40	511.31	2,290.07

*numbers for FY17-FY20 are based on actuals as submitted by BIAL while numbers for FY21 are forecasted by BIAL

Table 13: Total Operating expenditure as per audited financial statements of BIAL

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	118.72	121.28	153.17	195.97	220.92	810.06
O&M	99.29	116.74	117.27	138.58	134.08	605.96
Lease Rent	13.01	13.42	13.83	18.73	14.67	73.66
Utilities	39.04	44.46	37.38	33.28	33.08	187.24
Insurance	1.76	2.50	2.18	3.53	8.56	18.53
Rates & taxes (other than IT)	8.72	6.55	9.36	8.90	9.16	42.69
Marketing & Advertising	2.93	3.24	9.80	14.56	17.79	48.32
CSR	3.72	4.81	16.00	19.52	16.42	60.47
General admin costs	31.38	30.84	27.3	33.79	39.43	162.74
Total operating expenses	318.57	343.84	386.29	466.86	494.12	2,009.68
Less: Disallowance - Interest/hotel cost	0.00	0.00	0.00	0.00	0.00	0.00
Concession fee	53.86	61.78	59.00	53.59	17.19	245.42
Waiver and bad debts	0.00	0.60	11.15	2.74	0.00	14.49
Total operating expenditure	372.43	406.22	456.44	523.19	511.31	2,269.59

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

The reconciliation of MYTP submission with audited financial statements is given below:

Table 14: Reconciliation of MYTP submission with financial statements of BIAL

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Total expenditure as per audited financial statement	372.43	406.22	456.44	523.19	511.31	2,269.59
Total expenditure as per MYTP submission	371.84	412.54	463.99	530.40	511.31	2,290.07
Difference	-0.59	6.32	7.55	7.21	0.00	20.48

*numbers for FY17-FY20 are based on actuals while numbers for FY21 are forecasted

The difference in the audited financial statements based on IGAAP and MYTP submission has been noted in the above table. BIAL has submitted that it has considered the operational expenditure as per the MIS for the MYTP submission. BIAL submitted that the profit after tax for FY 2017 to FY 2020 in the MYTP submission, which is based on the MIS, is matching with the audited financial statements based on IGAAP.

As per the AERA guidelines, the study has considered the operational expenditure as per the audited financial statements based on IGAAP with the below adjustments:

- a) Collection cost is considered as a marketing and advertisement expense. Since, the aeronautical revenues are also increased by the collection cost, the net impact on the over/ under-recovery is nil.
- b) Exchange losses are excluded from the General Admin cost
- c) BIAL has submitted the following regarding the reclassification entry of INR 4.49 cr. in lease rent and utility expenses:

“The roof top Solar electricity expenses are recognised as ‘lease expense’ for the purposes of I-GAAP hence this reclassification entry was passed in the books.

For business purposes these are electricity expenses only, hence the same is correctly considered in the Business Plan under Utility expenses. In the Business Plan, the Lease Rentals paid to the GoK for Land Lease has been consistently shown under “Lease Rentals”.

Accordingly, for the purposes of the study, lease rent of FY 2020 is considered based on the lease deed of BIAL, that is, INR 14.24 cr. Accordingly, lease rent as per the audited financial statement for FY 2020 is reduced by INR 4.49 cr. and the utility cost is increased by the same amount so that the impact on the total operational expenditure is nil.

After the above adjustment to the operational expenditure as per the audited financial statements, the study has considered the total operational expenditure for allocation between aeronautical and non-aeronautical components as per the table below:

Table 15: Revised total operational expenditure as per the audited financial statements after adjustments

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021*	Total
Total expenditure as per audited financial statement	372.43	406.22	456.44	523.19	511.31	2,269.59
Add: Collection cost to marketing and advertisement expenses	5.27	6.31	6.57	7.27		25.42
Less: Exchange losses from General Admin cost	-6.77	-0.87	-0.01	0		-7.65
Add: Reclassification entry to Utility expenses				4.49		4.49
Less: Reclassification entry to lease rent as per lease deed of BIAL				-4.49		-4.49
Less: Adjustment to FY21 opex as per the unaudited numbers from Apr, 2020 to Dec, 2020 and forecast of Jan, 2021 to Mar, 2021					-46.05	-46.05
Total adjusted expenditure	370.93	411.66	463.00	530.46	465.26	2,241.31

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5 Segregation of costs

The segregation of personnel cost, O&M cost, marketing and advertisement expenses and general administration cost into aeronautical, non-aeronautical and common expenses has been undertaken based on the sub-cost centre wise allocation.

Sub-cost centre wise allocation of Personnel Cost, Operation and Maintenance (O&M) cost and General Administration (GA) and Marketing and Advertising (M&A) cost into aeronautical (A), non-aeronautical (N) and common (C) based on this study has been provided in the table below:

Table 16: Revision of the allocation of sub-cost centre based on the study

S no	Sub-cost centre	Personnel		O&M		GA and M&A		Remarks
		BIAL	Study	BIAL	Study	BIAL	Study	
1	Director Operations	A	A	A	A	-	-	
2	Quality Management	A	C	-	-	A	C	The Quality Management team works towards the overall improvement of the airport operations and hence taken as common. Similar treatment was considered by AERA for other airports.
3	Corporate Affairs	A	C	A	C	A	C	Corporate Affairs exist to support both Aeronautical and Non - Aeronautical activities and hence, considered as common. Similar treatment was considered by AERA for other airports.
4	Terminal Operations	A	C	A	A*	A	C	Terminal operations cost includes costs related to maintenance, upkeep and running of the terminal. Since both aeronautical and non - aeronautical services are managed and provided within the terminal, hence expenses under this head are considered as common. Similar treatment was considered by AERA for other airports. Terminal operations is

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S no	Sub-cost centre	Personnel		O&M		GA and M&A		Remarks
		BIAL	Study	BIAL	Study	BIAL	Study	
								considered as aeronautical for O&M expenses with some cost items containing F&B, lounges (except VIP) being reclassified from aeronautical to non-aeronautical.
5	Airside Operations	A	A	A	A	A	A	
6	Aviation Marketing and Contracts	A	A	A	A	A	A	
7	BDMS-Marketing	C	C	C	C	C	C	
8	Aviation Safety	A	A	A	A	A	A	
9	Emergency & BCM	A	A	A	A	A	A	
10	Security	A	A	A	A	A	A	
11	Security - Inline Screening	A	A	-	-	A	A	
12	Ops Planning & Project Co-ordination	A	C	A	C	A	C	Involves planning and coordination of the entire airport which includes aeronautical as well as non - aeronautical services
13	ARFF	A	A	A	A	A	A	
14	Innovation Lab	A	C	A	C	A	C	Aimed at innovation in the airport and its operations which caters to aeronautical as well as non - aeronautical services
15	ICT Aviation	A	A	A	A	A	A	
16	Chief Commercial officer	C	C	-	-	C	C	
17	Landside Traffic	N	N	N	N	N	N	
18	Landside Technical	N	N	N	N	N	N	
19	Facilities	C	C	C	C	C	C	

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S no	Sub-cost centre	Personnel		O&M		GA and M&A		Remarks
		BIAL	Study	BIAL	Study	BIAL	Study	
20	Commercial Centre Management	N	N	N	N	N	N	
21	Marketing and Advertising	N	N	N	N	N	N	
22	Real Estate Development	C	C	Non- airport	N	Non- airport	N	Considered as non-aero for O&M, GA and M&A. Considered common for personnel cost in accordance with the submissions made by BIAL (real estate personnel are involved in filing the property tax and managing contracts of cargo, ground handling, etc.)
23	Planning & project management earlier and post start of T1A it was changed to Projects	C	C	C	C	C	C	
24	VP - Engineering & Maintenance	C	C	C	C	C	C	
25	Landside Maintenance - Building	C	C	C	C	C	C	
26	Landside Maintenance - Electrical	C	C	C	C	C	C	
27	Landside Maintenance - Special Equipment	A	C	A	C	A	C	Includes central air conditioning unit of terminal and hence considered as common
28	Utility - Water Supply	A	C	A	C	A	C	Utility are provided to both aero and non-aero service users and hence taken as common
29	Environment	A	A	A	A	A	A	

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S no	Sub-cost centre	Personnel		O&M		GA and M&A		Remarks
		BIAL	Study	BIAL	Study	BIAL	Study	
30	Landside Maintenance - Services	C	C	C	C	C	C	
31	Airfield Maintenance - Civil	A	A	A	A	A	A	
32	Airfield Maintenance - Electrical	A	A	A	A	A	A	
33	Utility - Power Systems	A	C	A	C	A	C	Utility are provided to both aero and non-aero service users and hence taken as common
34	Airfield Maintenance - Services	A	A	A	A	A	A	
35	Airfield Services- Vehicle & Equipment	A	A	A	A	A	A	
36	Airfield Services- Horticulture & Landscaping	A	A	A	A	A	A	
37	Airfield Services - Wild life control	A	A	A	A	A	A	
38	ICT Communications	C	C	-	-	C	C	
39	ICT Network	C	C	-	-	C	C	
40	ICT Value added services	C	C	-	-	C	C	
41	ICT Others	N	N	-	-	-	-	
42	MD and CEO Office	C	C	C	C	C	C	
43	Finance	C	C	C	C	C	C	
44	Human Resources	C	C	C	C	C	C	
45	Administration	C	C	C	C	C	C	
46	Company Secretary & Legal	C	C	C	C	C	C	
47	Corporate Communications	A	C	A	C	A	C	Corporate Communication exist to support both aero and non-aero activities and

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S no	Sub-cost centre	Personnel		O&M		GA and M&A		Remarks
		BIAL	Study	BIAL	Study	BIAL	Study	
								hence, considered as common. Similar treatment was considered by AERA for other airports.
48	ICT-Common	C	C	C	C	C	C	
49	Chief Operations Officer	A	C	A	C	A	C	COO is responsible for managing the operations of a airport as a whole and hence its costs are taken as common. Similar treatment was considered by AERA for other airports.
50	Cust Engagement and Service Quality	A	C	A	C	A	C	Similar to ops planning and project coordination
51	Infra - ICT	C	C	C	C	C	C	
52	Center of Excellence	C	C	C	C	C	C	
53	Strategy & Development	C	C	C	C	C	C	
54	Forecasting and Slots	A	A	A	A	A	A	
55	Corporate Social Responsibility	C	C	C	C	C	C	
56	Corporate Strategy & Business Development	C	C	-	-	C	C	
57	ORAT for PAL 1 Projects	C	C	-	-	C	C	
58	Marketing	N	N	-	-	N	N	
59	Passenger Fee	-	-	A	A	-	-	
60	Airside Infrastructure	-	-	-	-	A	A	
61	Chief Infrastructure Officer	-	-	-	-	C	C	

S no	Sub-cost centre	Personnel		O&M		GA and M&A		Remarks
		BIAL	Study	BIAL	Study	BIAL	Study	
62	President - Airport operations	A	C	A	C	A	C	Similar to Chief Operations Officer.
63	Marketing Fund	-	-	-	-	-	-	

For the segregation of common cost, the expense allocation ratio (based on the directly attributable cost) has been used. This expenses allocation ratio has been computed by revising the opex allocation. For eg, the below table provides an example with the computation of a sample expense of INR 100 with aeronautical expenses ratio of 90%.

Table 17: Sample computation of the aeronautical expense ratio

Particulars	Reference	Amount (INR)
Aeronautical expenses	A	63
Non-aeronautical expenses	B	7
Common expenses	C	30
Total expense	D = A + B + C	100
Aeronautical expenses ratio (directly attributable ratio)	E = A / (A+B)	90%
Aeronautical component of common expenses	F = C * E	27
Non-aeronautical component of common expenses	G = C * (1-E)	3
Total aeronautical expenses	H = A + F	90
Total non-aeronautical expenses	I = B + G	10
Aeronautical expenses ratio	J = H / (H+I) = E	90%

The below table shows the methodology adopted to segregate the Operation and Maintenance costs for the second control period of BIAL into aeronautical, non-aeronautical and common.

Table 18: Basis of segregation of operational expenditure among aero and non-aero services as per this study

Operational expense head	Basis for segregation of O&M cost
Personnel cost	The personnel costs have been bifurcated into aeronautical, non-aeronautical and common costs based on the allocation of sub-cost centre wise expenses. These common costs have then been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses).
O&M costs	The O&M costs have been bifurcated using the same methodology used for personnel costs. Some expenses related to F&B, lounges (except VIP) under the head terminal operations are classified as non-aeronautical expenses.
General administrative costs	The general administrative costs have been bifurcated into aeronautical, non-aeronautical and common costs based on the allocation of sub-cost centre. These common costs have then been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses).

	Donations have been considered as non – aeronautical while provision for doubtful debts have been excluded from General administrative costs.
Marketing & advertisement costs	The marketing and advertisement expenses (other than collection charges) are bifurcated department wise into aeronautical, non-aeronautical and common. The common costs are then apportioned in the ratio of 85:15 which is the average of the previous years. Collection charges are considered as aeronautical expense.
Concession fee	As per the concession agreement signed between BIAL and GoI, BIAL has to pay a concession fee amounting to 4% of the gross annual revenue. Since the tariff computation for BIAL is undertaken on hybrid till, the aeronautical concession fee for BIAL is computed as 4% of the aeronautical revenues. The study has considered the CGF revenues as part of the aeronautical revenues for computing the aeronautical concession fee.
Utility Cost	The utility cost has been adjusted for the utility recoveries from aeronautical concessionaires as per AERA's second control period order for BIAL. The net amount has been considered 100% aeronautical expenses.
Lease Rent	The lease rent is calculated as per the lease deed signed between BIAL and KSIIDC. The lease rent is calculated as per the following: i. The lease rental from airport opening date till end of 7 years will be 3% of total land cost. ii. For the 8th year, the lease rental shall be 6% of total land cost iii. For every following year, the lease rent shall be equivalent to lease rental of previous year plus additional 3%. Land usage by BIAL has been primarily for airport with very low utilization under real estate development till FY 2020 and it is forecasted to remain the same in FY 2021. Accordingly, the lease rent is considered as aeronautical.
Rates and taxes	Land usage by BIAL has been primarily for airport with very low utilization under real estate development till FY 2020 and it is forecasted to remain the same in FY 2021. Accordingly, the lease rent is considered as aeronautical.
Insurance	Insurance expenses have been bifurcated based on the adjusted gross fixed asset ratio.
CSR expense	CSR expense has been considered as operational expenditure as per the directions of the TDSAT judgement dated 16 Dec 2020. These are categorized as common and aeronautical CSR expense is computed based on the aeronautical profit before tax. Additionally, the numbers for FY 2021 have been revised based on revised estimates submitted by BIAL.
Waiver and bad debts	Waivers and bad debts have been excluded from the operational expenses

2.5.1 Personnel Costs

Personnel costs include:

- a) Salaries, bonuses and allowances
- b) Contribution to provident fund and other funds
- c) Staff recruitment and training
- d) Staff welfare

BIAL's segregation logic

BIAL has bifurcated the personnel costs into aeronautical, non-aeronautical and common costs based on the allocation of sub-cost centre wise expenses. These common costs have then been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses).

Revision as per the study

It is noted that the personnel cost has increased from FY18 to FY19; however, it is further noted that the employee cost per pax has seen a decreasing trend from FY 2018 to FY 2019 due to increase in the passenger traffic (refer 3.4.1). The increase in the personnel cost from FY19 to FY20 is on account of the commissioning of the new south parallel runway in December 2019 and increase in the area of operations. Due to capacity addition by BIAL, the employee cost per pax has increased which is expected to gradually fall with the increase in utilization levels. The increase in the personnel cost from FY20 to FY21 is on account of the full year cost of the employees who joined in FY20 as well as the induction/hiring of the employees who were already given offers by BIAL (refer 3.4.1 for details).

On examining the department wise bifurcation of aero, non-aero and common submitted by BIAL for personnel costs, it was noted that bifurcation for some of the departments was considered 100% aeronautical whereas these departments exist to support both aeronautical and non-aeronautical activities. Accordingly, these departments have been reclassified as per Table 16.

The following departments have been reclassified from aeronautical to common:

- a) Quality management
- b) Corporate affairs
- c) Terminal operations
- d) Ops planning and project coordination
- e) Innovation lab
- f) Landside – special equipment
- g) Utility – water supply
- h) Utility – power systems
- i) Corporate communication
- j) Chief operations officer
- k) President – Airport operations
- l) Customer engagement and service quality

The revised aeronautical personnel costs is given in the table below:

Table 19: Revision in segregation logic of personnel costs as per this study

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
BIAL submission						
Total Personnel cost – as per BIAL (in INR Cr.) (A)	123.27	125.67	157.90	202.14	220.92	829.90
Aeronautical ratio – BIAL (B)	94.11%	94.11%	92.83%	92.10%	92.10%	
Aeronautical personnel cost as per BIAL (C = A*B)	116.01	118.27	146.58	186.17	203.47	770.50
Revision as per the study						
Total Personnel cost considered in the study (in INR Cr.)* (D)	118.72	121.28	153.17	195.97	211.14	800.28
Revised segregation ratio (E)	90.44%	91.05%	89.71%	88.94%	88.94%	
Aeronautical personnel cost based on revised logic (INR cr.) (F = D*E)	107.37	110.43	137.41	174.29	187.78	717.27
Impact of revision in segregation logic (INR cr.) (G = F – C)	-8.64	-7.84	-9.18	-11.88	-15.69	-53.23

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.2 Operation & Maintenance (O&M) Cost

The operation & maintenance expenses of BIAL are bifurcated into the following categories:

- a) Consumption of stores and spares
- b) Repair & maintenance
- c) Machinery and others

BIAL's segregation logic

BIAL has bifurcated the O&M costs into aeronautical, non-aeronautical and common costs based on the allocation of sub-cost centre wise expenses. These common costs have then been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on the directly attributable expenses).

Revision as per the study

The O&M expenses as a % of gross block has increased from FY 2017 to FY 2019 due to increase in minimum wages and increased utilization of the terminal and single runway. The increase in O&M expenses in the FY 2020 is on account of the commissioning of the new south parallel runway. The O&M expenses as a % of assets has decreased in FY 2020 due to increase in the asset base (refer 3.4.2 for details).

On examining the department wise bifurcation of aero, non-aero and common submitted by BIAL for O&M costs, it was noted that bifurcation for some of the departments was considered as 100% aeronautical, while these departments exist to support both aeronautical and non-aeronautical activities. The reclassification of departments has been undertaken as per Table 16.

Terminal operations is considered as aeronautical for O&M expenses after excluding exceptional cost items under terminal operations sub-cost centre containing F&B, lounges (except VIP).

The revised O&M expenses are given in the table below.

Table 20: Revision in segregation logic of O&M expenses as per this study

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
BIAL submission						
Total O&M Costs – as per BIAL (in INR Cr.) (A)	94.69	110.55	113.17	131.58	134.08	584.07
Aeronautical ratio – BIAL (B)	88.63%	89.41%	87.61%	89.01%	89.70%	
Aeronautical O&M Costs as per BIAL (C = A*B)	83.92	98.84	99.15	117.12	120.27	519.29
Revision as per the study						
Total O&M Costs considered in the study (in INR Cr.)* (D)	99.29	116.74	117.27	138.58	133.98	605.86
Revised segregation ratio (E)	83.62%	84.78%	82.66%	84.49%	89.64%	
Aeronautical O&M Costs based on revised logic (F = D*E)	83.03	98.97	96.93	117.09	120.09	516.11
Impact of revision in segregation logic (G = F – C)	-0.89	0.13	-2.21	-0.03	-0.18	-3.18

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

Based on the revised segregation logic, the revised segregation ratio is lower than the aeronautical ratio of BIAL. However, the decrease in O&M expenses (as per the study) is limited since the actual O&M costs is considered as per the audited financial statements of BIAL.

2.5.3 General administrative cost

General administrative cost is the cost incurred for the airport administration which has the following major components:

- a) Communication
- b) Donation
- c) Exchange gain (net)
- d) Legal and professional fees
- e) Printing and stationery
- f) Provision for doubtful debts
- g) Replacement costs
- h) Technical consultancy
- i) Travelling and conveyance
- j) Miscellaneous

BIAL's segregation logic

BIAL has bifurcated the personnel costs into aeronautical, non-aeronautical and common costs based on the allocation of sub-cost centre wise expenses. These common costs have then been further bifurcated into aeronautical and non-aeronautical costs based on the expense allocation ratio (based on directly attributable expenses).

Revision as per the study

On examining the department wise bifurcation of aero, non-aero and common submitted by BIAL for general administrative costs, it was noted that bifurcation for some of the departments was considered as 100% aeronautical, while these departments exist to support both aeronautical and non-aeronautical activities. Accordingly, these departments have been reclassified. The reclassification of departments has been undertaken as per Table 16 for general administrative costs.

Donations have been considered as non-aeronautical while provision of doubtful debts have been excluded from the general administrative costs (as per AERA's 2nd control period order for BIAL). The revised general administrative cost is provided in the table below:

Table 21: Revision in segregation logic of general administrative cost as per this study

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
BIAL submission						
Total general administrative cost – as per BIAL (INR Cr.) (A)	26.84	34.44	30.23	35.85	39.43	166.80
Aeronautical ratio – BIAL (B)	99.05%	97.69%	94.92%	91.33%	91.33%	
Aeronautical general administrative cost as per BIAL (C = A*B)	26.59	33.65	28.69	32.74	36.01	157.68
Revision as per the study						
Total general admin cost considered in the study (INR cr.)* (D)	24.61	29.95	27.29	33.71	26.77	142.33
Revised segregation ratio (E)	95.10%	91.27%	63.34%	59.03%	90.00%	
Impact of revision in segregation logic (F = D*E)	23.40	27.34	17.28	19.90	24.09	112.02

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Aeronautical general administrative cost based on revised logic (INR cr.) (G = F-C)	-3.18	-6.31	-11.41	-12.84	-11.92	-45.67

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.4 Marketing & Advertisement

Marketing & advertisement expenses constitute collection charges, airline launch events, Pinnacle awards, branding/marketing of new terminal, event costs etc.

BIAL's segregation logic

BIAL has bifurcated the expenses (except collection charges) department wise into aeronautical, non-aeronautical and common expenses. The common expenses are allocated into aeronautical and non-aeronautical on the ratio of 85:15, which is the average ratio of the previous years. Collection charges are considered as aeronautical.

Revision as per the study

On examining the department wise bifurcation of aero, non-aero and common submitted by BIAL for marketing & advertisement costs, it was noted that bifurcation for some of the departments was considered as 100% aeronautical, while these departments exist to support both aeronautical and non-aeronautical activities. The reclassification of departments has been undertaken as per Table 16.

Pinnacle event has been considered 100% aero by BIAL while it has participation from non-aero concessionaires as well. Hence, the same was reclassified from 100% aero to common.

More than 85% of the expenses are attributable to two major heads namely Aviation marketing and contracts and BDMS – Marketing. The Aviation marketing and contracts constitutes roadshows, pinnacle event, airline route launches, sponsorships and travel expenses while BDMS marketing constitutes branding, brochures, event management and social and digital marketing. Increased spend on branding and marketing of the airport has resulted in increased cost/pax over these years. BIAL has not provided the justification for the increase in marketing and advertising costs. Therefore, the marketing and advertising expenses have been considered as per Table 46 based on the growth in passenger traffic and inflation (refer 3.4.4 for details).

The revised marketing and advertisement expenses is provided in the table below:

Table 22: Revision in segregation logic of Marketing & advertisement expenses as per this study

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
BIAL submission						
Collection Cost as per BIAL (in INR Cr.) (A)	5.27	6.31	6.57	7.27	1.74	27.16
Marketing Expenses as per BIAL (in INR Cr.) (B)	2.97	3.29	9.91	14.59	16.05	46.81
Total Marketing & Advertisement cost – as per BIAL (in INR Cr.) (C = A+B)	8.25	9.60	16.47	21.86	17.79	73.97
Collection cost - Aeronautical Ratio as per BIAL (D)	100%	100%	100%	100%	100%	
Marketing expenses - Aeronautical Ratio as per BIAL (E)	94.68%	89.51%	88.27%	86.42%	86.42%	
Aeronautical Marketing & Advertisement cost – as per BIAL (F = A*D + B*E)	8.09	9.25	15.31	19.88	15.61	68.14
Revision as per the study						

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Collection Cost – considered in the study* (G)	5.27	6.31	6.57	7.27	2.34	27.76
Marketing expenses – considered in the study (refer Table 46)* (H)	2.93	3.24	7.47	4.12	4.40	22.16
Total Marketing & Advertisement cost – considered in the study (I = G+H)	8.20	9.55	14.03	11.39	6.74	49.91
Revised segregation ratio - Collection Cost (J)	100%	100%	100%	100%	100%	
Revised segregation ratio - Marketing expenses (K)	89.82%	83.60%	85.17%	84.80%	84.80%	
Aeronautical Marketing & Advertisement cost based on revised logic (L = G*J + H*K)	7.90	9.02	12.93	10.77	6.07	46.68
Impact of revision in segregation logic (M = L – F)	-0.18	-0.23	-2.39	-9.11	-9.54	-21.46

*Costs for FY17 to FY18 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.5 Concession Fee

As per Clause 3.1 of the concession agreement signed between BIAL and the Government of India, BIAL has to pay a concession fee amounting to 4% of the gross annual revenue every year.

BIAL's segregation logic

BIAL has segregated the concession fee in the proportion of aeronautical and non-aeronautical revenues.

Revision as per the study

Since the tariff computation for BIAL is undertaken on hybrid till, the aeronautical concession fee for BIAL is computed as 4% of the aeronautical revenues. It is noted that BIAL has not considered the Cargo, Ground Handling and Fuel (CGF) revenues (aviation concession revenues and rent and land leases from CGF) for the computation of aeronautical concession fee. The study has considered the CGF revenues as part of the aeronautical revenues for computing the aeronautical concession fee.

The revised aeronautical concession fee is given in the table below:

Table 23: Revision in segregation logic of concession fee as per this study

Particulars (in INR Cr.)	Ref.	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
BIAL submission							
Aviation revenues	A	816.86	926.39	732.18	573.71	187.11	3,236.26
Aviation concession revenues	B	173.16	188.66	219.59	242.57	90.58	914.56
Non-aero revenues	C	341.33	394.03	463.63	508.28	133.30	1,840.57
Other income	D	20.36	41.63	66.51	21.43	18.67	168.59
Total revenues as per BIAL	E = A + B + C + D	1,351.71	1,550.71	1,481.91	1,345.99	429.66	6,159.98
Total concession fees as per BIAL[#]	F = E*4%	53.86	61.78	59.00	53.59	17.19	245.40
Aero concession fee as per BIAL	G = A*4%	32.67	37.06	29.29	22.95	7.80	129.76
Revision as per the study							
Aviation revenues	H	816.86	926.39	732.18	573.71	219.1	3,268.25
Aviation concession (CGF) revenues	I	173.16	188.66	219.59	242.57	100.30	924.28

Particulars (in INR Cr.)	Ref.	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
Add: Lease rent from CGF as aero	J	6.03	6.64	7.50	12.23	13.24	45.64
Less: Collection cost*	K	(5.27)	(6.31)	(6.57)	(7.27)	(2.34)	(27.76)
Total aero revenues as per the study	L = H + I + J + K	990.78	1,115.38	952.71	821.24	330.30	4,210.41
Non-aero revenues	M	335.3	387.4	456.1	496.1	114.0	1,788.87
Other income	N	20.36	41.63	66.51	21.43	18.74	168.66
Total revenues as per the study	O = L + M + N	1,346.43	1,544.40	1,475.35	1,338.72	463.04	6,167.94
Total concession fees as per the study	P = O*4%	53.86	61.78	59.00	53.59	18.52	246.74
Aero concession fee as per the study	Q = L*4%	39.63	44.62	38.11	32.85	13.21	168.42
Impact of revision in segregation logic	R = Q - G	6.96	7.56	8.82	9.90	5.42	38.65

#Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021; data for the aeronautical revenues is not available in the audited financial statements from FY17 to FY20; * collection charges on User Development Fee is INR 5 per applicable departing pax, concession fee is not payable on the collection cost as the amount is paid to the airlines

2.5.6 Utility cost

Utility cost includes power, water and fuel expenses. Power expenses comprise of payments to Bangalore Electricity Supply Company Limited (BESCOM), Airport electricity charges, Open access solar power from Cleanmax, open access from Bosch plant etc.

As per BIAL, the infrastructure for the utility from the source (located within the airport) to the consumption (located in the concessionaire area) is created and owned by BIAL. Additionally, the supply and distribution of the utility within the airport campus to each of the concessionaires is undertaken by BIAL itself.

Further, BIAL also shared that the invoice to the concessionaires is a combination of utility charges and service charges. The invoice contains two components; components from tariff provided by government agencies and components corresponding to service charges like infrastructure capex recovery and associated maintenance costs, administration fees etc.

BIAL is also responsible for measuring and monitoring the utility supplied for each of the concessionaire. For concessionaires (for whom meters are not provided because of the scale of consumption) and for common areas, apportionment of costs model is considered by BIAL.

As per BIAL, for offices and storage spaces provided to partners in the terminal, who cannot be given individual meters, the consumption is tracked through common meters. The supplied amount and the costs are evenly distributed among these occupants.

Utility costs for the Public areas, such as passenger circulation areas like arrival, departure halls and kerb areas etc. are borne by BIAL.

The power and water consumption submitted by BIAL for the period from FY 2017 to FY 2020 is shown in the table below:

Table 24: Power and water consumption by BIAL as per their submission

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020
Power Consumption				
Power Consumption	74,893,946	76,251,051	78,438,998	80,978,764
Less: Recovery	29,264,851	30,551,081	32,339,230	37,823,827
Net Consumption	45,629,095	45,699,970	46,099,768	43,154,937
Water Consumption				

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020
Non - potable Water Consumption	237,905	360,000	229,500	134,900
Potable Water Consumption	524,640	638,610	788,810	827,247
Total consumption	762,545	998,610	1,018,310	962,147
Less: Recoveries	330,933	389,122	380,631	382,777
Net Consumption (in KL)	431,612	609,488	637,679	579,371

*Based on actuals submitted by BIAL

BIAL's segregation logic

BIAL has taken utility costs (net of recovery) as aeronautical. The rationale provided in the CA certificate shared by BIAL states that "utility consumption of BIAL offices situated at terminal building, airside buildings and other administrative buildings have negligible portion of utility costs".

Revision as per the study

BIAL has considered the utility recoveries from aeronautical concessionaires such as cargo, ground handling, fuel farm and CUTE/ CUSS as non-aeronautical revenues. These utility recoveries have been excluded from the aeronautical utility expenses and only utility recoveries from non-aeronautical concessionaires are considered as non-aeronautical revenues. Accordingly, the aeronautical utility recoveries is adjusted from the aeronautical utility cost.

The utility (net of recovery) cost has been considered as aeronautical. The revised aeronautical utility cost is given in the table below:

Table 25: Revision in segregation logic for utility expenses as per this study

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
BIAL submission						
Total Utility Costs – as per BIAL (in INR Cr.) (A)	37.72	42.64	34.68	36.45	33.08	184.58
Aeronautical ratio – BIAL (B)	100%	100%	100%	100%	100%	
Aeronautical Utility Costs as per BIAL (C = A*B)	37.72	42.64	34.68	36.45	33.08	184.58
Revision as per the study						
Total Utility Costs - considered in the study (INR cr.)* (D)	39.04	44.46	37.38	37.76	25.82	184.46
Utility recovery from aeronautical concessionaires (INR cr.) (E)	2.59	2.54	2.52	3.54	2.42	13.60
Net utility costs adjusted for utility recoveries (INR cr.) (F = D – E)	36.45	41.92	34.86	34.22	23.41	170.86
Aeronautical ratio (G)	100%	100%	100%	100%	100%	
Aeronautical Utility Costs based on revised logic (H = F*G)	36.45	41.92	34.86	34.22	23.41	170.86
Impact of revision in segregation logic (I = H – C)	-1.27	-0.72	0.18	-2.23	-9.68	-13.72

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.7 Lease Rent

A land lease deed was executed between Karnataka State Industrial Investment and Development Corporation Limited (KSIIDC) and BIAL on 30th April 2005 according to which:

- a) The lease rental from airport opening date till end of 7 years will be 3% of total site cost (INR 175 cr.).
- b) For the 8th year, the lease rental shall be 6% of total site cost (INR 175 Cr.).
- c) For every following year, the lease rent shall be equivalent to lease rental of previous year plus additional 3%.

Additional land was leased to BIAL by KSIIDC as per the following terms:

- a) The lease rental from airport opening date till end of 7 years will be 3% of total cost of additional land (INR 36.78 Cr.).
- b) For the 8th year, the lease rental shall be 6% of the additional land cost (INR 36.78 Cr.).
- c) For every following year, the lease rent shall be equivalent to lease rental of previous year plus additional 3%.

BIAL's segregation logic

BIAL has submitted that its land usage for real estate till FY20 is negligible and it is forecasted to remain same in FY21. Therefore, BIAL has considered the lease rentals cost as aeronautical.

The lease rental has been considered as aeronautical based on the actual land usage at the airport and no change in the lease rent is undertaken as part of the study.

Table 26: Revision in segregation logic for lease rentals as per this study

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Total Lease Rent (in INR Cr.)	13.01	13.42	13.83	14.24	14.67	69.17
Aeronautical ratio	100%	100%	100%	100%	100%	
Aeronautical lease rent	13.01	13.42	13.83	14.24	14.67	69.17

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.8 Rates and Taxes

Rates and taxes include the property taxes paid by BIAL.

BIAL's segregation logic

As stated in lease rentals, BIAL has submitted that its land usage for real estate till FY 2020 is negligible and it is forecasted to remain same in FY21. Therefore, BIAL has considered the rates and taxes (property tax) as aeronautical.

Revision as per the study

The rates and taxes have been considered as aeronautical based on the actual land usage at the airport. However, the rates and taxes for FY 2021 has been updated based on the actuals upto Dec 2020. The revised rates and taxes is given below:

Table 27: Revision in rates and taxes as per this study

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
BIAL submission						
Total Rates & Taxes – as per BIAL (in INR Cr.) (A)	8.72	6.53	9.36	8.90	9.16	42.68
Aeronautical ratio – BIAL (B)	100%	100%	100%	100%	100%	
Aeronautical Rates & Taxes as per BIAL (C = A*B)	8.72	6.53	9.36	8.90	9.16	42.68
Revision as per the study						

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Total Rates & Taxes – considered in the study (in INR Cr.)* (D)	8.72	6.55	9.36	8.90	8.29	41.82
Revised segregation ratio (E)	100%	100%	100%	100%	100%	5.00
Aeronautical Rates & Taxes based on revised logic (F = D*E)	8.72	6.55	9.36	8.90	8.29	41.82
Impact of revision in segregation logic (G = F-C)	0.00	0.02	0.00	0.00	-0.87	-0.86

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.9 Insurance

The insurance expenses include the premium paid by BIAL for Industrial all risk (IAR), Advance loss of profit (ALOP), Terrorism, Airport operator's liability (AOL) etc.

BIAL's segregation logic

BIAL has classified the insurance expenses on the basis of asset ratio.

Revision as per the study

It is noted that the insurance premium would cover risks for both aeronautical and non-aeronautical activities at the airport and hence, the insurance cost has to be bifurcated. Therefore, the insurance expenses have been bifurcated based on the adjusted gross fixed asset ratio as per the study on asset allocation for BIAL. The revised aeronautical insurance expenses are given below:

Table 28: Revision in segregation logic for Insurance expenses as per this study

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
BIAL submission						
Total Insurance – as per BIAL (in INR Cr.) (A)	1.76	2.50	2.19	3.54	8.56	18.55
Aeronautical ratio – BIAL (B)	91%	90%	90%	90%	90%	
Aeronautical Insurance as per BIAL (C = A*B)	1.60	2.26	1.97	3.19	7.70	16.72
Revision as per the study						
Total Insurance considered in the study (in INR Cr.)* (D)	1.76	2.50	2.18	3.53	6.21	16.18
Revised segregation ratio (E)	89.3%	88.9%	89.0%	92.0%	90.9%	
Aeronautical Insurance based on revised logic (F = D*E)	1.57	2.22	1.94	3.25	5.64	14.62
Impact of revision in segregation logic (G = F-C)	-0.02	-0.04	-0.03	0.06	-2.06	-2.10

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.10 CSR expenses

BIAL's segregation logic

BIAL has considered CSR expenses as 100% aeronautical.

Revision as per the study

As per the directions of Hon'ble TDSAT in its judgement dated 16th December 2020, the CSR expenditure is considered as part of operating expenditure. The decision of TDSAT is produced below for reference:

"...The decision of the Authority to not allow CSR expenditure as a cost of the Airport Operator is not proper and is set aside. The Authority shall pass consequential orders so as to prevent loss of or reduction in the determined fair return to the equity holders. Necessary truing-up exercise shall be done accordingly..."

The CSR expenses have been categorized as common and aeronautical CSR expense is computed based on the aeronautical profit before tax. The revised aeronautical CSR expenses are given below:

Table 29: Revision in segregation logic for CSR expenses as per this study

Particulars	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total
BIAL submission									
Total CSR Costs – as per BIAL (in INR Cr.) (A)				3.72	4.81	16.00	19.51	16.42	60.46
Aeronautical ratio – BIAL (B)				100%	100%	100%	100%	100%	
Aeronautical CSR Costs as per BIAL (C = A*B)				3.72	4.81	16.00	19.51	16.42	60.46
Revision as per the study									
Aero revenues (D)	488	707	864	996	1,122	959	829	333	6,297
30% of non-aero revenues (E)	0	0	0	0	0	0	0	0	0
Aero operational expense (F)	-234	-283	-288	-323	-359	-370	-422	-408	-2,687
EBITDA (G = D+E-F)	254	423	576	673	763	590	406	-76	3,610
Aero Depreciation (H)	-130	-191	-184	-187	-190	-276	-193	-250	-1,601
Interest expenses (I)	-96	-180	-153	-144	-106	-94	-118	-162	-1,053
Aero PBT (J = G – H – I)	29	53	239	342	467	220	95	-488	956
Average Aero PBT (last 3 financial years) (K)				107	211	349	343	261	1,271
Aeronautical CSR expenses as per the study (2% of average PBT) (L = 2%*K)				2.14	4.22	6.98	6.85	5.21	25.41
Impact of revision in segregation logic (M = L – C)				-1.58	-0.59	-9.02	-12.66	-11.21	-35.05

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.5.11 Waiver and Bad debts

BIAL's segregation logic

BIAL has considered Waiver and bad debts as 100% aeronautical.

Revision as per the study

The Authority in the second control period order had not allowed waiver and bad debts (with the exception of bad debts related to Kingfisher) as part of operating expenditure since the airport operator is expected to recover the same in the normal course of business. Hon'ble TDSAT in its judgement dated 16th December 2020 has agreed with AERA's approach and gave the following decision:

"...Allowing bad debts to be recovered as operating expenses is a bad precedent and should not be followed in future because users should not be put to penalty for no fault of theirs. However, for pragmatic reasons such decision for the First Control Period is not set aside..."

Accordingly, the waiver and bad debts have been excluded from the operating expenses of BIAL. The revised aeronautical waiver and bad debts expenses are given below:

Table 30: Revision in segregation logic for waiver and bad debts as per this study

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
BIAL submission						
Total Waiver and Bad debts – as per BIAL (in INR Cr.) (A)	-	0.60	11.15	2.74	-	14.49
Aeronautical ratio – BIAL (B)	100%	100%	100%	100%	100%	
Aeronautical Waiver and Bad debts as per BIAL (C = A*B)	-	0.60	11.15	2.74	-	14.49
Revision as per the study						
Aeronautical Waiver and Bad debts Costs based on revised logic (D)	-	-	-	-	-	-
Impact of revision in segregation logic (E = D – C)	0.00	-0.60	-11.15	-2.74	0.00	-14.49

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

2.6 Improvements to BIAL's cost accounting

The work performed in this study is based on the cost records produced by BIAL. In undertaking this study, we have identified the below shortcomings in BIAL's cost accounting and methodology/approach towards computation of segregation ratio for aeronautical operational expenses:

2.6.1 Usage of data from MIS for regulatory purposes

The operational expenditure in the MYTP submission of BIAL is based on the MIS and therefore, it is not consistent with the audited financial statements leading to a variation as shown in Table 14: Reconciliation of MYTP submission with financial statements. As a result, it is advised to use data from audited financial statements for the regulatory purposes, computation and submission.

2.6.2 Enhancement of cost centres to allocation between terminal and outside terminal

The cost centres submitted by BIAL may be further segregated to determine the costs incurred within the terminal and costs incurred outside the terminal.

2.6.3 Addition of cost centres

The number of cost centres used by BIAL may be increased to include the housekeeping expenses for comparison with other airports and also for the allocation of the operational expenditure.

2.7 Chapter Summary

The below table provides the summary of adjustment as detailed in the earlier sections:

Table 31: Summary of adjustments to the Aeronautical expenses as segregated by BIAL

Operation and Maintenance expense [#]	FY 2017 - FY 2021*	Section Ref.	Table Ref.
Total O&M expense during second control period as per BIAL's MYTP submission	2,290.07		
Aeronautical expenses as per BIAL	2,033.48		
Non - aeronautical expense as per BIAL	256.59		
Impact due to change in segregation logic			
Personnel expenses	-53.23	2.5.1	Table 19
O&M	-3.18	2.5.2	Table 20
Lease Rent	0.00	2.5.7	Table 26
Utility	-13.72	2.5.6	Table 25
Insurance	-2.10	2.5.9	Table 28
Rates & taxes (other than IT)	-0.86	2.5.8	Table 27
Marketing & Advertising	-21.46	2.5.4	Table 22
CSR	-35.05	2.5.10	Table 29
General admin costs	-45.67	2.5.3	Table 21
Concession fee	38.65	2.5.5	Table 23
Waiver and bad debts	-14.49	2.5.11	Table 30
Total impact on aeronautical expenses due to changes in segregation logic	-151.10		
Total adjusted aeronautical expenses for second control period	1,882.38		

*For the study, costs for FY17 to FY20 are based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021 #Difference due to rounding off

The year wise Aeronautical O&M expenses for the second control period is as follows:

Table 32: Year wise adjusted operating and maintenance expenses for the second control period as per this study

Operating expenses adjustments*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	107.37	110.43	137.41	174.29	187.78	717.27
O&M	83.03	98.97	96.93	117.09	120.09	516.11
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utility	36.45	41.92	34.86	34.22	23.41	170.86
Insurance	1.57	2.22	1.94	3.25	5.64	14.62
Rates & taxes (other than IT)	8.72	6.55	9.36	8.90	8.29	41.82
Marketing & Advertising	7.90	9.02	12.93	10.77	6.07	46.68
CSR	2.14	4.22	6.98	6.85	5.21	25.41
General admin costs	23.40	27.34	17.28	19.90	24.09	112.02
Total operating expenses - Aero	283.59	314.08	331.52	389.51	395.26	1713.96
Concession fee	0.00	0.00	0.00	0.00	0.00	0.00

Study on Operation and Maintenance costs for BIAL

Operating expenses adjustments*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Waiver and bad debts	39.63	44.62	38.11	32.85	13.21	168.42
Total operating expenditure – Aero as per study	323.22	358.70	369.63	422.36	408.47	1882.38
Total Operating expenditure– Aero as per BIAL	332.05	367.33	406.02	463.89	464.20	2,033.48

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

3 TREND ANALYSIS IN O&M COSTS FOR THE SECOND CONTROL PERIOD

3.1 Budgeting and review process at BIAL

The budgeting and review process followed by BIAL in operating expenditure is given in the below section (as submitted by BIAL):

3.1.1 Budgeting Process as submitted by BIAL

The steps followed during the budgeting process by BIAL are as follows:

- a) The budget preparation is an annual exercise undertaken to decide the budget for the next financial year.
- b) The Finance Controlling team is responsible for preparing the annual budget in close co-ordination with cost centre heads & HODs by taking their inputs.
- c) Draft inputs from the Cost Centre heads / process owners is verified and checked for completeness and accuracy. The proposed budget is then discussed for optimization and improvement. The scope of improvements is suitably incorporated in the budgets and then presented to department HODs and CXOs.
- d) The draft budget is then presented to CFO and MD & CEO for their approval.
- e) The approved budget is later submitted to Board for their approval. The Board approved budget is then shared with cost centre heads, HODs and other process owners for necessary implementation and action and uploaded in the SAP ERP system for variance analysis during Performance reporting.

The guidelines shared by BIAL with the departments for preparing the budget are given below:

Table 33: Guidelines shared with the departments for budget preparation as per BIAL

Department	Guidelines
General	<ol style="list-style-type: none"> a) Budget files are prepared month wise, GL wise, cost centre wise and department wise. b) All revenue / expense budget needs to be justified with necessary supporting explanations.
Revenue	<ol style="list-style-type: none"> a) The new identified revenue streams have to be included in the revenue budget. b) In case of any reduction/decrease in revenue budget compared to previous year's performance, proper justification is to be provided.
Personnel Cost	<ol style="list-style-type: none"> a) Headcount shall be decided by the HR after discussions with respective cost centre heads / HODs / CXOs. b) HR team is required to provide salary costs in terms of cost centres month wise c) Staff activity expenses, recruitment expenses, education & training and staff transportation expenses are forecasted on a monthly basis with required analysis and justification
O&M expenses	<ol style="list-style-type: none"> a) AMC: All AMC contracts must be justified, reviewed and considered on a case to case basis. b) Spares: The spares budget should be for a actual consumption of spares and not for procurement of spares. A separate cash flow budget for procurement of spares also needs to be provided. c) One-time initiatives: Only the critical / essential initiatives for business continuity are budgeted.

Department	Guidelines
Consultancy & marketing expenses	a) Budget to be backed by details like purpose / description of expense & the time period during which services are to be obtained / expense to be incurred. b) These expenses are further categorized as Existing / New and type of spend like Contractual, Mandatory and Discretionary.
Office cost and other expenses	This budget is to be supported with specific needs and timelines.
Travelling expenses	Domestic travel a) All domestic travel related to business / business conferences to be budgeted by respective cost centres. b) All training related travel to be budgeted by HR. International travel c) All international travel budget to be supported by purpose of travel. d) All business-related travel needs to be justified e) All training related travel will be budgeted by HR.
Special repair / Minor projects / Sustaining Capex	a) Budget to be backed with proper justification for investment. b) Capex investments resulting in revenue enhancement, cost savings, operational efficiency, safety compliance will only be considered. c) CRF raising time, Tentative procurement time and asset ready to use time is recorded. d) Line item wise, cost centre wise, investments is captured. e) Requirements are analysed based on – <ul style="list-style-type: none"> • Criticality to the business operation – High / Medium / Low • Investment value – ABC analysis • Type of asset – Aero / Non- Aero / Common f) As a general practice, unutilized approved CRF for which PRs are shared with Procurement and POs have not been raised have to be carried forward to next year (lapses at the end of six months)

3.1.2 Review Process as submitted by BIAL

The review process followed by BIAL post the budgeting includes a finance controlling team which is responsible for financial reporting on a monthly basis (Monthly performance report / MIS) which is submitted to the management & other stakeholders by 5th of the following month as per the reporting timelines defined at the start of the year.

Some other important details regarding the review process are summarized in the table below:

Table 34: Major details of the review process as per BIAL

Particulars	Details/Steps
Books closing	1. The accruals required for completion of revenue accounting and necessary provisioning for expenses are received from the respective process owners. 2. The Accounts team analyses the monthly financial performance with previous month's performance for increase/decrease of expenses in correlation with revenue for the month, impactful one-time transactions etc, impact of excess/shortage of expense provisions in earlier month(s) and any other reason and completes the necessary entries in ERP system.
Performance review	1. After the books closing and necessary inputs from Accounts team on actuals, the Finance Controlling team reviews the actual performance with Operations, Commercial and Maintenance department. 2. The detailed analysis for performance of respective businesses, for the MTD and YTD, as against budget / forecast are undertaken.

Particulars	Details/Steps
	3. The Controlling team analyses the monthly financial performance with budgeted performance explaining reasons for increase/decrease of revenue value viz a viz traffic numbers, change in contractual terms with concessionaries - MAG, Revenue share etc, introduction of new airlines, new revenue stream etc, impact of waivers, one time transactions etc, impact of excess/shortage of provisions and any other reasons.
Performance review with cost center heads	After completion of MIS reporting to Management, controlling team reviews the Cost Centre's performance with the respective Cost Centre Heads on operating costs and initiatives underlying these expenses. The variance analysis also includes discussion on cost optimization / cost effective measures to be undertaken through process improvements.

3.2 Projections vs. Actual costs for Second Control Period

The comparison of the projected operational expenses by AERA as part of its 2nd control period (Table 49 of the Order no. 18/ 2018-19 for BIAL) and the actual operational expenses incurred by BIAL from FY 2017 to FY 2020 and forecasted operational expenditure for FY 2021 is given below:

Table 35: Projected aeronautical operational expenses of BIAL in second control period order of AERA vide order no. 18/2018-19

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	107.77	128.73	146.7	164.6	193.92	741.72
O&M	82.73	95.14	109.41	125.82	144.69	557.79
Lease Rent	13.03	13.42	13.83	14.24	14.67	69.19
Utility	40.64	42.77	48.88	51.4	60.32	244.01
Insurance	3.54	4.54	4.81	6.08	8.86	27.83
Rates & taxes (other than IT)	8.72	8.8	8.87	8.96	9.4	44.75
Marketing & Advertising	7.58	8.69	9.83	11.12	12.58	49.80
CSR	0	0	0	0	0	-
General admin costs	19.66	10.56	23.79	26.17	28.78	108.96
Total Operating expenses - Aero	283.67	312.65	366.12	408.39	473.22	1,844.05
Less: Disallowance - Interest/ Hotel cost	-0.2	-0.28				
Concession fees	39.89	44.89	29.48	35.2	42.03	191.49
Total Operating expenditure - Aero	323.36	357.26	395.6	443.59	515.25	2035.54

*numbers are based on AERA Order no. 18/2018-19 for BIAL

The aeronautical operational expenditure submitted by BIAL as part of its MYTP submission is given below:

Table 36: Aeronautical operational expenditure submitted by BIAL as part of their MYTP submission

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	116.01	118.27	146.58	186.17	203.47	770.50
O&M	83.92	98.84	99.15	117.12	120.27	519.29
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utility	37.72	42.64	34.68	36.45	33.08	184.58
Insurance	1.60	2.26	1.97	3.19	7.70	16.72

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Rates & taxes (other than IT)	8.72	6.53	9.36	8.90	9.16	42.68
Marketing & Advertising	8.09	9.25	15.31	19.88	15.61	68.14
CSR	3.72	4.81	16.00	19.51	16.42	60.46
General admin costs	26.59	33.65	28.69	32.74	36.01	157.68
Total operating expenses - Aero	299.37	329.67	365.58	438.20	456.40	1,889.23
Less: Disallowance - Interest/hotel cost						-
Concession fee	32.67	37.06	29.29	22.95	7.80	129.76
Waiver and bad debts	-	0.60	11.15	2.74	-	14.49
Total Operating Expenditure – Aero	332.05	367.33	406.02	463.89	464.20	2,033.48

*numbers for FY17-FY20 are based on actuals submitted by BIAL while numbers for FY21 are forecasted by BIAL

The difference in aeronautical operational expenditure submitted by BIAL and approved by AERA for the second control period is given below:

Table 37: Difference in operational expenditure approved by AERA in the second control period order and submitted by BIAL as part of their MYTP submission

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	(8.24)	10.46	0.12	(21.57)	(9.55)	(28.78)
O&M	(1.19)	(3.70)	10.26	8.70	24.42	38.50
Lease Rent	0.02	(0.00)	0.00	(0.00)	0.00	0.02
Utility	2.92	0.13	14.20	14.95	27.24	59.43
Insurance	1.94	2.28	2.84	2.89	1.16	11.11
Rates & taxes (other than IT)	(0.00)	2.27	(0.49)	0.06	0.24	2.07
Marketing & Advertising	(0.51)	(0.56)	(5.48)	(8.76)	(3.03)	(18.34)
CSR	(3.72)	(4.81)	(16.00)	(19.51)	(16.42)	(60.46)
General admin costs	(6.93)	(23.09)	(4.90)	(6.57)	(7.23)	(48.72)
Total Operating expenses - Aero	(15.70)	(17.02)	0.54	(29.81)	16.82	(45.18)
Less: Disallowance - Interest / Hotel cost	(0.20)	(0.28)	-	-	-	(0.48)
Concession fees	7.22	7.83	0.19	12.25	34.23	61.73
Waiver and bad debts	-	(0.60)	(11.15)	(2.74)	-	(14.49)
Total Operating expenditure - Aero	(8.69)	(10.07)	(10.42)	(20.30)	51.05	1.58

*numbers for FY17-FY20 are based on actuals while numbers for FY21 are forecasted

It has been observed that the actual operational expenditure is less than the forecasted operational expenditure (excluding CSR expenses).

Basis the revisions proposed in Section 2.5, the revised aeronautical operational expenses after considering adjustments is given below:

Table 38: Actual aeronautical operational expenses (after considering the adjustments of this study) of BIAL for the second control period

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Personnel expenses	107.37	110.43	137.41	174.29	187.78	717.27
O&M	83.03	98.97	96.93	117.09	120.09	516.11
Lease Rent	13.01	13.42	13.83	14.24	14.67	69.17
Utility	36.45	41.92	34.86	34.22	23.41	170.86

Operating expenses*	FY 2017	FY 2018	FY 2019	FY 2020	FY2021	Total
Insurance	1.57	2.22	1.94	3.25	5.64	14.62
Rates & taxes (other than IT)	8.72	6.55	9.36	8.90	8.29	41.82
Marketing & Advertising	7.90	9.02	12.93	10.77	6.07	46.68
CSR	2.14	4.22	6.98	6.85	5.21	25.41
General admin costs	23.40	27.34	17.28	19.90	24.09	112.02
Total Operating expenses - Aero	283.59	314.08	331.52	389.51	395.26	1713.96
Less: Disallowance - Interest/Hotel cost	0.00	0.00	0.00	0.00	0.00	0.00
Concession fees	39.63	44.62	38.11	32.85	13.21	168.42
Total Operating expenditure - Aero	323.22	358.70	369.63	422.36	408.47	1882.38

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

AERA had projected higher operating expenses in the second control period in comparison to the actual operating expenses on account of the commissioning of the Terminal 2 and other capital expenditure projects which have been shifted by BIAL to the third control period.

3.3 Cost reduction measures adopted by BIAL

BIAL has submitted that it is undertaking a BIAL 2.0 program which is aimed at redefining the workflow to achieve cost savings and productivity improvements. The program focusses on two key action areas, which are: quick win measures and long-term measures. These measures are given below:

3.3.1 Quick Win measures as per BIAL

- a) Initiatives that can have a quick turnover with a focus into known specific areas
- b) Direct & Indirect costs, Procurement process and policy, etc.
- c) Review of contracts being renegotiated or expected to be awarded in the next 3-6 months:
- d) Explore room for modifying procurement process and leveraging tools
- e) Control consumables & common heads spread across all workstreams

3.3.2 Long term measures as per BIAL

- a) Redesign to free up existing Resources
- b) Relook all structural, contractual and process related measures

3.3.3 Cost reduction measures planned by BIAL under BIAL 2.0

- a) Headcount and Personnel costs
 - i. Freeze on all new hires for FY 2021
 - ii. Increments not considered for FY 2021
 - iii. Only rolled out new appointments are being on-boarded
- b) Productivity improvements
 - i. T2 related manpower requirements have been phased out over a period of 3 years
 - ii. BIAL aims to achieve productivity improvements resulting in costs reduction (other Personnel costs) which has been factored in the submissions of MYTP for the third control period
- c) Other Measures
 - i. Reduction in travel costs with foreign travel reduced to nil

- ii. Most external consultancy contracts cancelled except for the required ones – legal, AERA, tax, audit etc.
 - iii. Events like Pinnacle awards, stakeholders’ events being conducted on digital platforms
 - iv. All discretionary spends are cancelled
- d) Key Liquidity initiatives
- i. Seek government support to defer / waiver of concession payments, land lease rentals and property tax
 - ii. Explore additional working capital limits and opt for all moratorium offers by banks
 - iii. Customer dues – close monitoring to drive collections
- e) BIAL has factored planned overall costs reduction of Rs. 25 crores in FY 2021

3.4 Trend analysis of inflation adjusted expenses

A trend analysis exercise is undertaken for the O&M expenses as per the below steps:

- a) The nominal value of the expenses is taken which are measured in terms of actual expenses at that time
- b) The real value of expenses is then derived by adjusting the nominal expenses for inflation
- c) Wholesale Price Index (WPI) is used as the price index for this calculation which is available on the Office of Economic Advisor – GoI website
- d) The aim is to ensure that the expenses are adjusted with the real increase or decrease over a period of time to ensure right comparison

The formula used for calculating the real expenses is mentioned below:

Real Expenses = ((Nominal expense of the current year) / (WPI of current year)) * (WPI of base year)

Trend analysis is undertaken to compare the O&M costs and understand the reasons behind the pattern/ trend over a period of time. For the trend analysis to yield the right results, the data should not have an outlier non-recurring event. However, for BIAL, FY 2021 has been severely affected by COVID-19 pandemic with a drastic reduction in passengers. The operational expenditure of FY 2021 cannot be directly compared with the previous years as the utilization of the asset has fallen while the airport might have taken some time for adjustment to the new normal. Therefore, the trend analysis has been limited from FY 2017 to FY 2020 for this study.

The index for the period FY 2017 – FY 2020 is as under:

Table 39: Index numbers used for calculating real expenses

Particulars	FY 2017	FY 2018	FY 2019	FY 2020
Index adjusted for base of FY 2017	100.0	103.0	107.3	109.1

Source: Office of Economic Advisor – Government of India

3.4.1 Personnel Cost

The trends in personnel cost for BIAL is given in the table below:

Table 40: Trends in personnel cost

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
Personnel cost	118.72	121.28	153.17	195.97	18.2%	589.14
Inflation index	100.0	103.0	107.3	109.1		
Inflated adjusted personnel cost	118.7	117.8	142.7	179.6	14.8%	558.76
Number of employees	811	881	1052	1227	14.8%	3971

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP

BIAL has given the following reasons for the increase in the headcount:

“Headcount increase was mandated due to increase in passenger traffic, commissioning of New south parallel runway during FY 2019-20 and the increased area of operations.”

It is noted that BIAL’s employee per million pax has decreased from FY18 to FY19 as can be seen from Figure 8. The increase in BIAL’s employee from FY19 to FY20 is on account of the commissioning of the new south parallel runway.

The inflation adjusted personnel cost has grown at a CAGR of 14.5% while the number of employees has increased at a CAGR of 14.8% which is in line with the personnel cost growth.

The performance indicators for personnel costs are evaluated below:

Table 41: Analysis of personnel cost

Particulars	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
Number of Employees	811	881	1052	1227	14.8%	3971
Inflation adjusted personnel cost	118.7	117.8	142.7	179.6	15%	558.76
Number of Passengers	22.88	26.91	33.31	32.36	12.25%	115.46
Number of ATMs	177271	196560	239395	230359	9.12%	843585
Employee cost/Pax	51.9	43.8	42.8	55.5	2.3%	
Employee cost/ATMs	6697	5993	5960	7795	5.2%	
Employees/Million Pax	35	33	32	38	2.3%	
Inflation adjusted salary/employee	0.15	0.13	0.14	0.15	0.0%	

*Based on data submitted by BIAL

The trends in employee cost/pax and employee cost/ATMs can be further understood from the below graphs:

Figure 6: Employee cost/Pax for BIAL

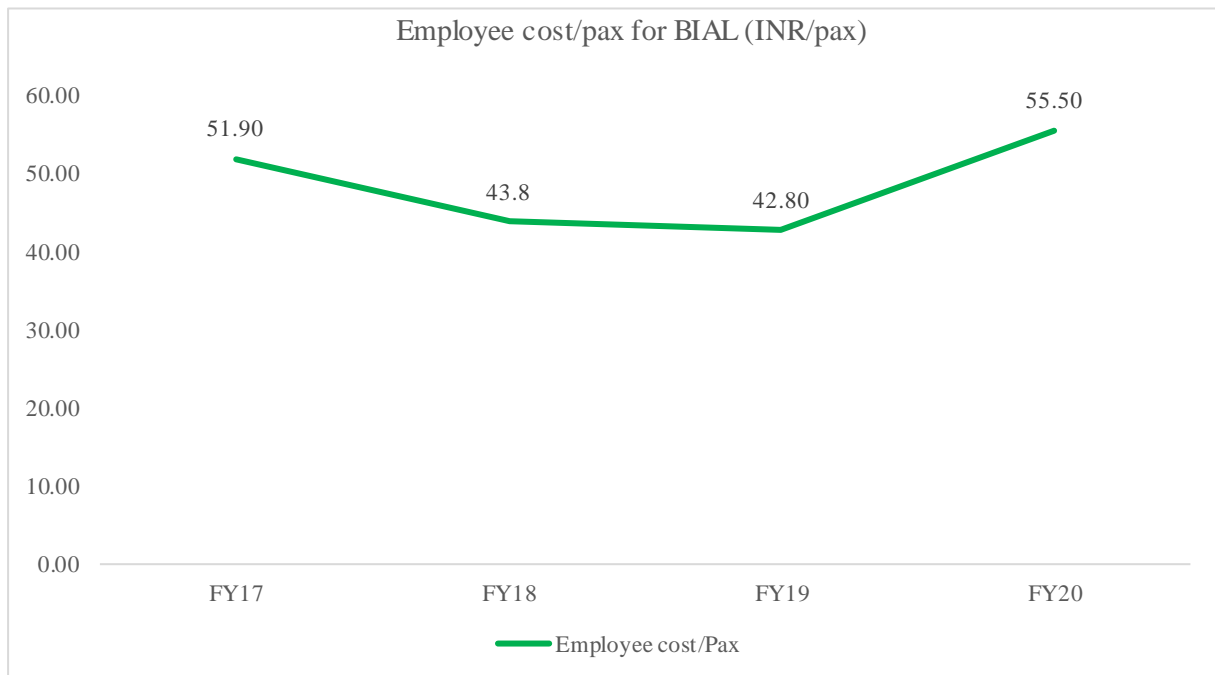


Figure 7: Employee cost/ATM

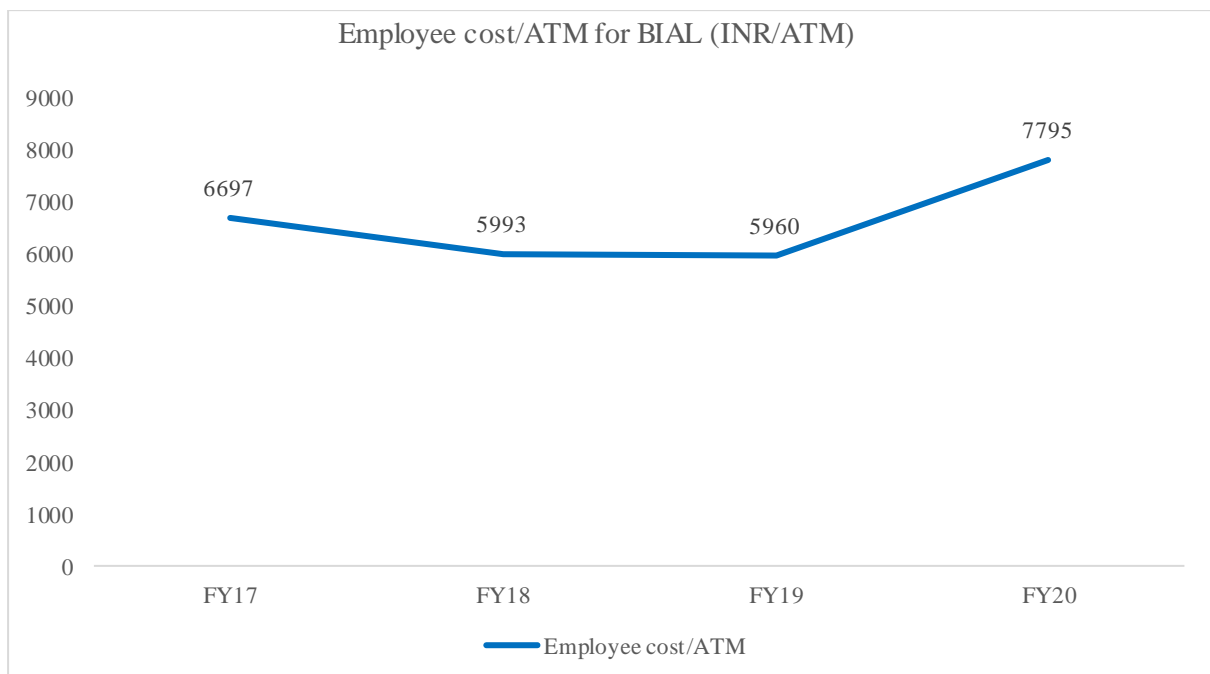
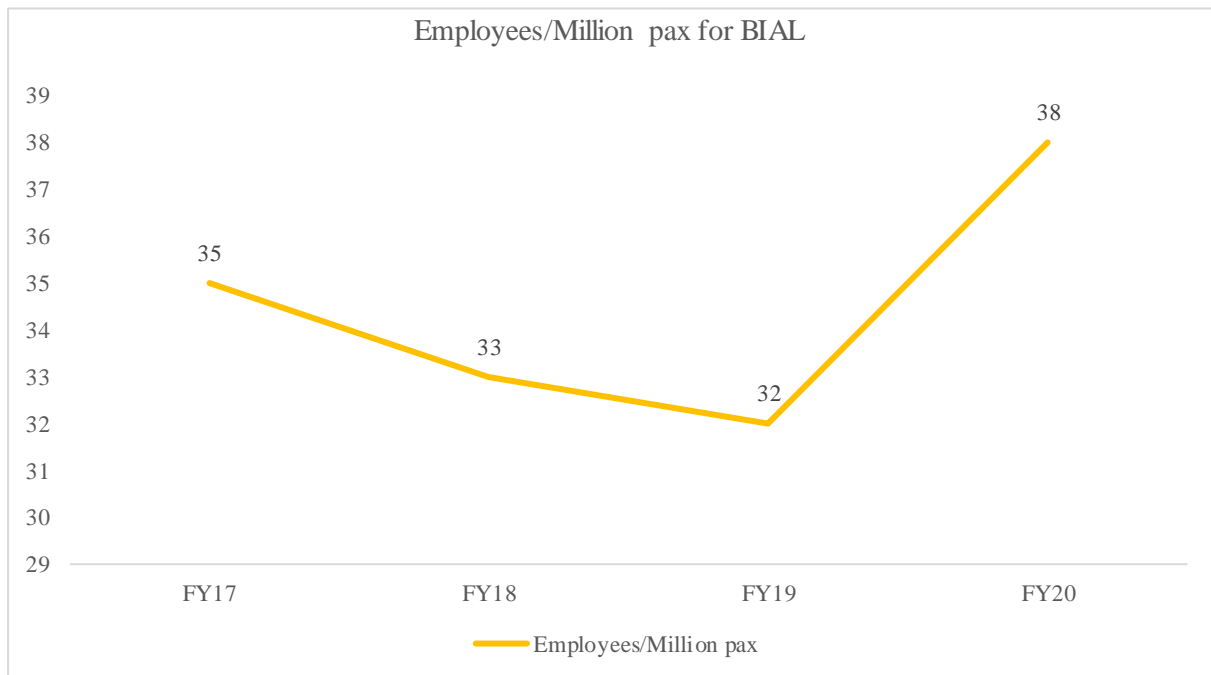


Figure 8: Employees/Million pax for BIAL



It is noted that the inflation adjusted salary per employee has remained constant from FY17 to FY20 indicating stable inflation adjusted salaries per employee at BIAL. The increase in the personnel cost during FY17 to FY20 is in line with the increase in the number of employees. BIAL has given the following reasons for the increase in the headcount:

“Headcount increase was mandated due to increase in passenger traffic, commissioning of New south parallel runway during FY 2019-20 and the increased area of operations.”

It is also noted from the responses of BIAL that the increase in the number of employees in FY 2020 is mainly on account of the commissioning of the new south parallel runway in Dec, 2019 and increase in area of operations which has resulted in increase in employee/million pax, employee cost/ pax and employee cost/ ATM. However, the utilization of any new asset will take time to reach its threshold capacity and therefore, in the initial years (such as FY20) it is expected to result in higher cost/ pax which will gradually fall due to increase in utilization levels.

It is noted that the FY21 was affected by COVID-19 pandemic but the projected personnel cost for FY21 has increased from FY20. BIAL has provided rationale for increase in personnel cost in FY21 as follows: *“certain employees joined during the year in FY20 and hence the full year cost is considered for projections in FY21 and offers already rolled out have been honoured by BIAL”*.

3.4.2 Operations & Maintenance (O&M) expenses

O&M expenses of BIAL comprise of the repair and maintenance cost of the airport. Repair and maintenance cost is generally a function of the assets requiring the maintenance and new assets require less maintenance cost compared to the older assets. Further, the usage of the asset also directly affects the repair and maintenance.

The O&M expenses as a % of gross block are evaluated. The trend in O&M expenses for BIAL is given below:

Table 42: Trend analysis of the inflation adjusted O&M expenses

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
O&M expenses – as per BIAL (in INR Cr.)	99.29	116.74	117.27	138.58	11.8%	471.88
Inflation index	100	103	107	109		

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
Inflation adjusted O&M expenses	99.3	113.4	109.2	127	8.5%	448.90
Gross Block (Net of grants)	3877.5	4044.2	4203.1	6228.5	17.1%	18,353.4
O&M expenses as % of gross block	2.6%	2.9%	2.8%	2.2%	-4.6%	

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP

The O&M expenses are increasing at a CAGR of 11.7% while the O&M expenses as a % of gross block are also increasing from FY 2017 to FY 2019 and later reducing in FY2020. Clarification was sought from BIAL on the same. BIAL submitted the following response:

“Costs relating to Operations & Maintenance are due to increased utilization of the single Terminal and the single Runway beyond the planned capacities due to increase in passenger and ATM traffic witnessed in Bangalore during this period of FY 2016-17 to FY 2019-20. The Central Minimum Wages released by Ministry of Labour & Employment vide Notification dated 20th Apr 2017, the revision resulting into an increase of Minimum Wages (Basic & VDA) by 40% to 65% depending on the nature of work.”

Based on BIAL's responses, the O&M expenses as a % of gross block has increased from FY 2017 to FY 2019 due to increase in minimum wages and increased utilization of the terminal and single runway. The increase in O&M expenses in the FY 2020 is on account of the commissioning of the new south parallel runway. The O&M expenses as a % of assets has decreased in FY 2020 due to increase in the asset base.

3.4.3 Housekeeping expenses

The breakup of housekeeping expenses as per BIAL is given below:

Table 43: Housekeeping expenses incurred by BIAL (FY 2017 – FY 2020)

Particulars*	Area	FY 2017	FY 2018	FY 2019	FY 2020	Total
Aditya vani facility services private limited	HK - VIPT & Lounges	3.4	4.9	3.4	4.1	15.7
BVG India Ltd	HK - PTB Domestic & Int	4.1	3.4	1.4	0.0	9.0
Faber Sindoori Management	HK - PTB Domestic Area	0.0	0.0	2.4	4.3	6.7
Karnataka Commercial & Industrial	HK - Landside & Buildings	2.9	4.6	1.6	0.0	9.1
Quess Corp Limited	HK - PTB Intl Area	0.0	0.0	2.0	3.6	5.6
VAR Facility Management	HK - Airside	1.1	1.2	3.8	5.5	11.6
Total		11.5	14.1	14.7	17.6	57.8

*Based on data submitted by BIAL

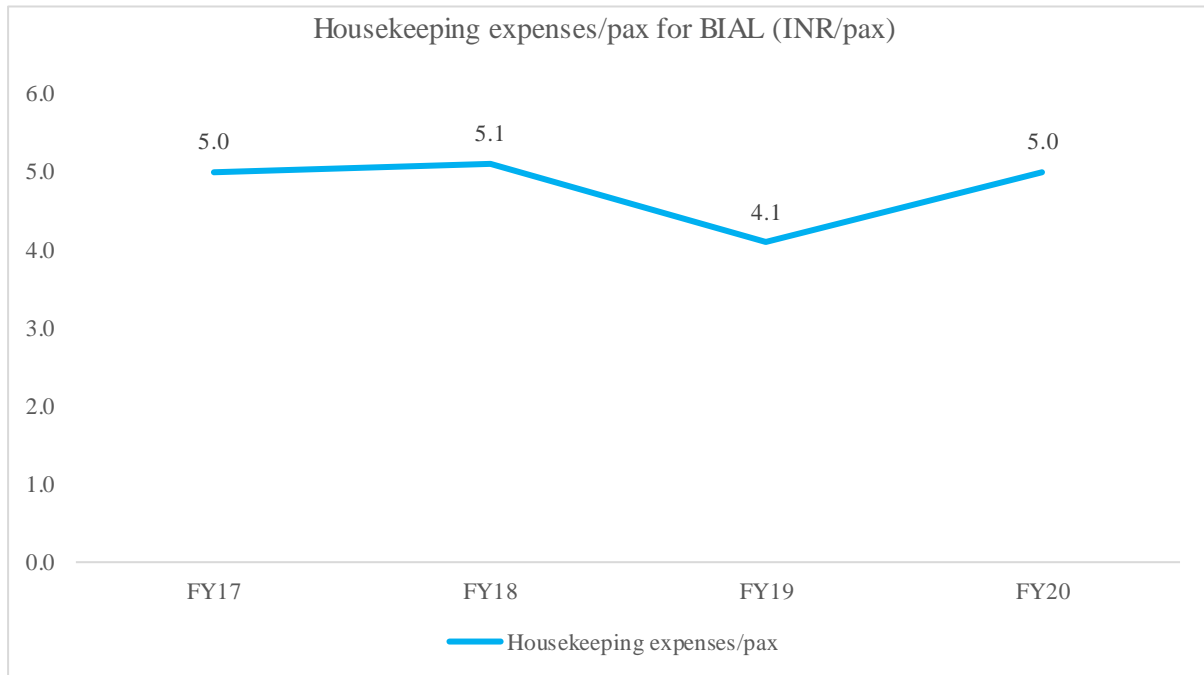
The trends in housekeeping expenses can be seen below:

Table 44: Trends in housekeeping expenses

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	Total
Housekeeping expenses	11.5	14.1	14.7	17.6	57.8
Inflation index	100.0	103.0	107.3	109.1	
Inflation adjusted housekeeping expenses	11.5	13.7	13.7	16.1	54.9
Number of passengers	22.88	26.91	33.31	32.36	115.5
Housekeeping expenses/pax	5.0	5.1	4.1	5.0	

*Based on data submitted by BIAL

Figure 9: Trends in Housekeeping expenses/pax



Primary driver of the housekeeping keeping expenses are the airport area, manpower salaries and passenger traffic. BIAL's housekeeping expenses/ pax have remained approximately constant from FY 2017 to FY 2020.

3.4.4 Marketing & Advertisement expenses

The marketing and advertisement expenses constitute marketing of the terminal, events, airline launch events etc. To promote Bangalore as a gateway to South India, BIAL has undertaken marketing & advertisement for the airport.

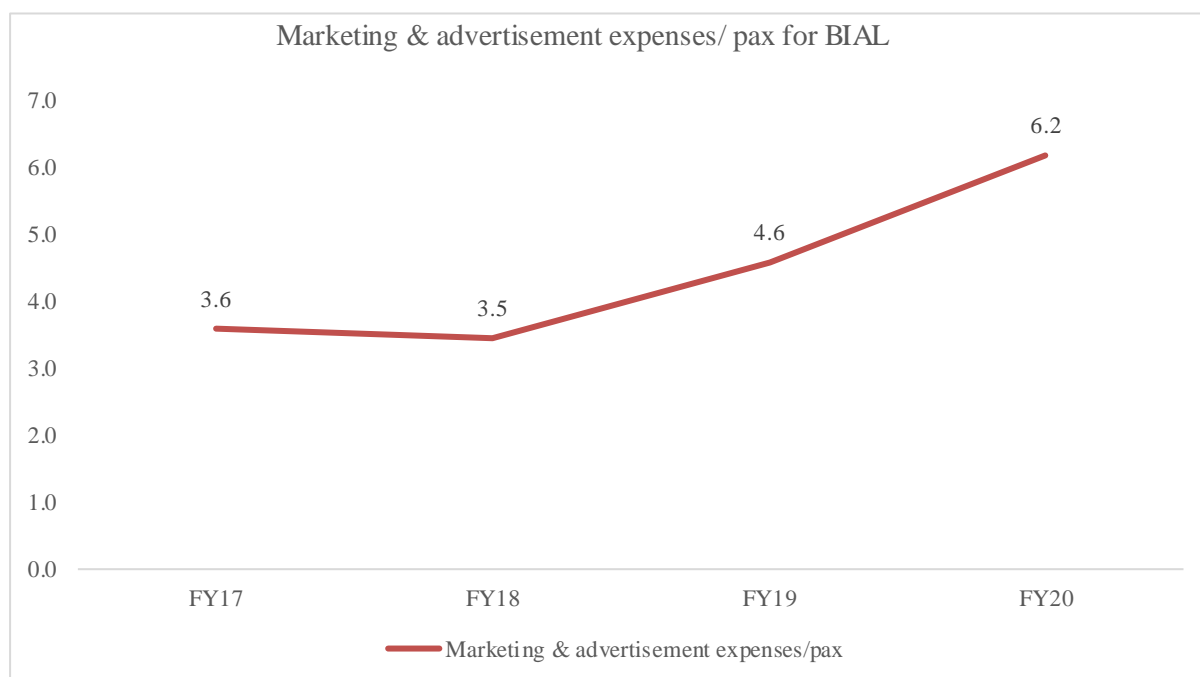
The trend analysis of marketing and advertisement expenses are shown below:

Table 45: Trend in Marketing & advertisement expenses

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
Marketing & Advertisement expenses	8.20	9.55	16.37	21.83	38.6%	55.95
Inflation index	100.0	103.0	107.3	109.1		
Inflation adjusted marketing & advertisement expenses	8.2	9.27	15.25	20.00	34.6%	52.73
Number of Passengers	22.88	26.91	33.31	32.36	12.2%	115.5
Marketing & advertisement expenses/Pax	3.58	3.45	4.58	6.18		

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP after adjustment of collection costs

Figure 10: Marketing and advertisement expenses/pax



The marketing and advertisement expenses have grown at a CAGR of 38.4% for the period FY17 to FY20. On analysing the expenses submitted by BIAL, it was observed that more than 85% of the expenses are attributable to two major heads namely Aviation marketing and contracts and BDMS – Marketing. The Aviation marketing and contracts constitutes roadshows, pinnacle event, airline route launches, sponsorships and travel expenses while BDMS marketing constitute branding, brochures, event management and social and digital marketing. Increased spend on branding and marketing of the airport has resulted in increased cost/pax over these years. BIAL has submitted the below justification for the increase in the cost:

“Out of the total cost, we have incurred the following Event related cost (forming part of Marketing & Advertisement expenses) :

- *FY 17-18 – Rs 2.27 crs*
- *FY 18-19 – Rs 7.42 crs*
- *FY 19-20 – Rs 5.30 crs*

1. *In FY18, Rs 1.4 crs was spent towards Pinnacle and Season of Smiles celebrations*

2. *In FY19, the major expenses are towards -*

a) *10th anniversary of Airport opening and hence we have spent around Rs 3.3 crs towards this celebrations. This was a “one-off” expense incurred by BIAL. We had organized an event, which had performances by artistes, music concerts and workshops, besides giving commemerative gifts to its employees.*

b) *An amount of Rs 16.5 lakhs was incurred towards launching the company’s vision, mission and values. We had not formally created such a platform previously and hence for the first time, we had created this for dissemination to the external world and to BIAL employees.*

c) *Spent an amount of Rs 1.72 crs on annual Pinnacle awards.*

BIAL Pinnacle awards are organised to recognize & reward various KIAB partners who have contributed to KIAB success and achieved distinction in their areas of operations. Every success and milestone this airport has achieved is a collective showcase of passion and perseverance by our

partners who have contributed towards creating an unparalleled travel experience at KIAB. All the business partners are eligible for these awards including Airlines, Commercial Concessionaires, Operations Concessionaires and Authorities working at BLR Airport

d) Around Rs 1 crs was spent towards ‘Season of Smiles’ :

The calendar year beginning is celebrated at KIAB as ‘Season of Smiles’ festival. The airport, in collaboration with its stakeholders, will do a bright and festive look, setting the stage for varied activities and performances in contribution to the community. Through tie ups with city based associations, we will bring alive the festive spirit surrounding Christmas, New Year, Pongal and Sankranti. All through this time, passengers can participate in lucky draw and win daily prizes and mega prizes. The Season of Smiles encourages city’s growing musical talent by giving them a platform to perform at the airport. In December they will elevate spirits at the airport with festive carols and songs.

e) Dussehra is an important state festival and we have incurred Rs 37 lakhs approx. in regards to the celebration of the same which represents of the same

3. In FY20, the major expenses are towards -

- Around Rs 2.1 crs was spent towards Pinnacle Awards
- Around Rs 1.3 crs was spent towards Season of Smile campaign.
- The details of the Pinnacle awards and Season of Smile campaign are already explained in the FY 19 section
- Rs 47 Lakhs towards Dussehra celebrations
- Rs 27 lakhs towards Passenger Experience Management Group of IATA ”

It is noted from BIAL’s response that it has incurred a one-time expense of INR 3.30 cr. in FY 2018-19 for 10th anniversary celebration. However, BIAL has not provided the details to justify the increase in the marketing and advertisement expenses in FY 2018-19 and FY 2019-20. Therefore, it is proposed to consider the marketing and advertising expenses of FY 2018-19 and FY 2019-20 for regulatory purposes based on the growth in traffic and inflation. Accordingly, the marketing and advertising expenses considered for the study is given in the table below:

Table 46: Revision of the marketing and advertising expenses considered in the study

Particulars	Ref	2017	2018	2019	2020	Total
Marketing and advertising expenses (excluding collection cost) - as per audited financial statements	A	2.93	3.24	9.80	14.56	30.53
Revised variable M&A	$B = \min(A, B_{t-1} * (1+E) * (1+F))$	2.93	3.24	4.17	4.12	14.46
Revised one-time M&A - 10th anniversary celebrations	C			3.30		3.30
Total revised M&A (excluding collection cost) as considered in the study	D = B+C	2.93	3.24	7.47	4.12	17.76
Pax traffic growth	E		17.6%	23.8%	-2.9%	
Inflation	F		3.0%	3.9%	1.9%	
Impact of revision on total M&A	G = D-A	0.00	0.00	-2.33	-10.44	-12.77

**Costs for FY17 to FY20 based on the audited financial statements based on IGAAP

3.4.5 General Administration expenses

The general administration expenses constitute Consultancy & legal expenses, travel expenses and office costs. The trends in general administration expenses can be seen in the table below:

Table 47: Trends in general administration expenses

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
Consultancy & Legal	10.2	16.2	10.9	14.6	12.7%	51.9
Travel costs	5.5	3.6	4.8	5.7	0.9%	19.5
Office costs	11.2	14.7	14.5	15.6	11.8%	56.0
Total General Admin costs	26.8	34.4	30.2	35.8	10.1%	127.4
Inflation index	100.0	103.0	107.3	109.1		
Inflation adjusted general admin costs expenses	26.84	33.45	28.16	32.85	7.0%	121.3
Number of Passengers	22.88	26.91	33.31	32.36	12.2%	

*Costs for FY17 to FY20 based on the numbers submitted by BIAL since the audited financials did not have the breakup

It is observed that the General admin costs increased at a CAGR of 10.1% for the period FY17 to FY20. Clarification was sought from BIAL on the same. BIAL responded stating that this increase is reasonable and due to the size of the airport and passenger traffic. It is observed that the inflation adjusted general administration expenses have increased at a lower CAGR than the passenger traffic.

3.4.6 Utility expenses

Utility expenses include the power and water expenses which is dependent on the terminal capacity, airfield capacity and passenger movement. With passenger traffic growing at a CAGR of 12.2% between FY 2017 – FY 2020, the utility expenses are expected to increase due to increased utility consumption in the terminal.

The trends in utility expenses are given in the table below:

Table 48: Trends in utility expenses

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020
Power Costs				
Power Consumption (A)	74,893,946	76,251,051	78,438,998	80,978,764
Power Recovery (B)	29,264,851	30,551,081	32,339,230	37,823,827
Net Consumption (C=A-B)	45,629,095	45,699,970	46,099,768	43,154,937
Power expenses (D)	64.9	69.8	60.9	61.2
Power Recovery (E)	29.7	30.3	30.8	30.3
Power utility cost (F = D-E)	35.2	39.5	30.1	30.9
Water Costs				
Non - potable Water Consumption (G)	237,905	360,000	229,500	134,900
Potable Water Consumption (H)	524,640	638,610	788,810	827,247
Total consumption (I = G + H)	762,545	998,610	1,018,310	962,147
Less: Recoveries J	330,933	389,122	380,631	382,777
Net Consumption (in KL) (K = I – J)	431,612	609,488	637,679	579,371
Water expenses (L)	5.80	6.80	8.10	9.00
Water Recovery (M)	3.3	3.6	3.5	3.5
Water utility cost (N = L -M)	2.5	3.2	4.6	5.5
Total Utility cost (O = F + N)	37.70	42.70	34.70	36.40
Inflation Index	100	103	107	109

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020
Inflated adjusted power cost	37.7	41.5	32.3	33.4
Inflated adjusted water cost	2.5	3.1	4.3	5.0
Inflated adjusted utility cost	40.2	44.6	36.6	38.4
Number of Passengers	22.88	26.91	33.31	32.36
Power cost per pax	16.5	15.4	9.7	10.3
Water cost per pax	1.1	1.2	1.3	1.6
Power consumption/pax	2.0	1.7	1.4	1.3
Water consumption/pax	0.02	0.02	0.02	0.02

*Based on data submitted by BIAL

The power cost/pax & water cost/pax and power consumption/pax and water consumption/pax are evaluated.

Figure 11: Power cost and water cost/pax for BIAL

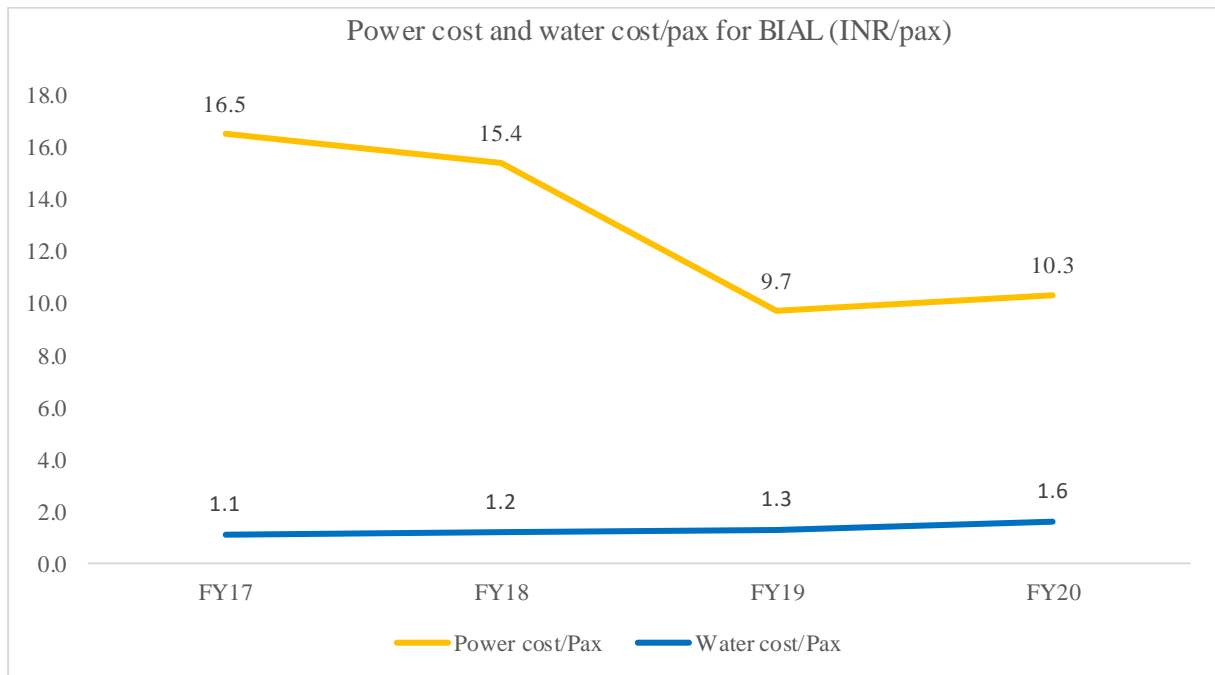


Figure 12: Power consumption/pax for BIAL

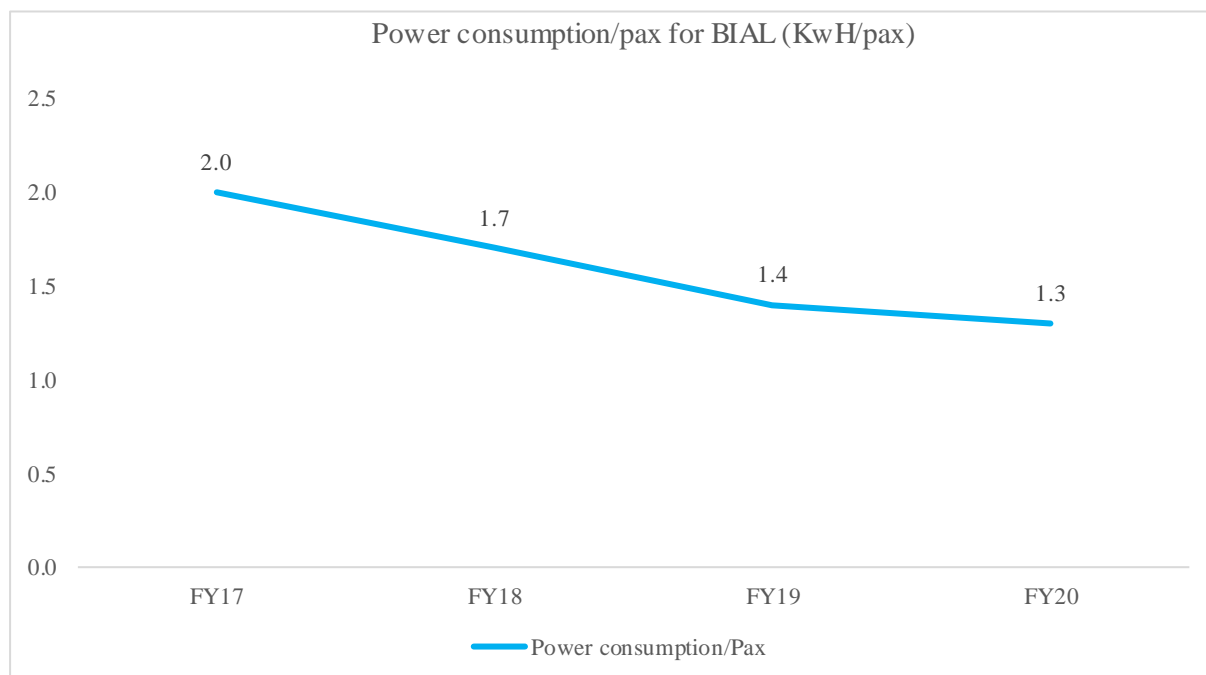
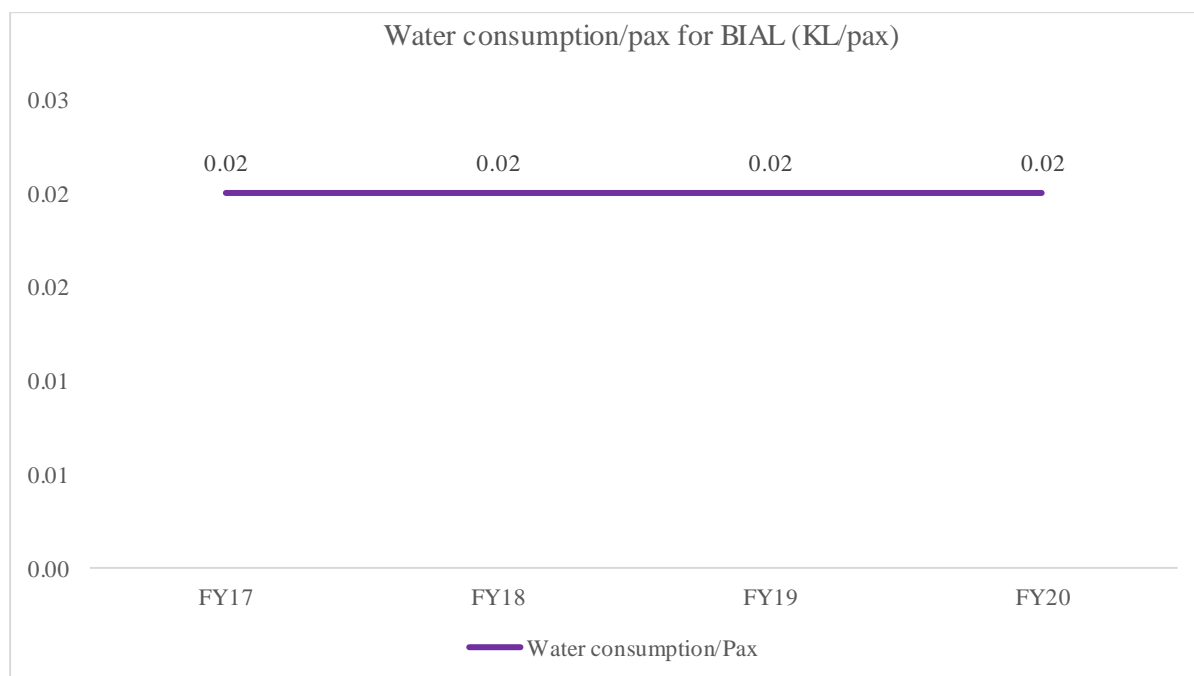


Figure 13: Water consumption/pax



The power and water consumption per pax has shown a decreasing trend from FY 2017 to FY 2020 mainly due to increase in passenger traffic at the airport.

3.4.7 Insurance cost

The insurance expenses include the premium paid by BIAL for Industrial all risk (IAR), Terrorism policy, motor policy, Airport operator liability (AOL) etc. The details of insurance expenses as per BIAL is given in the table below:

Table 49: Insurance expenses details as per BIAL

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
Industrial All Risks Policy #	0.74	1.57	1.21	2.40	48%	5.91
Airport Operator Liability	0.62	0.54	0.41	0.60	-1%	2.17
Terrorism Policy	0.29	0.24	0.37	0.40	11%	1.30
Motor Policy	0.10	0.15	0.20	0.13	9%	0.58
Others	0.01	0.01	0.00	0.02	37%	0.03
Total	1.76	2.50	2.19	3.55	26%	10.00

*Based on data submitted by BIAL #Industrial All Risks mainly includes Mega risk, All risk, Money, Fidelity, PL Act, Plate Glass, CAR/EAR & D&O renewal

The trends for insurance cost are given in the table below:

Table 50: Trends in Insurance cost

Particulars*	FY 2017	FY 2018	FY 2019	FY 2020	CAGR	Total
Insurance expenses	1.76	2.50	2.18	3.53	26.1%	9.97
Inflation index	100.0	103.0	107.3	109.1		
Inflation adjusted insurance expenses	1.76	2.43	2.03	3.23	22.5%	9.45
Gross Block (Net of grants)	3877.5	4044.2	4203.1	6228.5	17.1%	18353.4
Insurance expenses as % of gross block	0.05%	0.06%	0.05%	0.06%		

*Costs for FY17 to FY20 based on the audited financial statements based on IGAAP

It is observed that the Insurance expenses have increased at a CAGR of 26.3% from FY17 to FY20. Clarification was sought from BIAL regarding the same. BIAL gave the following response:

“General Insurance Corporation (GIC Re), the country’s national reinsurer, has increased its premiums for the insurance. The General insurance companies have moved towards risk-based pricing which have led to increase in premiums. This is because overall, the industry has seen a lot of catastrophic events, risk events and there were a lot of losses.”

We understand that the increase in insurance cost is due to the move towards risk-based pricing leading to an increase in premium.

3.5 Chapter Summary

The trend analysis of the various components of the inflation adjusted operational expenditure is undertaken for the period from FY 2017 to FY 2020. Due to increase in the passenger traffic and addition of new facilities such as new south parallel runway, the operational expenditure has increased over this period. The following is noted on the operational expenditure of BIAL in the second control period:

- Personnel cost - Personnel cost has increased from FY18 to FY19; however, it is noted that the employee cost per pax has seen a decreasing trend from FY 2018 to FY 2019 due to increase in the passenger traffic. The increase in the personnel cost from FY19 to FY20 is on account of the commissioning of the new south parallel runway in December 2019 and increase in the area of operations. Due to capacity addition by BIAL, the employee cost per pax has increased which is expected to gradually fall with the increase in utilization levels. The increase in the personnel cost from FY20 to FY21 is on account of the full year cost of the employees who joined in FY20 as well as the induction/hiring of the employees who were already given offers by BIAL.
- Operational and maintenance (O&M) expenses - The O&M expenses as a % of gross block has increased from FY 2017 to FY 2019 due to increase in minimum wages and increased

utilization of the terminal and single runway. The increase in O&M expenses in the FY 2020 is on account of the commissioning of the new south parallel runway. The O&M expenses as a % of assets has decreased in FY 2020 due to increase in the asset base.

- c) Marketing and advertising (M&A) expenses – More than 85% of the expenses are attributable to two major heads namely Aviation marketing and contracts and BDMS – Marketing. The Aviation marketing and contracts constitutes roadshows, pinnacle event, airline route launches, sponsorships and travel expenses while BDMS marketing constitutes branding, brochures, event management and social and digital marketing. Increased spend on branding and marketing of the airport has resulted in increased cost/pax over these years. BIAL has not provided the justification for the increase in marketing and advertising costs. Therefore, the marketing and advertising expenses have been considered as per Table 46 based on the growth in passenger traffic and inflation.
- d) Housekeeping expenses – Housekeeping expenses/ pax have remained approximately constant from FY 2017 to FY 2020.
- e) General administration expenses - The inflation adjusted general administration expenses have increased at a lower CAGR than the passenger traffic.
- f) Utility expenses - The power and water consumption per pax has shown a decreasing trend from FY 2017 to FY 2020 due to increase in the passenger traffic.

The trend in costs with respect to growth in traffic and capacity augmentation indicate that BIAL has maintained the efficiency in operational costs during the second control period.

4 BENCHMARKING OF COMPARABLE DOMESTIC AIRPORTS

A benchmarking analysis has been undertaken based on the documents available in public domain. Internal benchmarking or self-benchmarking is the analysis of the airport's own operational performance over a period of time

4.1 Internal Benchmarking

The internal benchmarking for BIAL was undertaken by analysing the following expenses undertaken by BIAL over a period of time (FY 2012 – FY 2021):

- a) Personnel expenses
- b) Total administrative and general expenses
- c) Printing and stationery expenses
- d) Travelling and conveyance
- e) Communication costs
- f) Advertisement
- g) Other admin expenses
- h) Total terminal maintenance/operating expenses
- i) Utility cost
- j) Repair & maintenance cost
- k) Housekeeping and manpower services
- l) Insurance

The trends based on data given by BIAL for Personnel expenses, terminal operating cost and administrative and general expenses is shown in the table below:

Table 51: Administrative & general, personnel and terminal operating expenses as submitted by BIAL

Particulars *	FY 12	FY 13	FY 14	FY 15	FY 16	CAG R (FY1 2-16)	FY 17	FY 18	FY 19	FY 20	FY 21	Total	CAG R (FY1 7-20)	CAG R (FY12 -20)
Control Period	First Control Period						Second Control Period							
Personnel Expenses	75	86	94	104	113	10.92 %	119	121	153	196	211	1,272	18.18 %	12.82 %
Operations & Maintenance	39	51	50	58	62	11.82 %	99	117	117	139	134	865	11.75 %	17.03 %
Concession Fee	25	25	27	37	46	15.96 %	54	62	59	54	19	408	- 0.17 %	9.77%
Lease Rent	6	6	6	6	12	16.71 %	13	13	14	14	15	106	3.06 %	10.61 %
Utilities	22	23	25	36	40	16.18 %	39	44	37	38	26	330	- 1.11 %	7.05%
Insurance	2	2	2	2	2	0.57%	2	3	2	4	6	27	26.11 %	7.11%
Rates & Taxes	1	0	13	27	13	101.5 8%	9	7	9	9	8	96	0.68 %	35.00 %

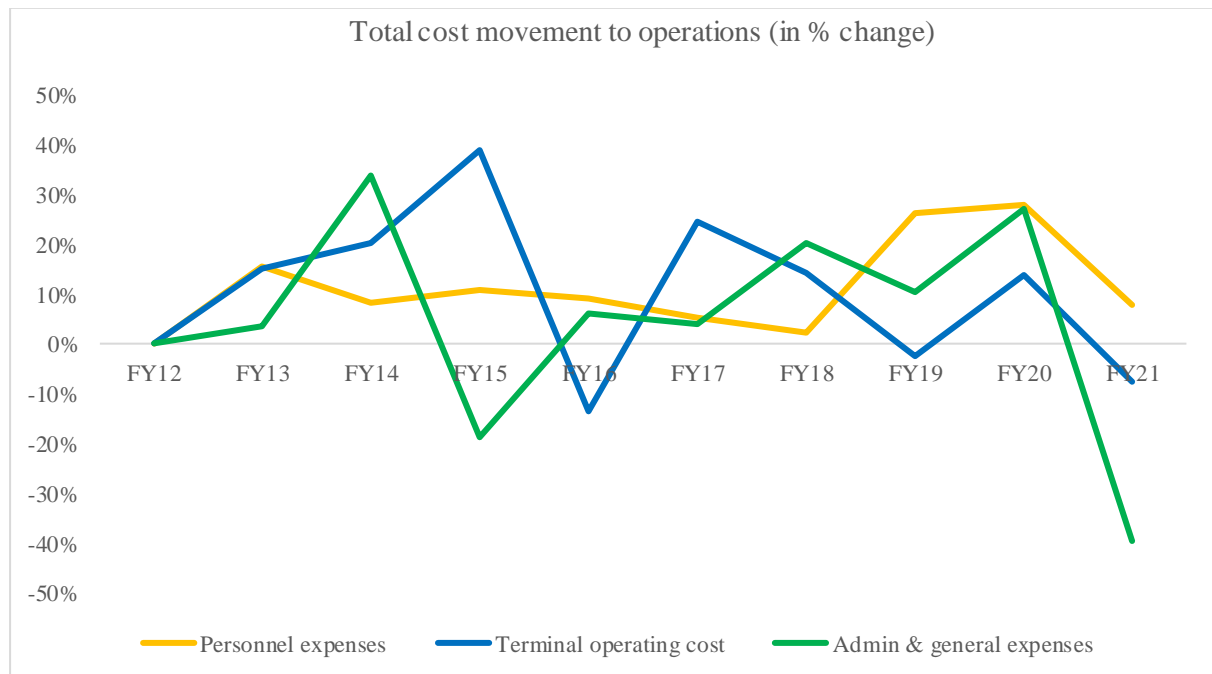
Study on Operation and Maintenance costs for BIAL

Particulars *	FY 12	FY 13	FY 14	FY 15	FY 16	CAG R (FY1 2-16)	FY 17	FY 18	FY 19	FY 20	FY 21	Total	CAG R (FY1 7-20)	CAG R (FY12 -20)
(other than IT)														
Marketing and Advertising	4	5	11	6	8	14.53 %	8	10	16	22	7	97	38.59 %	22.06 %
Waivers & Bad Debts	1	48	-	-	2	10.91 %	-	1	11	3	-	65		10.45 %
CSR	-	-	-	-	1		4	5	16	20	13	58	73.77 %	
OMSA Fee	8	7	10	15	3	- 23.75 %	-	-	-	-	-	42		
Total General Administration Costs	22	22	25	23	24	2.19%	25	30	27	34	27	259	11.06 %	5.51 %
Total Operating Expenses	206	276	263	315	325	12.06 %	371	412	463	530	465	3,626	12.66 %	12.55 %

*Costs for FY16-FY20 based on BIAL's business plan, FY17-FY20 based on audited financials statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

The trends can be seen from the below graphs:

Figure 14: Total cost movement to operations



It is difficult to interpret the above trend without analysing the root cause i.e. trend / growth in passenger and air traffic growth. This will help us to better understand the reasons for change in total cost to the movement of operations. The analysis of the same is given in the next section.

4.1.1.1 Passenger traffic and Air traffic movements

The passenger and air traffic movements at BIAL has shown an increasing trend over the years as shown in the tables below:

Table 52: Passenger traffic at BIAL

Passenger Traffic (In Mil)	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Total	CAGR [#]
Domestic	10.3	9.5	10.2	12.5	15.6	19.3	23.1	28.8	27.8	10.48	167.6	13%
International	2.4	2.5	2.6	2.9	3.4	3.6	3.8	4.5	4.6	0.46	30.7	9%
Total	12.71	11.99	12.87	15.40	18.97	22.88	26.91	33.31	32.36	10.94	198.3	12%

*Number for FY12-FY16 are as per BIAL's business plan, FY17-FY20 based on AAI traffic news and FY21 numbers are forecasted based on actuals till February 2021

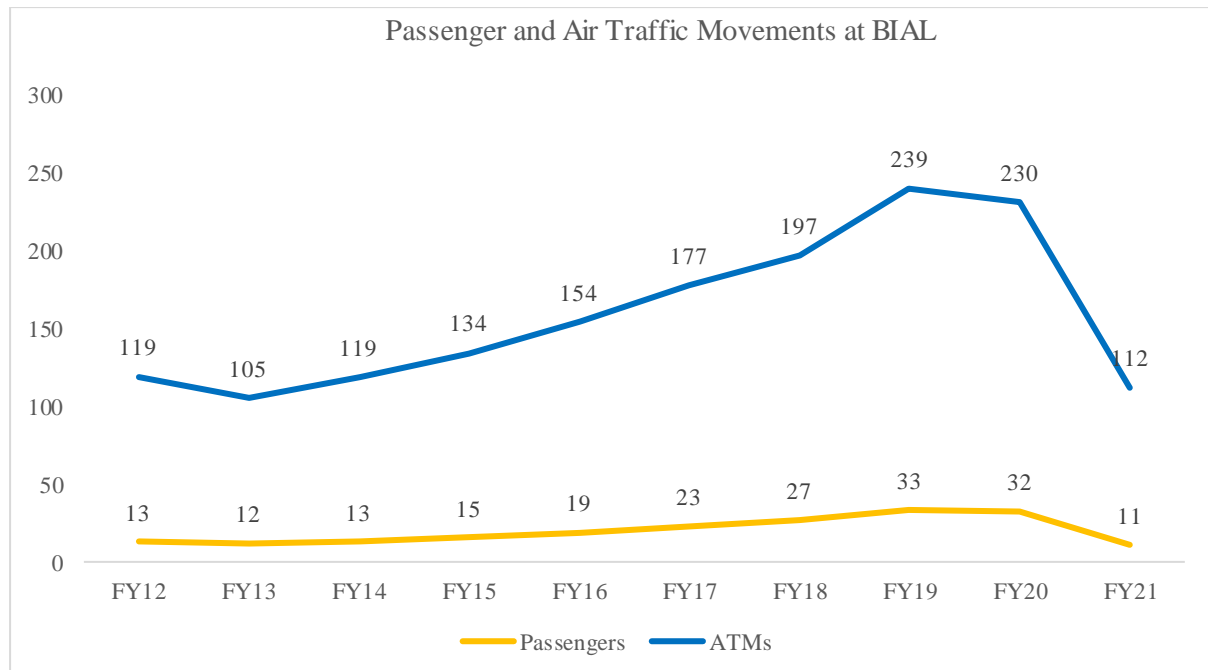
Table 53: ATM as submitted by BIAL

ATMs (In 000')	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	Total	CAGR [#]
Domestic ATMs	101	87	99	113	131	153	171	210	200	101	1,366	9%
International ATMs	18	18	19	21	22	24	26	30	30	11	220	7%
Total ATMs	18	18	19	21	22	24	26	30	30	11	1,587	9%

*Number for FY12-FY16 are as per BIAL's business plan, FY17-FY20 based on AAI traffic news and FY21 numbers are forecasted based on actuals till February 2021 #FY12-FY20

The trends can be better understood from the passenger and air traffic movements graphs given below:

Figure 15: Trends in passenger and ATMs at BIAL



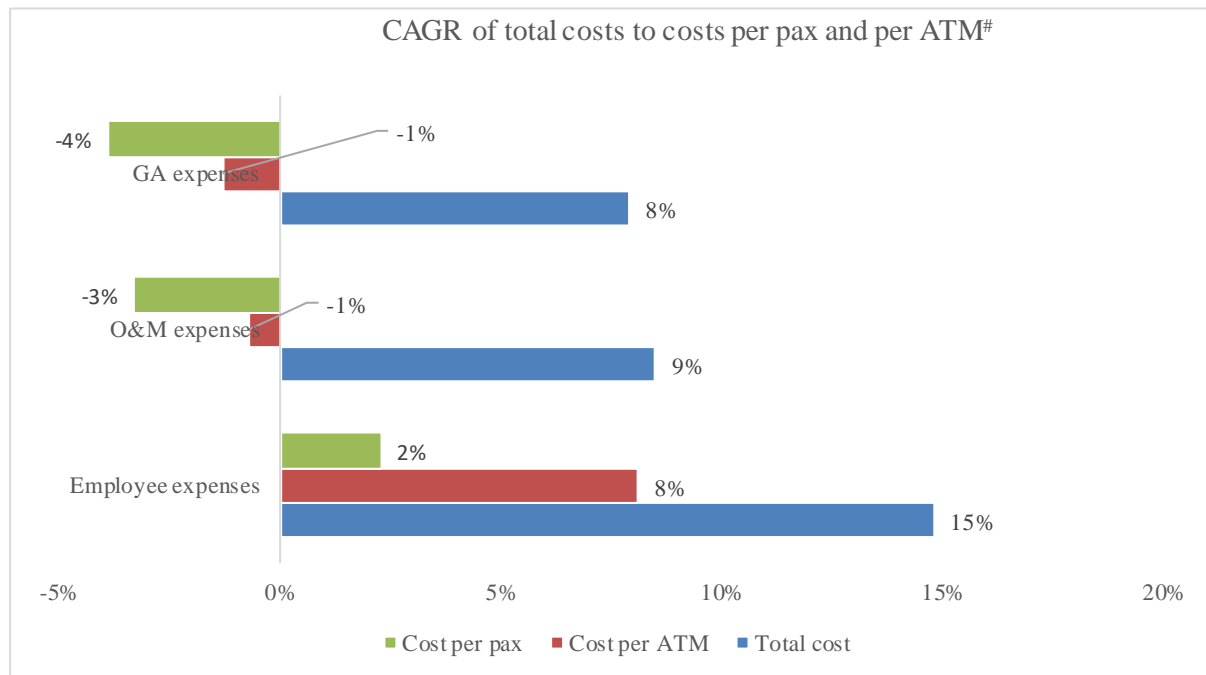
The growth of total cost of BIAL versus the growth in cost per pax and per ATM at BIAL is compared below. The following table shows the comparison:

Table 54: Growth in total cost versus growth in cost per pax and per ATM inflation adjusted

Particulars*	FY 12	FY 13	FY 14	FY 15	FY 16	CA GR (FY 12-16)	FY 17	FY 18	FY 19	FY 20	FY 21	Total	CA GR (FY 16-20)	CA GR (FY 12-20)
	First Control Period						Second Control Period							
Employee expenses	75	86	94	104	113	11%	119	121	153	196	211	1,272	18%	13%
WPI		100	105	107	103		104	107	112	114	118			
Inflation - Employee expenses	75	86	89	97	110	10%	114	113	137	172	179	1,172	15%	11%
O&M expenses	39	51	50	58	62	12%	99	117	117	139	134	865	12%	17%
WPI		100	105	107	103		104	107	112	114	118			
Inflation - O&M expenses	39	51	47	54	60	11%	95	109	105	122	114	682	9%	15%
General admin expenses	22	22	26	24	24	2%	25	30	27	34	27	234	11%	6%
WPI		100	105	107	103		104	107	112	114	118			
Inflation - GA expenses	22	22	24	23	24	2%	24	28	24	30	23	221	8%	4%
Cost / Pax - Employee	59	72	69	63	58	0%	50	42	41	53	164	507	2%	-1%
Cost / ATM - Employee	6,505	8,577	8,210	8,018	7,592	4%	6,873	6,300	6,504	8,689	30,250	67,268	8%	4%
Cost / Pax - O&M	31	42	37	35	32	1%	42	40	31	38	104	328	-3%	2%
Cost / ATM - O&M	3,431	5,061	4,133	4,204	4,030	4%	5,506	5,642	4,444	5,393	16,277	41,843	-1%	6%
Cost / Pax - GA	17	19	19	15	12	-8%	10	10	7	9	21	119	-4%	-8%
Cost / ATM - GA	1,912	2,232	2,147	1,755	1,585	-5%	1,365	1,447	1,034	1,312	3,252	14,790	-1%	-5%

*Costs for FY16-FY20 based on BIAL's business plan, FY17-FY20 based on audited financials statements based on IGAAP; costs for FY21 based on the non-audited data of Apr 2020 to Dec 2020 and forecast for Jan 2021 to March 2021

Figure 16: CAGR of total costs to CAGR of cost per pax and cost per ATM



[#]Prepared based on data for the period FY17-FY20

4.1.1.2 Proportion of Domestic and International Traffic

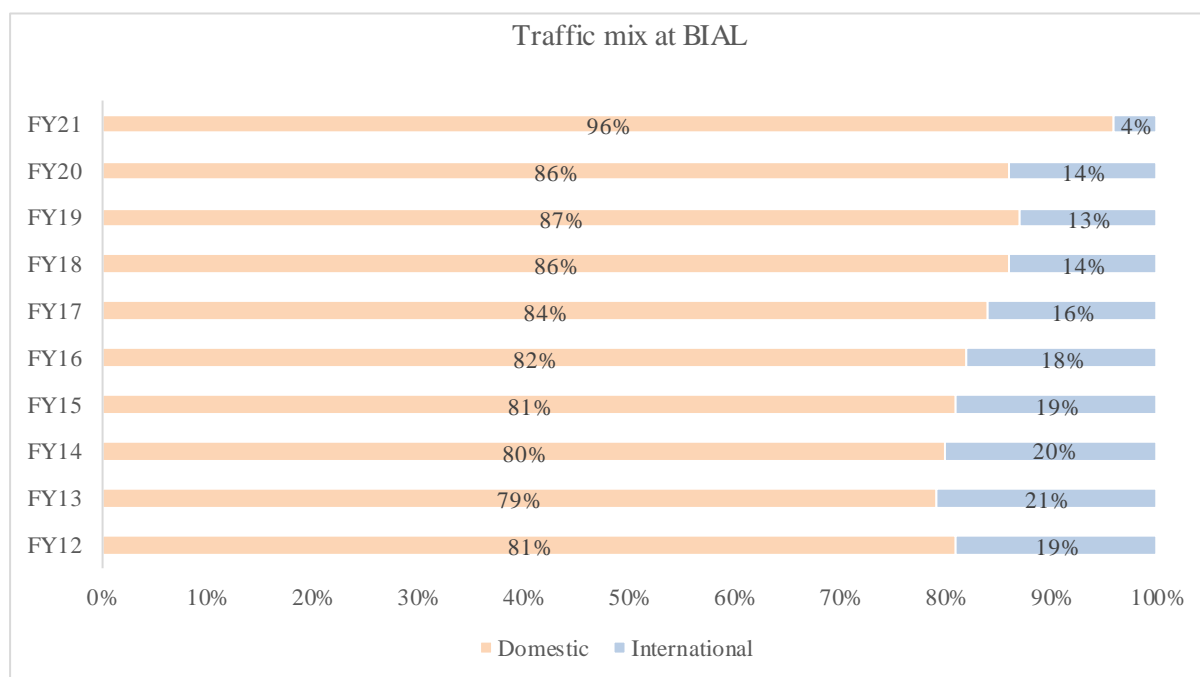
It is also important to look at the mix of traffic at BIAL. Domestic passenger movement is generally low cost and leads to a higher gate utilisation while the international passenger movement involves relatively high cost and amenities and lower gate capacity utilisation. Therefore, high international passenger traffic will lead to higher cost of operations. The proportion of domestic and international passengers availing services at BIAL are given in the table below:

Table 55: Proportion of domestic and international passengers

Passenger Category*	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21
Domestic	81%	79%	80%	81%	82%	84%	86%	87%	86%	96%
International	19%	21%	20%	19%	18%	16%	14%	13%	14%	4%

*Traffic numbers for FY12-FY16 based on BIAL's business plan, FY17-FY20 based on AAI traffic news and FY21 based on actuals till February 2021 and forecasted for March 2021

Figure 17: Traffic mix at BIAL



4.2 External Benchmarking

External benchmarking was undertaken for BIAL to assess its operational, financial and other parameters to understand its performance viz-a-viz airports in the same competing environment.

The domestic benchmarking has been undertaken with comparable airports in India (private airports in India). The airports for which benchmarking has been undertaken are given in the table below:

Name of the Airport	Major Shareholder	Commencement of Operations	Green/Brownfield
Bengaluru International Airport Limited (BIAL)	Fairfax Financial Holdings Limited	May 2008	Greenfield
Delhi International Airport Limited (DIAL)	GMR Airports Limited	April 2006	Brownfield
Hyderabad International Airport Limited (HIAL)	GMR Airports Limited	March 2008	Greenfield
Mumbai International Airport Limited (MIAL)	Adani Airports Limited	April 2006	Brownfield

Source: Media Articles

The benchmarking exercise has been undertaken for the period from FY 2017 to FY 2020 since audited FY 2021 data is not yet available.

The study is aimed at comparing the operational expenditure incurred by these airports for the below major heads:

- Personnel cost
- Utility cost
- Insurance
- O&M expenses
- Total operational expenses

The data for this benchmarking exercise has been taken from the annual reports of the respective airports for the relevant financial years. Operational expenditure is expressed in terms of per passenger, per ATM basis or per gross block basis for the comparison between airports.

It is noted that all the above airports differ from each other in many ways. Some of these differences include layout of the terminal building, capacity of the runway/ terminal/ apron, passenger mix, natural or man-made disruptions in operations, cost of living of a city, etc. These differences have significant impact on the operational expenditure at the airport. For example, the development and operational cost of an airport with a single level linear terminal building is different from the cost at a multilevel terminal building. Additionally, airport infrastructure is developed in phases and an airport may operate at a traffic level which is lower than its future design capacity. As cost such as maintenance is dependent on terminal area, airports operating at different level of their design capacities may show different levels of efficiencies. Thus, external benchmarking is limited by such difference in characteristics of airports.

4.2.1 Comparison between airports on various factors affecting O&M expenses

The differences between these airports which affect the benchmarking exercise are as follows:

- a) Passenger volume
- b) Passenger mix
- c) Air traffic movements
- d) ATM mix
- e) Size and number of terminal(s)
- f) Size and number of runways

The details of each of the above factors are covered in the section below.

A. Passenger traffic and mix

Operational costs for an airport have fixed and variable components. The variable components such as consumables vary in proportion to the passenger traffic. The comparison of operational cost per pax between airports is an often-used metric for benchmarking. Further, increase in passenger traffic helps an airport operator to maximize the utilization of the asset and provides an opportunity to bring efficiency in the fixed component of operational expenditure such as utility expenses.

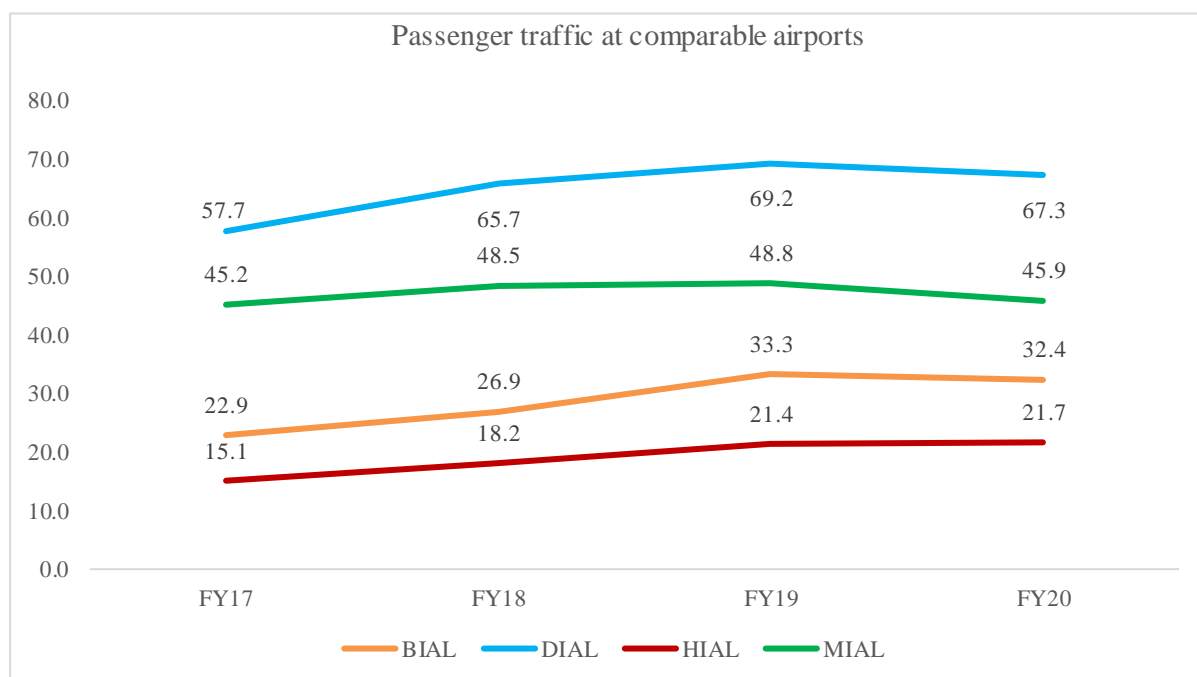
The passenger traffic for the period FY 2017 – FY 2020 for the above four airports are given in the table below:

Table 56: Total Passenger traffic at comparable airports in India

Airports	FY 2017	FY 2018	FY 2019	FY 2020	CAGR
BIAL	22.88	26.91	33.31	32.36	12.2%
DIAL	57.70	65.69	69.23	67.30	5.3%
HIAL	15.10	18.16	21.40	21.65	12.8%
MIAL	45.15	48.50	48.82	45.87	0.5%

Source: AAI

Figure 18: Passenger traffic at comparable airports

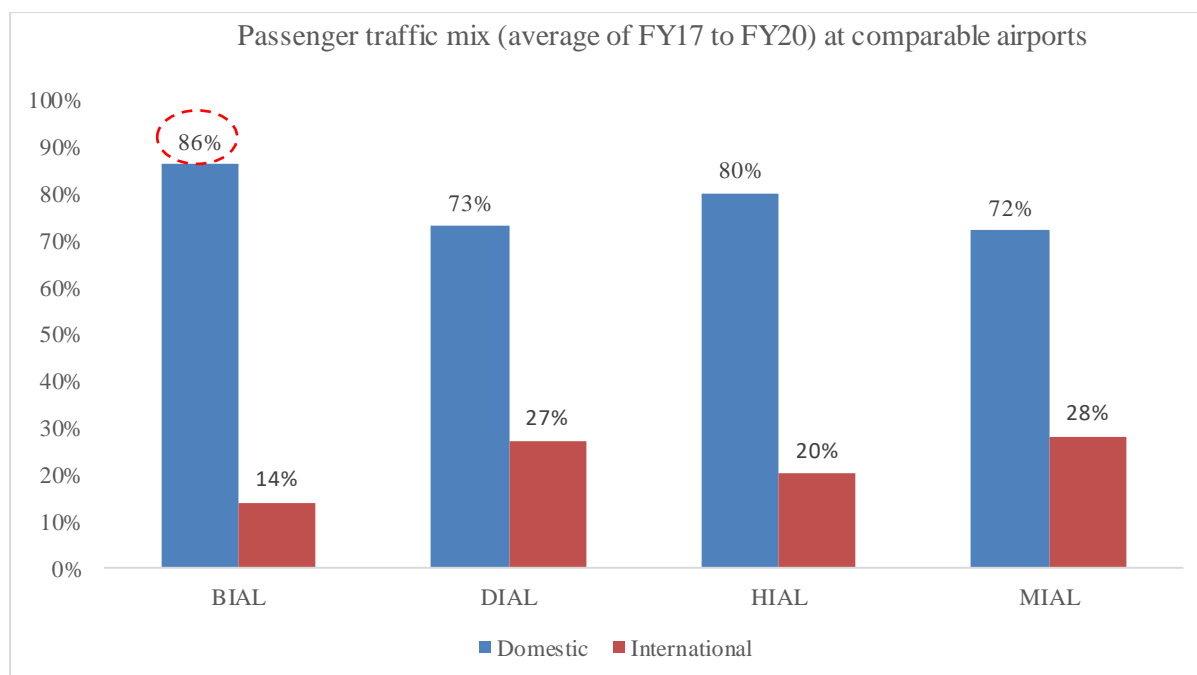


Source: AAI

As per the above data, BIAL and HIAL have shown comparable CAGR growth in passenger traffic over the comparison period which is higher than CAGR for MIAL and DIAL.

BIAL also has the highest share of domestic passengers in the total passengers at 86% as compared to the benchmarked airports. The trend in terms of mix of domestic and international passengers is given below:

Figure 19: Passenger traffic mix at comparable airports



Source: AAI

B. ATM traffic and mix

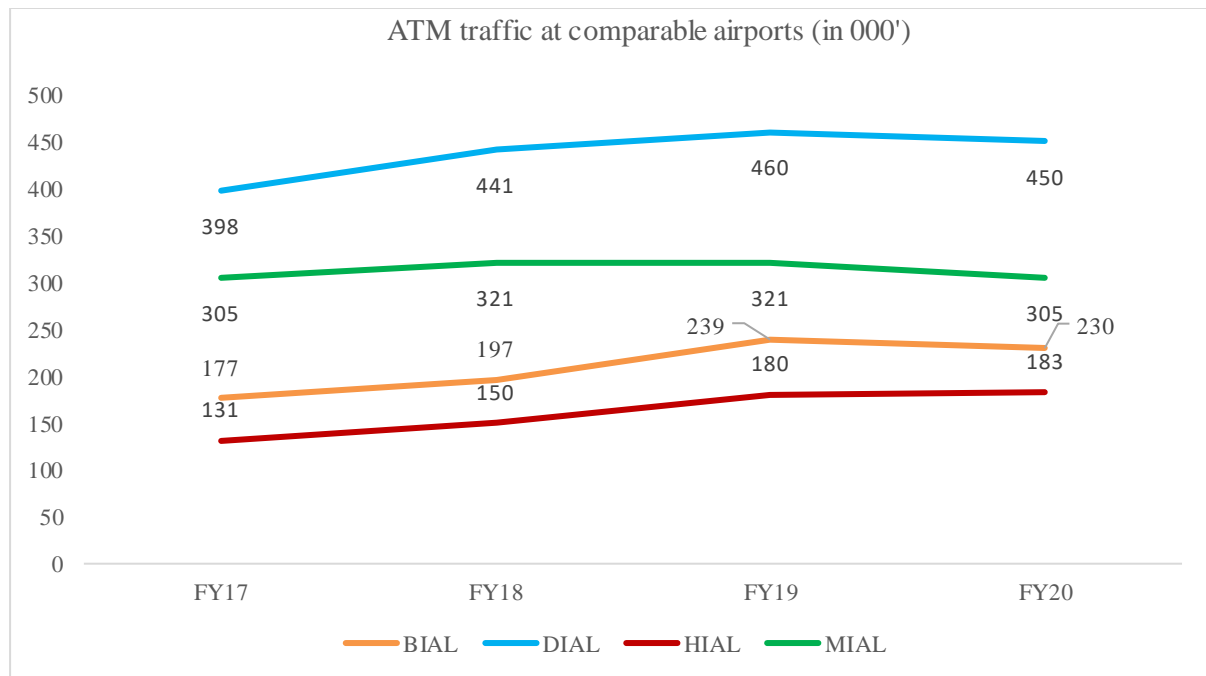
Similar to passenger traffic, operational expenditure per ATM is used for comparison between airports. The ATMs for the period FY 2017 – FY 2020 for the comparable airports are given in the table below:

Table 57: ATM traffic at comparable airports in India

Airports	FY 2017	FY 2018	FY 2019	FY 2020	CAGR
BIAL	177271	196560	239395	230359	9.1%
DIAL	397799	441299	460429	450012	4.2%
HIAL	130713	149581	179606	183450	12.0%
MIAL	305465	320689	321263	304675	-0.1%

Source: AAI

Figure 20: ATM traffic at comparable airports

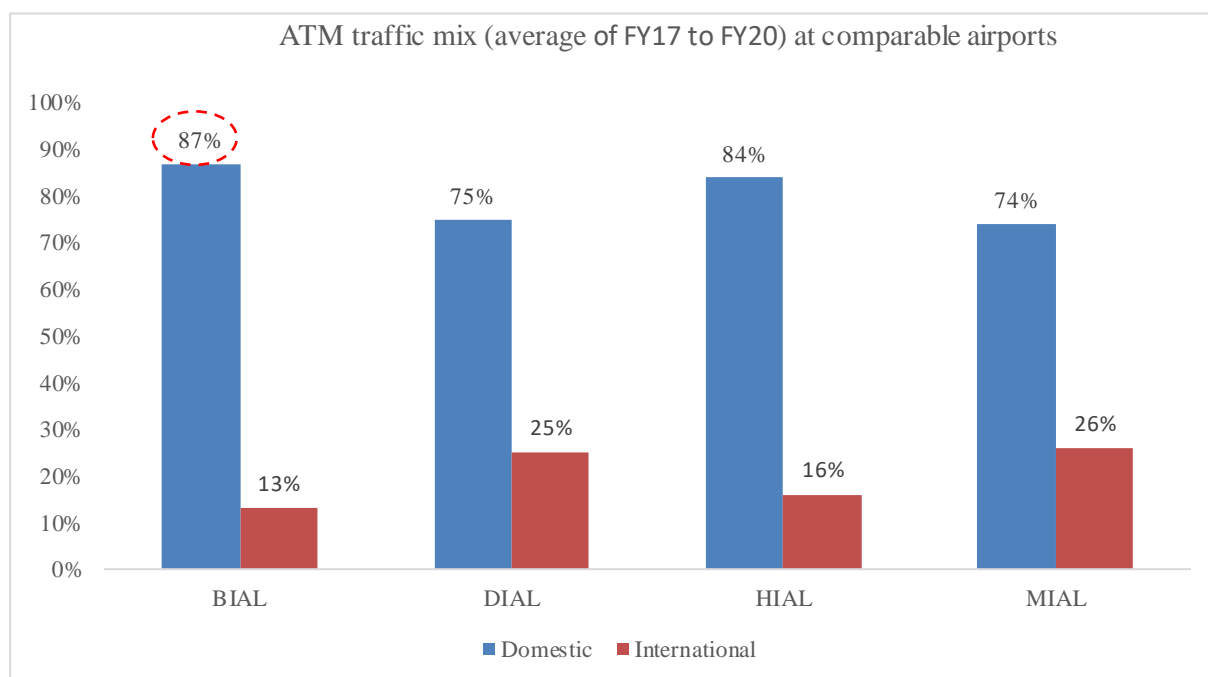


Source: AAI

As per the above data, BIAL and HIAL have shown a higher CAGR growth in ATMs over MIAL and DIAL which indicates higher capacity addition by airlines out of these airports.

The trend in terms of mix of domestic and international ATMs is given below:

Figure 21: ATM mix at comparable airports



Source: AAI

Similar to the trend followed for passengers, domestic ATMs at BIAL dominate the total ATMs with a share of 87% indicating the significant capacity addition by low cost carriers out of Bangalore.

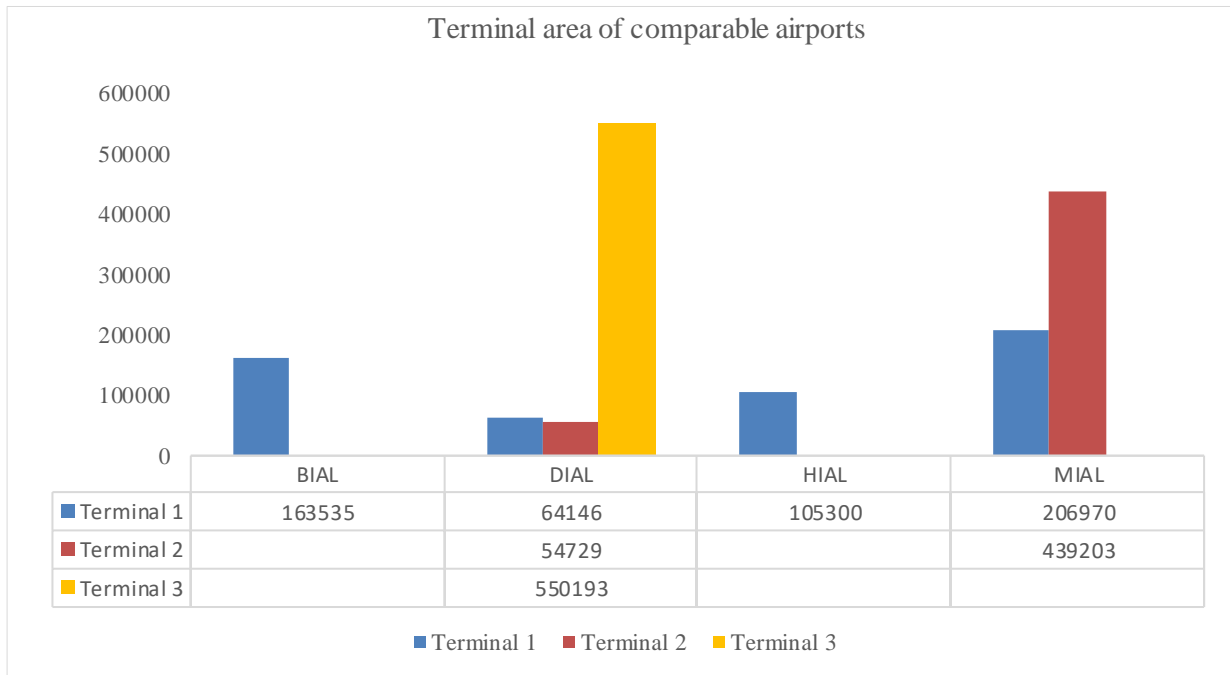
C. Number and size of terminals

The terminal (size and number) also affects various operational expenses some of which are as follows:

- a) Maintenance and housekeeping expenses
- b) Security costs
- c) Utility expenses
- d) Consumables

Based on the data available in public domain, the size of the terminals (in Sqm) for various comparable airports are given below:

Figure 22: Size of terminals of comparable airports (in Sqm)



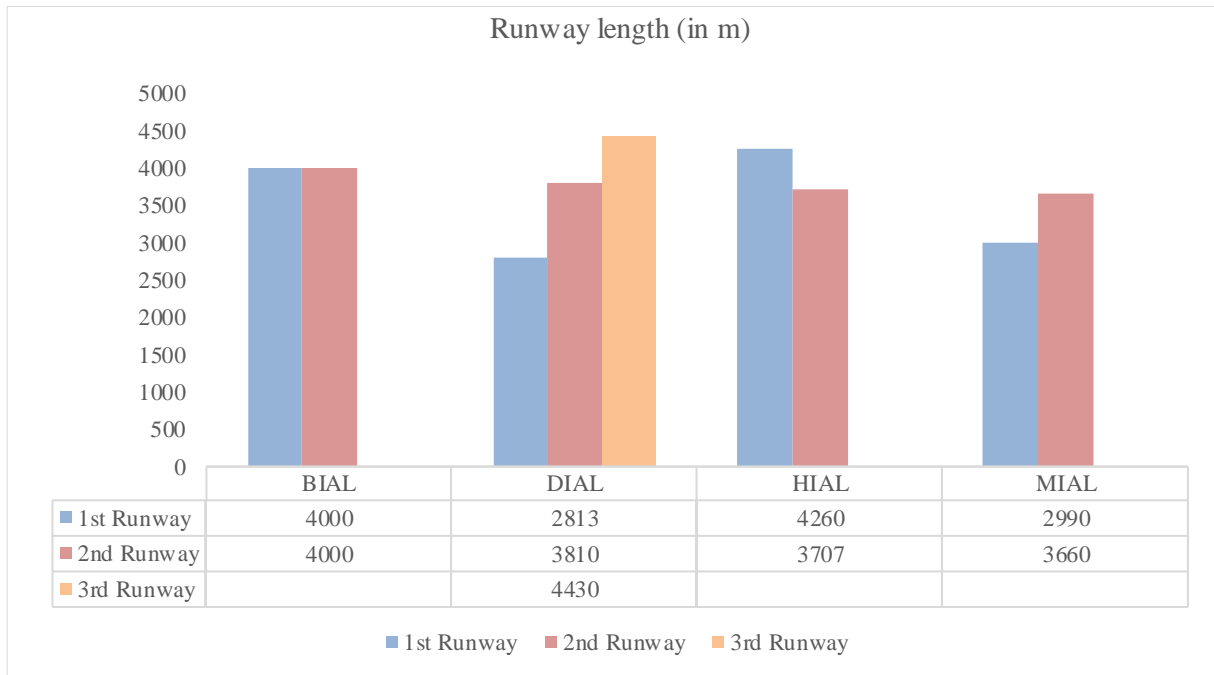
Source: BIAL, DIAL, HIAL and MIAL 3rd control period order

It is to be noted that BIAL is constructing a new terminal building which would significantly enhance the terminal area at the airport.

D. Number and size of runways

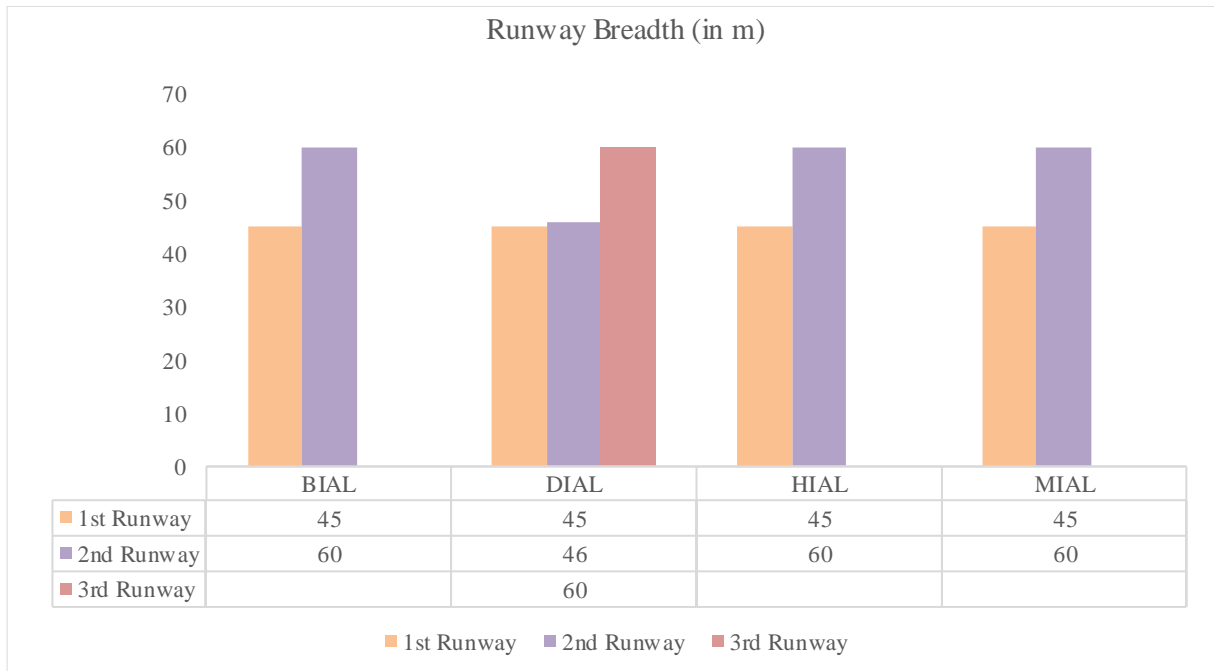
Another factor impacting the operational expenditure is the number and size of runways as additional and longer runways mean higher maintenance costs and higher number of personnel for managing the additional assets. This additional cost will be in terms of personnel cost, airside lightning, firefighting, safety & security and ground transportation & control. The runway lengths and breaths of comparable airports are given below:

Figure 23: Runway length (in m)



Source: Airport website

Figure 24: Runway breadth of comparable airports



Source: Airport website

4.2.2 Benchmarking of components of operational expenses

In the above section, it is noted that the operational cost is a function of multiple factors and characteristics of an airport which results in limitation on direct comparison between airports. After understanding these limitations, the major heads of operational expenditure which are similar in nature for these airports have been reviewed in this section.

4.2.2.1 Personnel Cost

The personnel cost for comparative airports is given in the table below:

Table 58: Personnel cost for comparable airports (FY 2017 – FY 2020)

Airports	FY 2017	FY 2018	FY 2019	FY 2020	CAGR
BIAL	118.72	121.28	153.17	195.97	18%
DIAL	129.47	165.24	186.48	209.38	17%
HIAL	59.65	72.41	100.85	117.93	26%
MIAL	196.71	197.93	202.58	201.73	1%

Source: Annual reports of BIAL, DIAL and HIAL, MIAL 3rd CP order

The benchmarking for personnel cost has been undertaken on per pax and per ATM basis:

Table 59: Personnel cost/pax for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	51.9	45.1	46.0	60.6
DIAL	22.4	25.2	26.9	31.1
HIAL	39.5	39.9	47.1	54.5
MIAL	43.6	40.8	41.5	44.0

Table 60: Personnel cost/ATM for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	6697.1	6170.1	6398.2	8507.2
DIAL	3254.7	3744.4	4050.1	4652.8
HIAL	4563.4	4840.9	5615.1	6428.5
MIAL	6439.7	6172.0	6305.7	6621.3

Figure 25: Trends in Personnel cost/pax

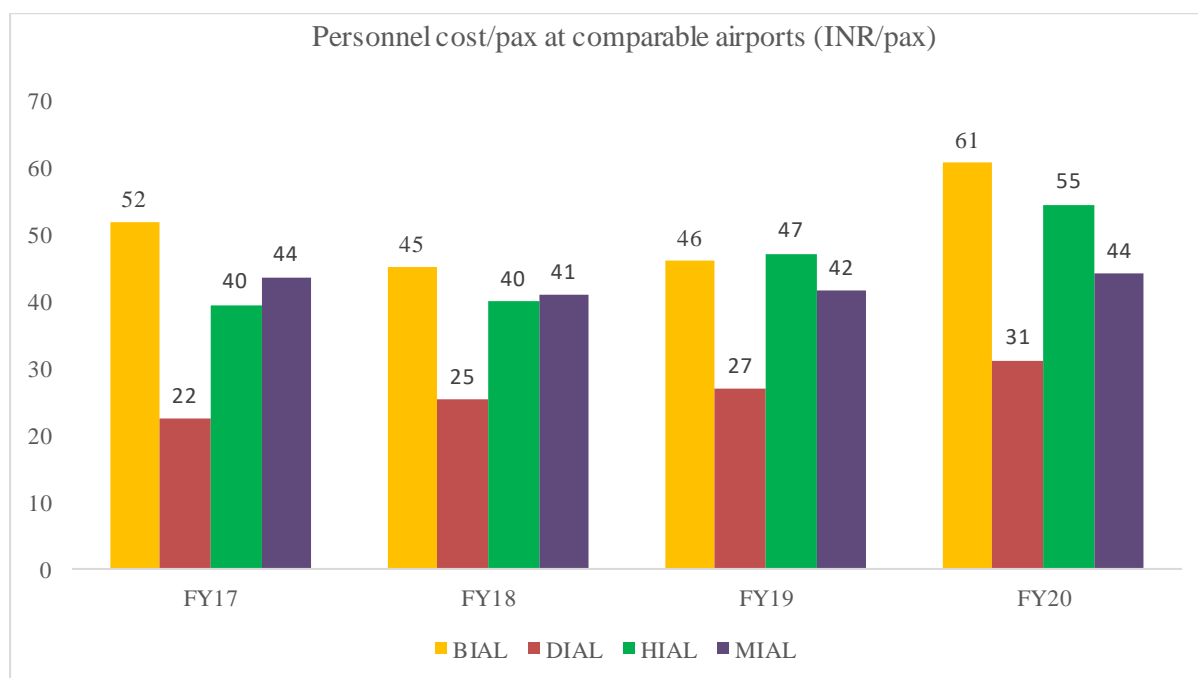
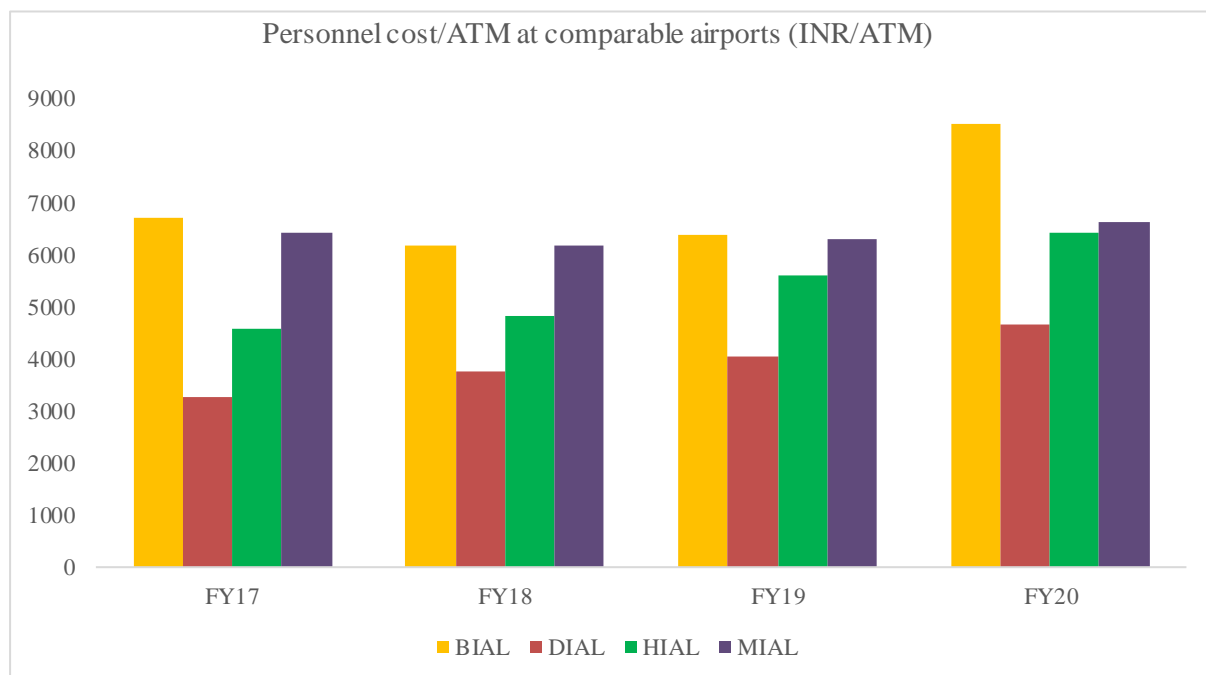


Figure 26: Trends in personnel cost/ATMs



The above comparison is based on the personnel cost on the rolls of the airport operator. It is noted that an airport might outsource a service to a third party whereas other airports might undertake such services through its own employees.

For example, DIAL's personnel cost per pax is noted as being lowest among the compared airports. However, DIAL also outsources corporate services the cost of which would appear under a different head as part of its operational expenditure. Similar trend is noted for HIAL. Therefore, personnel cost per pax as an individual metric may not provide a reasonable comparison and needs to be reviewed as part of the overall cost benchmarks at the airport.

4.2.2.2 Utility Expenses

The utility expenses for comparative airports is given in the table below:

Table 61: Utility expenses for comparable airports (FY 2017 – FY 2020)

Airports	FY 2017	FY 2018	FY 2019	FY 2020	CAGR
BIAL	39.04	44.46	37.38	33.28	-5%
DIAL	106.54	113.20	103.35	69.70	-13%
HIAL	17.49	16.33	19.35	18.70	2%
MIAL	93.48	112.67	109.61	147.30	16%

Source: Annual reports of BIAL, DIAL and HIAL, MIAL 3rd CP order

The benchmarking for utility expenses has been undertaken on per pax and per ATM basis:

Table 62: Utility expenses/pax for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	17.06	16.52	11.22	10.28
DIAL	18.46	17.23	14.93	10.36
HIAL	11.58	8.99	9.04	8.64
MIAL	20.70	23.23	22.45	32.11

Table 63: Utility expenses/ATM for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	2202	2262	1561	1445
DIAL	2678	2565	2245	1549
HIAL	1338	1092	1077	1019
MIAL	3060	3513	3412	4835

Figure 27: Trends in utility expenses/pax

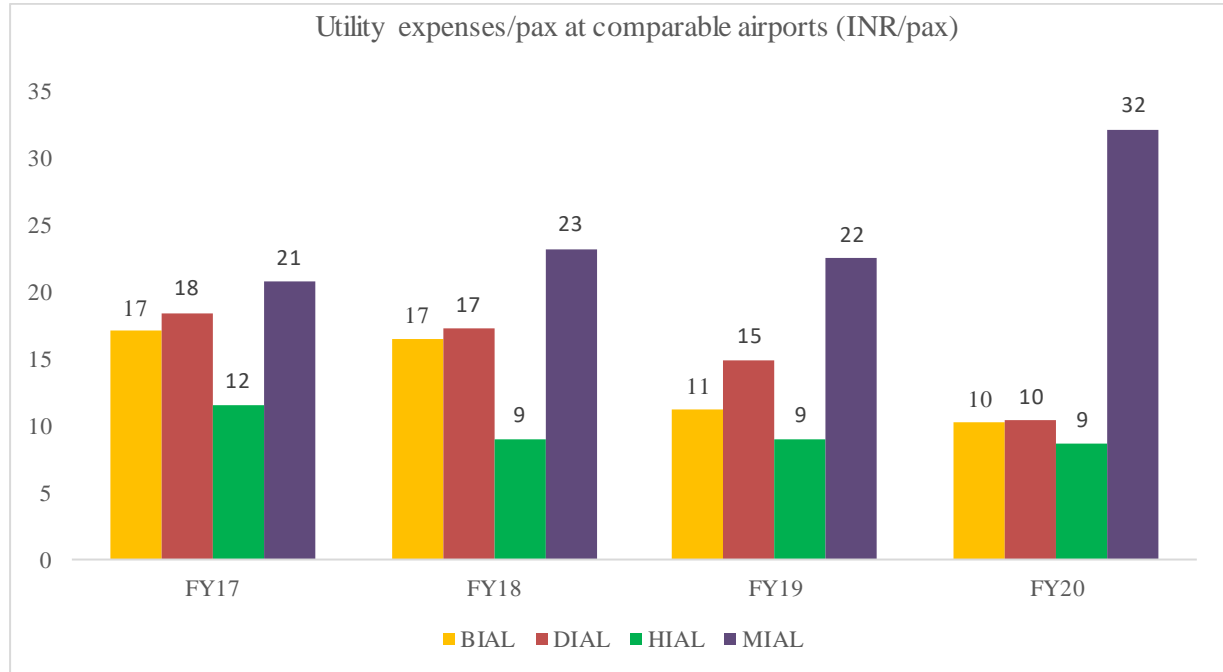
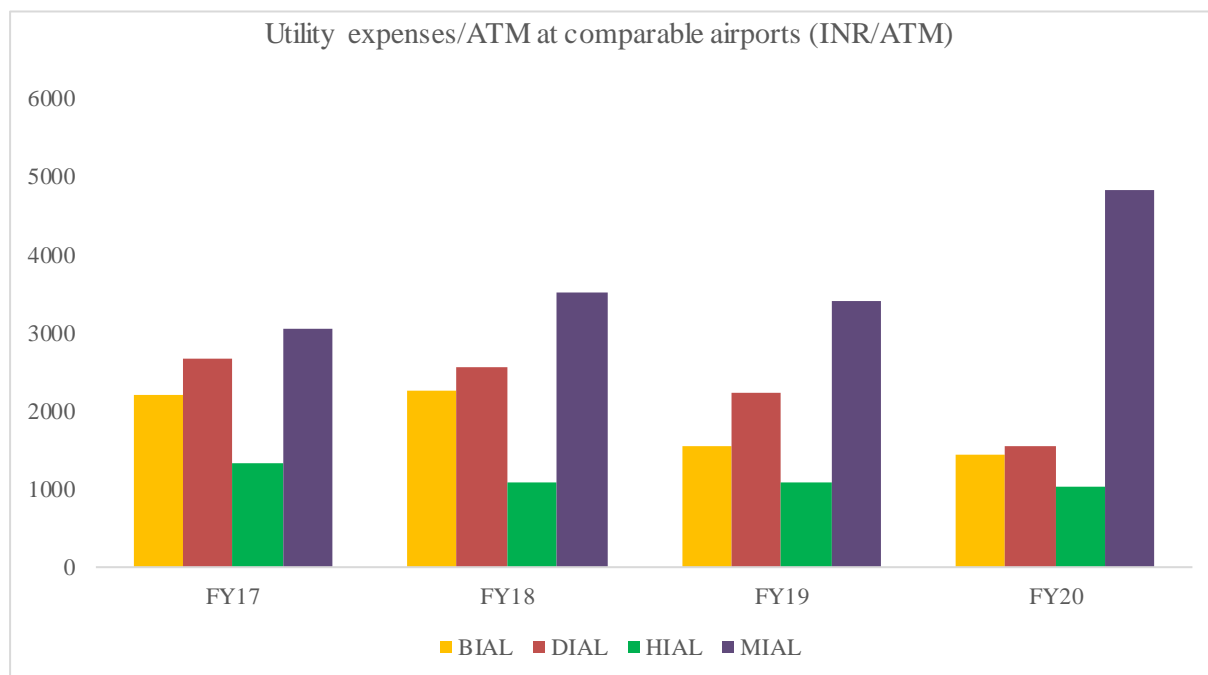


Figure 28: Trends in utility expenses/ATMs



Utility expenses are a function of the cost per unit consumption and the number of units consumed. Cost per unit consumption is dependent on the tariffs levied by the electricity distribution company which varies between the airports. Number of units consumed by the airport depends on the terminal area, layout of the airport, number of runways, etc. It is noted that BIAL has maintained its utility expenses at a similar level since FY2017 with an increase in traffic.

4.2.2.3 Insurance

The insurance expenses for comparable airports is given below:

Table 64: Insurance expenses for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	1.76	2.50	2.19	3.53
DIAL	7.16	6.63	5.65	10.97
HIAL	1.85	2.44	2.28	2.78
MIAL	3.94	4.15	4.93	4.58

Source: Annual reports of BIAL, DIAL and HIAL, MIAL 3rd CP order

It is noted that insurance expenses at the BIAL, MIAL and HIAL are at comparable levels.

4.2.2.4 Operations & Maintenance (O&M) expenses

The Repair & maintenance expenses (total) for comparable airports is given below:

Table 65: Repair & maintenance expenditure at comparable airports

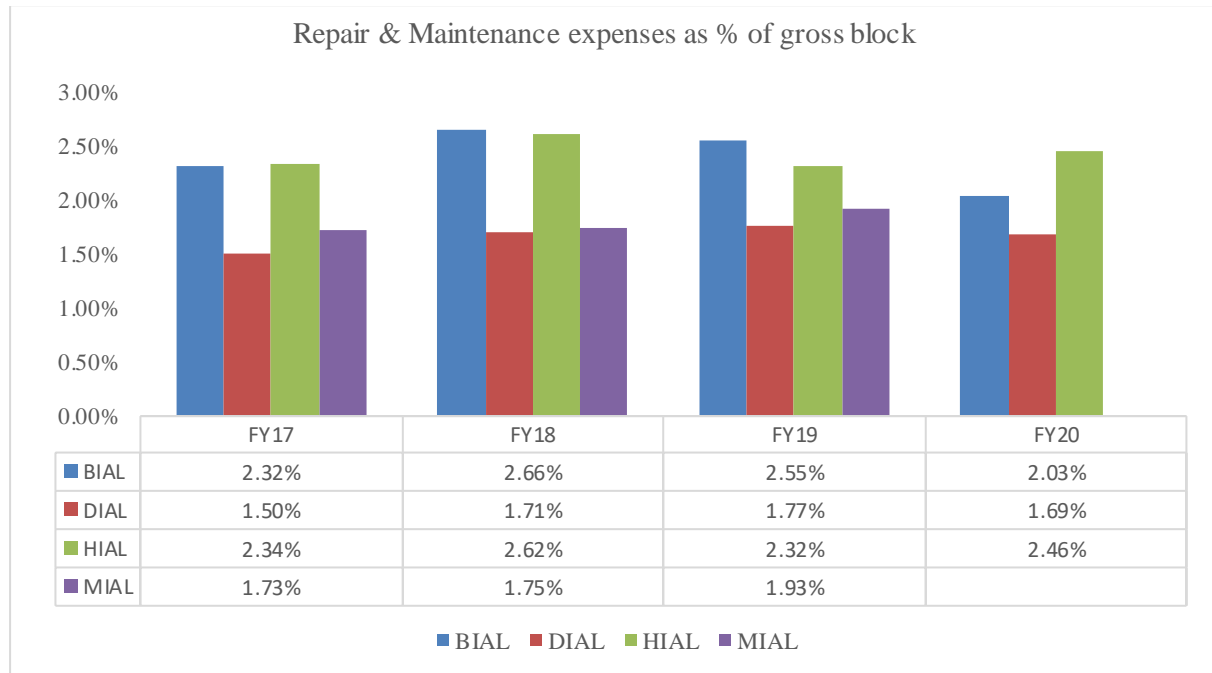
Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	90.02	107.74	107.01	126.27
DIAL	163.42	186.40	199.06	193.56
HIAL [#]	49.58	56.99	64.30	78.52
MIAL [#]	234.60	249.90	290.35	277.91

Source: Annual reports of BIAL, DIAL and HIAL, MIAL 3rd CP order

[#] includes operating and maintenance expenses

Repair & maintenance expenses as a % of gross block is given below:

Figure 29: Repair & maintenance expenses as a % of gross block



Maintenance cost is dependent on the airport size, age of the assets and non-recurring repair cost at the airport. From the above graph, it is noted that the R&M cost at BIAL appears reasonable in range of other airports.

The stores and spares expenses for comparable airports is given below:

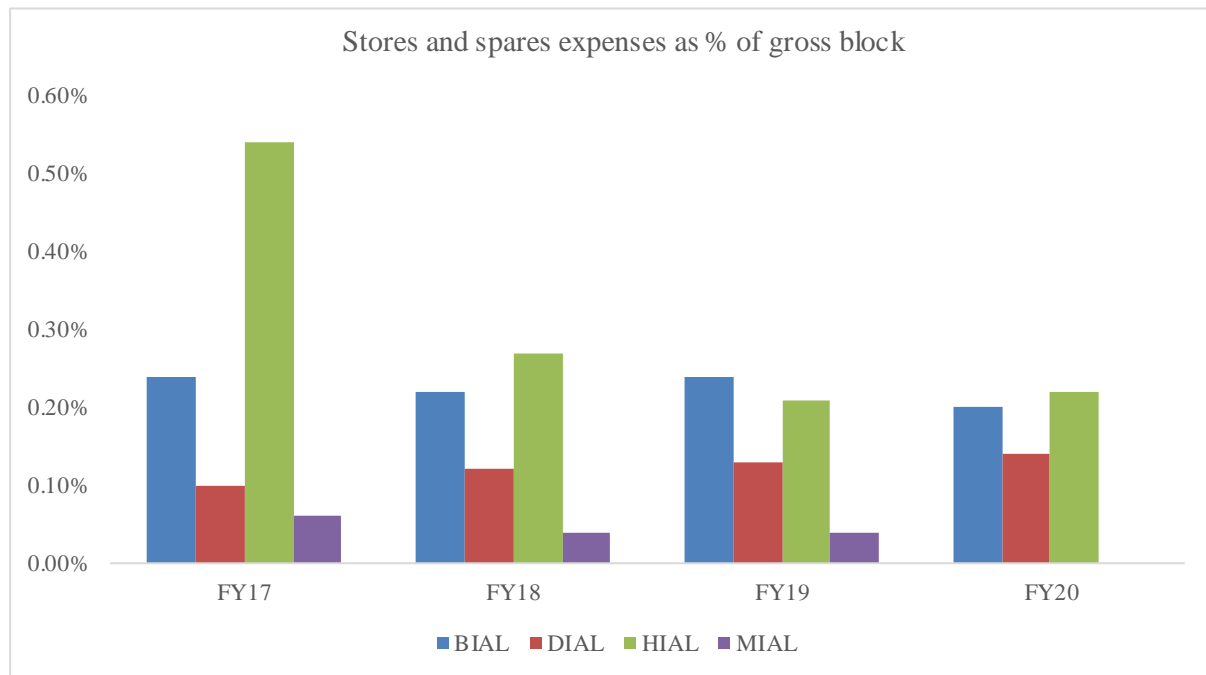
Table 66: Stores and spares expenses at comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	9.27	9.00	10.26	12.31
DIAL	11.30	12.73	14.62	16.27
HIAL	11.47	5.87	5.78	7.16
MIAL	8.23	6.07	6.60	6.34

Source: Annual reports of BIAL, DIAL and HIAL, MIAL 3rd CP order

Stores and spares expenses as a % of gross block is given below:

Figure 30: Stores and spares as a % of gross block



Stores and spares cost are dependent on the airport size and age of the assets. From the above graph, it is noted that the R&M cost at BIAL appears reasonable in range of other airports.

4.2.2.5 General admin & Marketing and advertisement

The General admin & Marketing and advertisement expenses for comparable airports is given below:

Table 67: General admin & Marketing and advertisement expenses for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	25.52	29.77	33.34	43.30
DIAL	123.34	116.13	111.45	161.14
HIAL	31.34	47.74	49.29	79.19
MIAL	103.12	97.95	103.70	88.10

Source: Annual reports of BIAL, DIAL and HIAL, MIAL 3rd CP order

The benchmarking for General admin & Marketing and advertisement expenses has been undertaken on per pax and per ATM basis:

Table 68: General admin & Marketing and advertisement expenses/ pax

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	11.15	11.06	10.01	13.38
DIAL	21.37	17.68	16.10	23.94
HIAL	20.75	26.29	23.03	36.57
MIAL	22.84	20.20	21.24	19.20

Table 69: General admin & Marketing and advertisement expenses/ ATM

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	1440	1515	1393	1880

DIAL	3101	2632	2421	3581
HIAL	2398	3192	2744	4317
MIAL	3376	3054	3228	2892

Figure 31: General admin & Marketing and advertisement expenses/pax

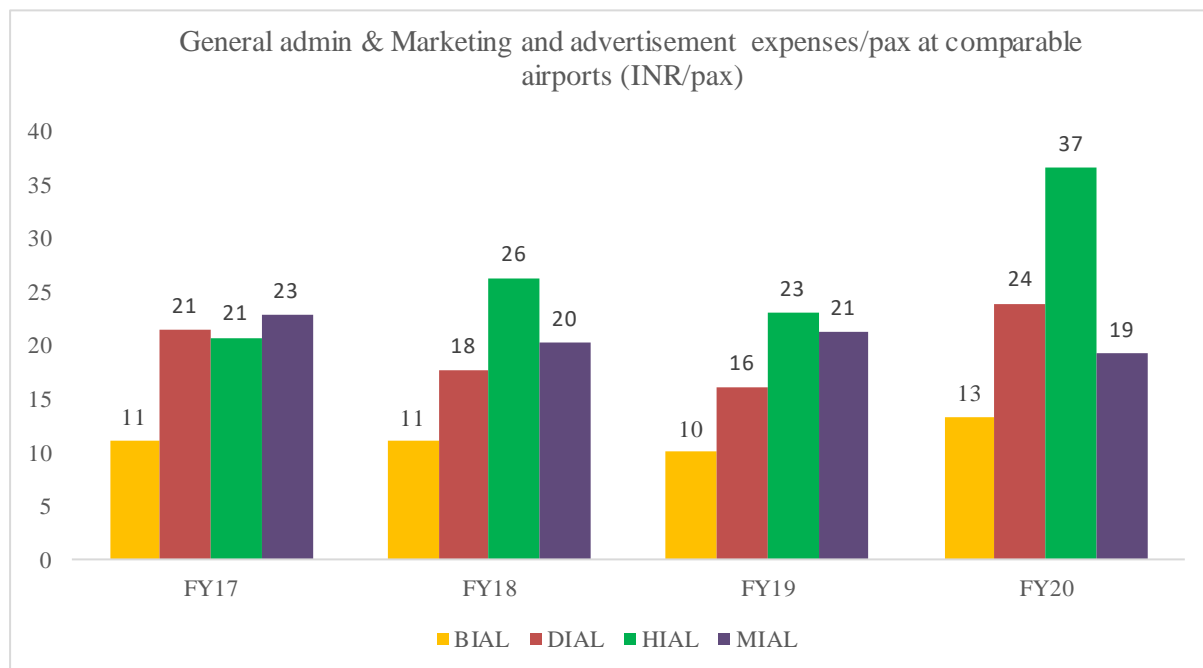
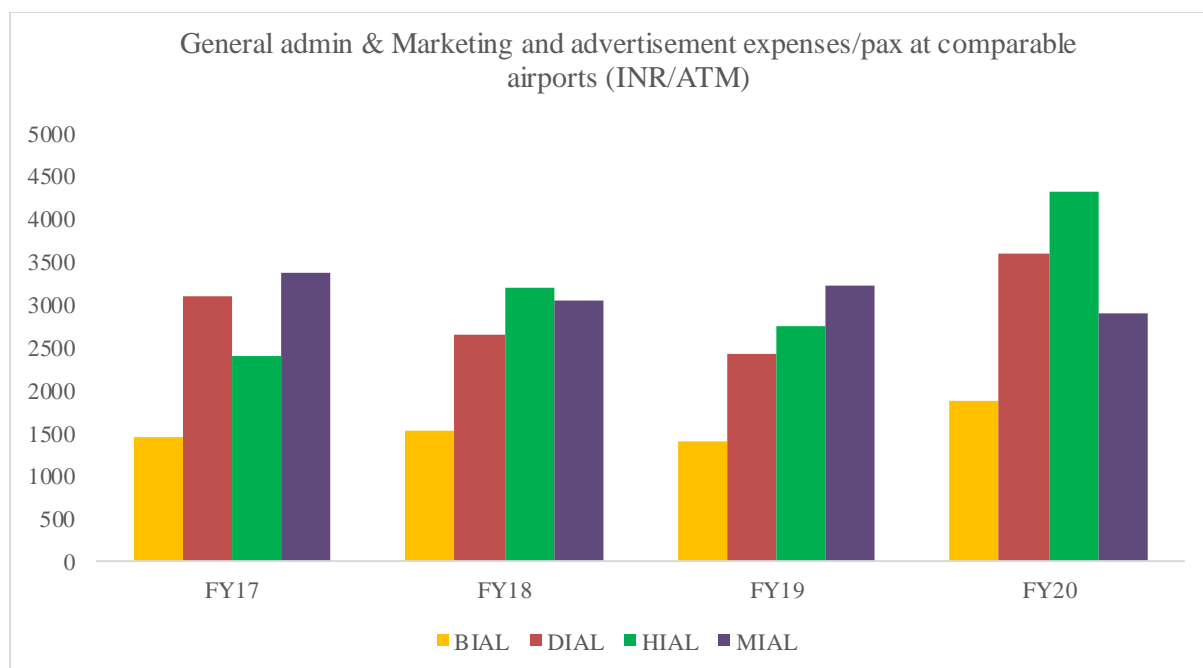


Figure 32: General admin and Marketing & advertisement expenses / ATM



From the above graphs, it is noted that the general admin & marketing and advertisement expenses at BIAL is lower than comparable airports.

4.2.2.6 Other Operational expenditure items

The other operational expenditure items at comparable airports (excluding the heads covered in the above sections) is given below:

Table 70: Other operational expenditure other than those covered above

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	34.24	29.69	54.10	54.94
DIAL [#]	422.61	496.59	538.86	427.66
HIAL	85.65	113.44	131.26	165.46
MIAL [*]	38.92	49.33		94.07

^{*}Data for FY2019 is not available [#]includes manpower outsourcing charges, airport operator fee, commercial property development etc.

It is noted that other operational expenses at BIAL are lower than comparable airports.

4.2.2.7 Total Operational expenditure

The total operational expenditure for comparable airports is given below:

Table 71: Total operational expenditure for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL [#]	318.57	344.44	397.44	469.60
DIAL	963.84	1096.92	1159.47	1088.68
HIAL [#]	257.03	315.22	373.11	469.74
MIAL [*]	679.00	718.00		820.03

Source: Annual reports of BIAL, DIAL and HIAL, MIAL 3rd CP order [#]excludes concession fees ^{*}Data for FY2019 is not available

The benchmarking for total operational expenditure has been undertaken on per pax and per ATM basis:

Table 72: Total operational expenditure/pax for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	139.23	127.99	119.32	145.11
DIAL	167.03	166.98	167.47	161.76
HIAL	170.19	173.61	174.32	216.95
MIAL [*]	150.37	148.05		178.76

^{*}Data for FY2019 is not available

Figure 33: Total operational expenditure/pax for comparable airports

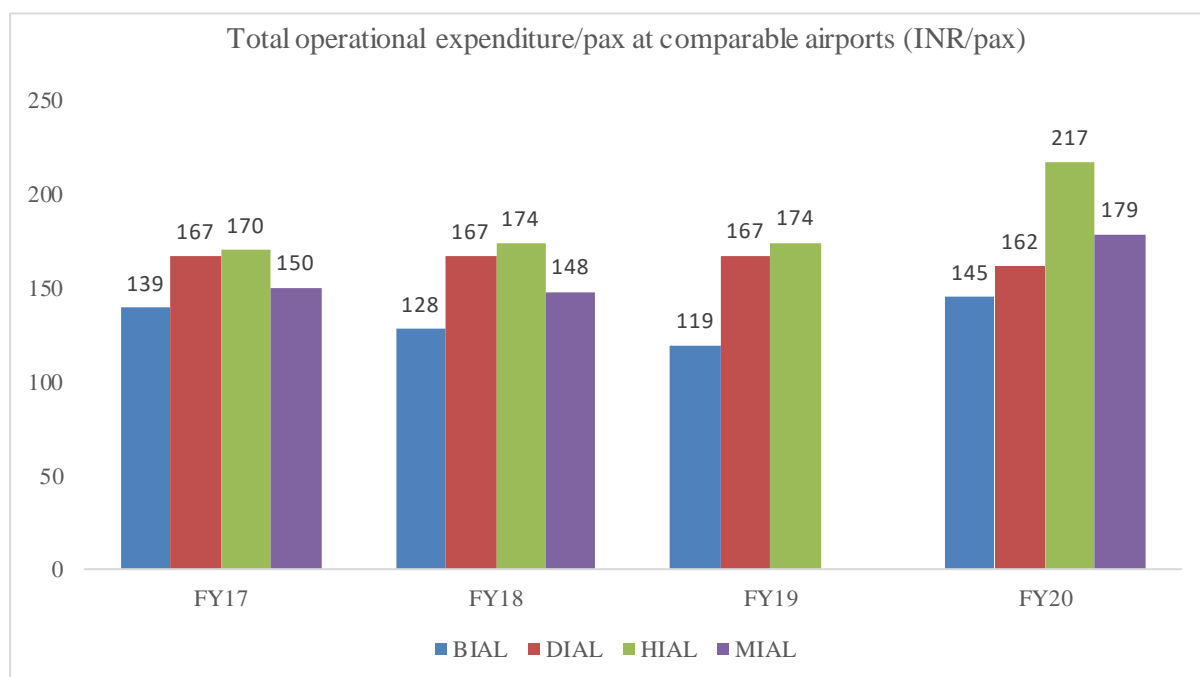
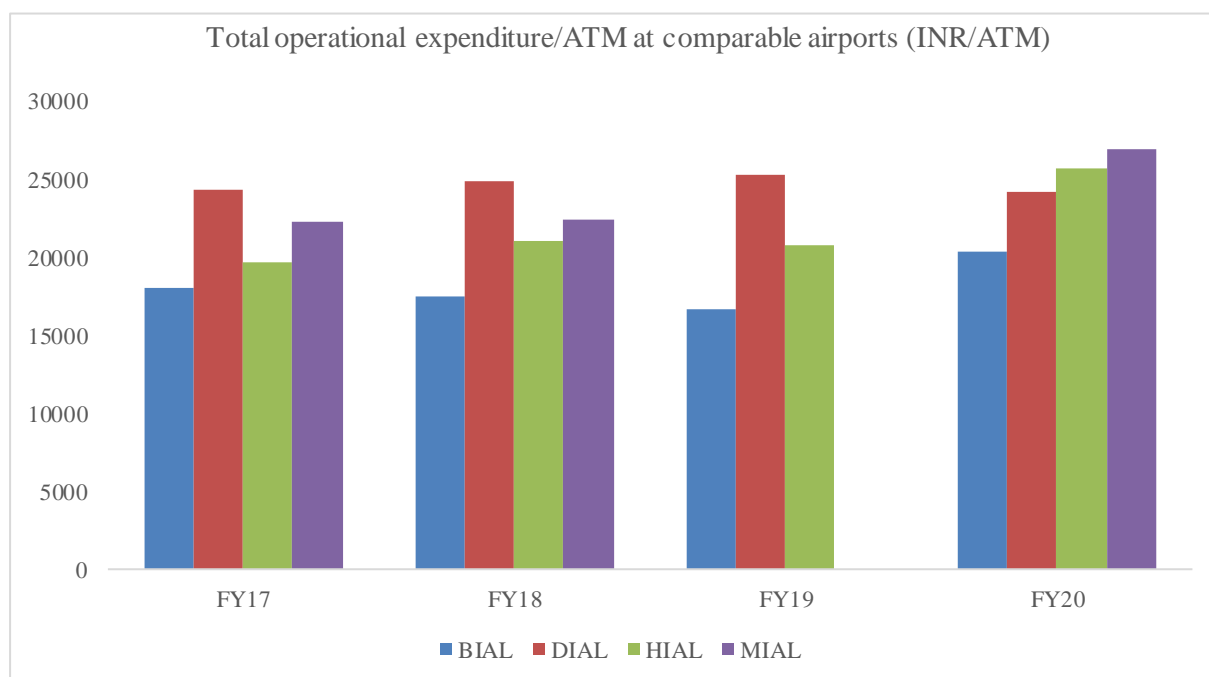


Table 73: Total operational expenditure/ATMs for comparable airports

Airports	FY 2017	FY 2018	FY 2019	FY 2020
BIAL	17971	17523	16602	20386
DIAL	24229	24857	25182	24192
HIAL	19664	21074	20774	25606
MIAL*	22228	22389		26915

*Data for FY2019 is not available

Figure 34: Total operational expenditure/ATM at comparable airports



It is noted from above analysis that, the overall (total) operational expenditure incurred by BIAL for the period FY 2017 – FY 2020 appears reasonable in range of other private airports in India.

4.3 Chapter Summary

This first section of this chapter focusses on performing internal benchmarking of BIAL's O&M costs by studying and analyzing the growth trends of various O&M cost components for the period FY 2012 – FY 2021. It is observed from internal benchmarking that for the period FY12 – FY21, the inflation adjusted costs per pax at BIAL has decreased for major heads except O&M which has shown a marginal increase due to the increase in capacity at the airport. The passenger mix at BIAL has been mainly domestic which constitutes more than 80% of total traffic at BIAL.

The second section of this chapter reviews external benchmarking of BIAL's O&M costs with other private airports in India namely DIAL, HIAL and MIAL.

In the external benchmarking review, it is noted that the airports differ from each other in many ways such as layout of the terminal building, capacity of the runway/ terminal/ apron, passenger mix, natural or man-made disruptions in operations, outsourcing of services, cost of living of a city, etc. These differences have significant impact on the operational expenditure at the airport.

Additionally, airports may follow varied approaches towards outsourcing of services at an airport. This can result in costs being recorded under different heads of operational expenditure for different airports. While differences on account of characteristics of an airport would have an impact on any comparison between airports, the difference on account of outsourcing is addressed to an extent while comparing overall costs between airports. It is noted that the metrics on overall (total) operational expenditure incurred by BIAL for the period FY 2017 – FY 2020 appears reasonable in range of other private airports in India.

5 SUMMARY OF THE STUDY

- a) BIAL was formed as a joint venture of private and public sector agencies in order to develop and operate the airport. The Karnataka State Industrial and Infrastructure Development Corporation (KSIIDC), a Public sector undertaking of the Government of Karnataka (GoK) and Airports Authority of India (AAI), a Government of India (GoI) undertaking, together hold 26% equity and the strategic joint venture partners hold the remaining 74%.
- b) The airport commenced operations on 24th May 2008 with a capacity of handling 11.4 million passengers.
- c) The total passenger traffic grew at a CAGR of 12.25%, CAGR of air traffic movement was 9.12% and CAGR of cargo traffic was 5.41% for the period FY2017 – FY2020.
- d) The Airport Service Quality (ASQ) of BIAL has shown an increasing trend in the second control period increasing from 4.84 in Q2 (2016) to 4.97 in Q2 (2020) for departure ASQ and 4.67 in FY2018 to 4.93 in FY2020
- e) BIAL has around 49 cost centres for mapping of costs to the relevant cost centre through ERP. All PRs are mapped to the relevant cost centres. A two-stage mapping is followed by BIAL – Initiating cost centre and End user cost centre. Though initiating cost centre could be E&M, ICT, etc. based on the technical requirements, End user cost centre captures the cost centre that will be utilizing the product/service procured. BIAL has submitted that this approach helps them in mapping the costs as Aero/Non-Aero/Common based on end user identification.

Segregation of costs

- f) There are 32 major departments/cost centers at BIAL that are further divided into 63 sub-cost centers and the segregation of all operation and maintenance costs into aeronautical, non-aeronautical and common is based on the nature of the sub-cost center. The common costs have been segregated based on the expense allocation ratio (based on directly attributable expenses).
- g) The summary of adjustments to the aeronautical expenses based on the results of this study is given in Table 31.

Trend Analysis

- h) The trend analysis of the various components of the inflation adjusted operational expenditure is undertaken for the period from FY 2017 to FY 2020 in comparison to the increase in the passenger traffic and capacity augmentation as given in Section 3. Based on the trend analysis, the reasons determined for increase in cost heads are given below:
 - i. Personnel cost – Personnel cost has increased from FY18 to FY19; however, it is noted that the employee cost per pax has seen a decreasing trend from FY 2018 to FY 2019 due to increase in the passenger traffic. The increase in the personnel cost from FY19 to FY20 is on account of the commissioning of the new south parallel runway in December 2019 and increase in the area of operations. Due to capacity addition by BIAL, the employee cost per pax has increased which is expected to gradually fall with the increase in utilization levels. The increase in the personnel cost from FY20 to FY21 is on account of the full year cost of the employees joined in FY20 and the hiring of the already rolled out offers by BIAL.
 - ii. Operational and maintenance (O&M) expenses - The O&M expenses as a % of gross block has increased from FY 2017 to FY 2019 due to increase in minimum wages and increased utilization of the terminal and single runway. The increase in O&M expenses in the FY 2020 is on account of the commissioning of the new south parallel runway. The O&M expenses as a % of assets has decreased in FY 2020 due to increase in the asset base.
 - iii. Marketing and Advertising - More than 85% of the expenses are attributable to two major heads namely Aviation marketing and contracts and BDMS – Marketing. The

Aviation marketing and contracts constitutes majorly of roadshows, pinnacle event, airline route launches, sponsorships and travel expenses while BDMS marketing constitute branding, brochures, event management and social and digital marketing. Increased spend on branding and marketing of the airport has resulted in increased cost/pax over these years. BIAL has not provided the justification for the increase in marketing and advertising costs. Therefore, the marketing and advertising expenses have been considered as per Table 46 based on the growth in passenger traffic and inflation.

- i) The trend in costs with respect to growth in traffic and capacity augmentation indicate that BIAL has maintained the efficiency in operational costs during the second control period.

Internal and External Benchmarking

- j) The internal benchmarking of BIAL's O&M costs is undertaken by studying and analyzing the growth trends of various O&M cost components for the period FY 2012 – FY 2021. It is observed from internal benchmarking that for the period FY12 – FY21, the inflation adjusted costs per pax at BIAL has decreased for major heads except O&M which has shown a marginal increase due to the increase in capacity at the airport.
- k) The external benchmarking of BIAL's O&M costs is undertaken with other private airports in India namely DIAL, HIAL and MIAL. It is observed that the metrics on overall (total) operational expenditure incurred by BIAL for the period FY 2017 – FY 2020 appears reasonable in range of other private airports in India.

Conclusion

- l) The airport operator, that is, BIAL had proposed a total operational expenditure of INR 2,290.07 cr., the aeronautical operational expenditure as INR 2,033.48 cr. and the non-aeronautical operational expenditure as INR 256.59 cr. for the second control period.
- m) Based on the study, the total operational expenditure is INR 2,241.31 cr. (based on audited financial statements) and the proposed aeronautical operational expenditure is INR 1,882.38 cr. for the second control period. Thus, resulting in a reduction of INR 151.10 cr. in the aeronautical operational expenditure for the second control period. The opex allocation ratio for the second control period as submitted by BIAL is 88.80% while that considered in the study is 83.99%.



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Dec 2020



भारतीय प्रबंध संस्थान बेंगलूर
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BANGALORE

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Dec 2020



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Executive Summary

This report provides an estimate of the Cost of Equity (CoE) for Bangalore International Airport Ltd (BIAL). A benchmark set of “comparable” international airports are used to estimate the systematic risk exposure of BIAL aero assets under a target gearing ratio, as described in the Capital Asset Pricing Model (CAPM). The Cost of Equity computation also accounts for BIAL specific attributes such as revenue till structure, ownership structure and scale of operations by using a proximity score weighted approach, which factors the closeness of BIAL to the set of “comparable” airports. Based on a reasonable set of assumptions, the report provides the following estimates of Cost of Equity:

Variable (Col 1)	BIAL (Col 2)
Asset Beta based on Proximity Score Weights of comparable set	0.564689
Target gearing ratio (Debt/Debt + Equity)	48%
Target gearing ratio (Debt/Equity)	0.9231
Equity Betas	0.9296
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.05%

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Chapter 1 – Introduction

The airport infrastructure sector has been undergoing a phased change during the past 15 years. The first Public Private Partnership (PPP) model of airport operations was implemented in Delhi, Mumbai, Bangalore and Hyderabad airports starting in 2004. While Delhi and Mumbai were brownfield projects, the other two were greenfield in nature. As with any infrastructure project, these projects involved high Capital Expenditure (CAPEX) and Operational Expenditure (OPEX) mobilization. To ensure viability of airport investment, it is standard practice to provide a reasonable return to investors by charging airport users an appropriate tariff.

The Airports Economic Regulatory Authority (AERA) was established in 2008 for fixing aero tariffs and User Development Fee (UDF) at different airports.¹ AERA uses the Capital Asset Pricing Model (CAPM) to determine the Cost of Equity (CoE) and hence the FRoR. As mandated by the Act, the tariffs are determined at a periodicity of 5 years. This report computes the CoE (and illustrates the process to compute FRoR) for the Bangalore International Airport Ltd. (BIAL).

1.1. Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) has evolved and has been used effectively for some time now across industries the world over. Equation 1.1 depicts the CAPM²

$$R_E = R_f + \beta_E (R_M - R_f),$$

Equation 1.1 – CAPM

where

R_E = Expected return (and the company's cost of equity capital)

R_f = Risk-free rate.

$R_M - R_f$ = Equity Risk Premium (ERP).

¹ <http://aera.gov.in> as viewed on 30th Nov. 2020.

² While in our study here, we have used the CAPM model, there are also other models available for exploration. Some of these being, the Arbitrage Pricing Theory and other variants of the CAPM (e.g., Breeden's Consumption CAPM and Merton's ICAPM) are theoretically sophisticated models that are more general than the CAPM. However, for all practical purposes, the plain CAPM is by far the most widely accepted model used to estimate the cost of capital.

β_E = Equity beta.

Various methods are employed for determining R_f , R_M and β_E . **We use this CAPM equation (Equation 1.1) throughout this report for the computation of Cost of Equity.**

The NIPFP study³ commissioned by AERA around 2011 had argued and proposed a rate between 11.64% and 13.84% as the Cost of Equity. However, the NIPFP study is dated in the sense that Equity Risk Premiums are time varying and the information set as of 2011 (the time-period of the NIPFP study) differs from the current information set (as of 2018). As is evident from Eq. (1), the rate of return or CAPM rate depends on 3 inherent factors.

- a. Risk-free rate, R_f
- b. Equity Risk Premium (ERP), $R_M - R_f$
- c. Equity β_E

While it is relatively easy to determine R_f , the other two factors are difficult to estimate in the case of India. Some estimates of the long-term Equity Risk Premium (ERP), and hence, long-term expected returns (R_M) by Damodaran⁴ and others^{5,6} are available in literature. The equity β_E estimation can also yield a range of values depending on the assumptions employed.

Fair Rate of Return (FRoR)

The Fair Rate of Return (FRoR) is essentially the weighted average cost of capital evaluated at a normative debt to equity ratio. It reflects the cost of equity and the cost of debt and can be thought of as the return demanded by the providers of capital (debt and equity holders). Using an illustrative cost of debt (since cost of debt must be estimated annually using the latest information), we illustrate the computation of FRoR in Chapter 3 (section 3.3.5 and Equation 3.4).

³ "Estimating Cost of Capital for Private Airports in India", NIPFP, Dec 2011

⁴ <http://pages.stern.nyu.edu/~adamodar/> as seen on 10 Sep 2018

⁵ Dimson, Marsh and Staunton (DMS); Triumph of the Optimists: 101 Years of Global Investment Returns (Princeton University Press, 2002)

⁶ The Global Finance Data (GFD) from www.globalfinancialdata.com as viewed on 28 Feb 2020

1.2. Overview of Airport Sector

Traditionally, airports have been managed by governments the world-over with private participation limited to fuel farms, cargo handling, etc. However, more recently, with demanding passengers (looking for better quality infrastructure with contemporary amenities), private participation has become imperative. It has been observed from experience in other sectors (e.g., ports, roads, etc.) that this mode of operation maximizes efficiency. Also, the government gains monetarily by selling its stake. The British Airports Authority or BAA was the first airport to be publicly listed and traded in 1987.⁷ However, owing to high losses triggered by expansions and high operating costs, it finally delisted in 2006. However, other airports like Auckland, Sydney, Thailand (AoT), Malaysia (MAHB), etc. have consistently been successful.

While privatization brings in efficiency and a level of comfort and luxury to the end user, it also imposes a cost on them. The cost is mostly levied in the form of tariffs and fees by the private operator to recoup the CAPEX and OPEX incurred. In order to protect the interests of the end user, regulatory authorities all over the world cap the tariffs that can be levied. For this purpose, airports are classified as based on a “Till Model” as follows:⁸

- Single Till – All airport revenues (including aero and non-aero) are taken into consideration when determining the level of airport usage charges.
- Dual Till – Only aero revenues are taken into consideration when setting airport usage charges.
- Hybrid Till – Aero revenues along with a percentage of non-aero revenues are considered for setting airport usage charges.

Typically, aero revenues include landing and parking charges, aerobridge usage charges, UDF, fuel throughput charges, and cute counter charges. Non-aero revenues would be car park charges at airport premises, hotels and other business establishments, duty free shops, etc. Cargo may be aero or non-aero depending on the regulatory norms.

⁷ <https://www.forbes.com/global/2003/0609/043.html#46dc54645c4b> as viewed on 28 Feb 2020

⁸ *Mark Smith, Brian Pearce; IATA Economics Briefing N°6: Economic Regulation

The breakeven revenue for a sustainable airport operation is estimated using Equation 1.2.

$$ARR = PV(ARR_t) = \sum_{t=1}^n (ARR_t), \text{ where}$$
$$ARR_t = (FRoR \times RAB_t) + D_t + O_t + T_t - (f \times NAR_t),$$

Equation 1.2 – Breakeven Returns

where

ARR = Aggregate **Aero** Revenue Requirement for a given time period

PV = Present Value

t = Estimation Time period

n = Max(t) in the current control period

FRoR = Fair Rate of Return

RAB = Regulatory Asset Base for a given Till

D = Depreciation

O = Operations' Cost

T = Tax Liability

NAR = Non-Aero Revenues

f = fraction of Non-Aero Revenue subsidising aero revenue

= 0 for dual till;

= 1 for single till;

= fraction (0, 1) for hybrid till.

BIAL uses a hybrid till structure with 30% of non-aero revenues (*f*, in Equation 1.2) subsidizing Aggregate Revenue Requirement (ARR).

1.3. Project Scope and Overview

This study proposes to build on the previous experiences of AERA to determine an appropriate CAPM rate for the Cost of Equity (CoE) for Bangalore International Airport Ltd. (BIAL) for the third control period (FY2021-22 to FY2025-26). It proposes to construct a series of scenarios for varying ERP and β_E . The scope of work involves:⁹

- a) Study of relevant environment, trends in airport capitalization

⁹ Ref Letter: AERA/20010/RFP Study/COE/ Hyd. & Bang/2019-20/13389-90 dated 19.12.2019.

- b) Study airport-specific determinants of Cost of Capital with specific focus on the Cost of Equity
- c) Recommendations on Cost of Equity
- d) Follow-on activities

The detailed “Terms of Reference”⁹ is provided in Appendix 1.

The next chapter (chapter 2) of this report starts with a study of airports’ regulatory practices all over the world. The emphasis here is on the regulatory bodies’ stance on the methodology for determining CoE for their jurisdictional airports. This is followed by a section on shortlisting airports that are similar in structure and operation vis-à-vis BIAL. **This “comparables” set is used to estimate the underlying beta risk and leverage – crucial inputs for determining CoE.** We analyze recent trends in the capitalization structure and funding mechanisms of these comparable firms and examine their performance in the recent past. This is followed by how CoE is determined in these airports and the takeaways for BIAL therein. In the next section, we provide details of unique features of the Indian market (e.g., demand outstripping supply, external shocks, etc.) that influence the CoE. Finally, we wind up this chapter with a discussion on the trends prevalent generally in other infrastructure space, e.g., Investment Infrastructure Trusts (InVITs).

Chapter 3 is devoted to estimating CoE. We first start by highlighting the methodology followed by data availability and collection. Next, the analyses of the said data with its assumptions and caveats are provided. Finally, we conclude this chapter with all the results. The key recommendations at the end of each discussion are given under the title of “Recommendations”, wherever applicable. A final summary of all recommendations made throughout this study is presented at the end of Chapter 3.

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Chapter 2 – Current Environment and Trends in Airports Capitalization

Airports were traditionally managed by their respective governments the world over. However, this trend has changed considerably in the past two decades. Demanding passengers and competition have forced privatization. A variety of uncertain factors, such as accurate demand estimation, regulatory environment, macro-economic environment, etc., play a major role in determining the economic viability of running an airport. Hence, private players demand some level of guaranteed returns on the equity they invest.

This chapter begins with an overview of the regulatory practices followed for various international airports, with emphasis on the regulatory bodies' stance on the methodology for determining CoE for their jurisdictional airports. Worldwide, the capital asset pricing model (CAPM) is used by regulators for determining the cost of equity for airports (as can be seen in Table R1, which provides information on the methodology used by various regulatory authorities for estimating the cost of equity). The key factor that drives the CAPM-based CoE estimate is the estimate of (beta) risk in an airport. We rely on a standard procedure of identifying comparable airports that will be used to estimate the (beta) risk of Bangalore airport. We measure the “comparability” of an international airport to Bangalore airport in terms of a proximity score that accounts for differences in three key dimensions that characterize the functioning of airports:

- (i) Revenue till mechanism
- (ii) Ownership structure
- (iii) Operations scale.

This analysis allows us to shortlist the most proximate airports into a set of comparable airports. Further downstream in chapter 3, we use this set of “comparables” to estimate the underlying beta risk and leverage – crucial inputs for determining CoE.

We analyze recent trends in the capitalization structure and funding mechanisms of these comparable airports and examine their performance in the recent past. We document these trends vis-à-vis the corresponding trends in Bangalore airport. This analysis helps us understand how other factors that are not explicitly accounted for in the CAPM methodology may provide guidance on the procedure of estimating the cost of equity of Bangalore airport. While a few interesting trends emerge from our analysis, we conclude that there are no

systematic conclusions that one can make regarding their impact on the cost of equity. More importantly, it is likely the case that (beta) risk factor in the CAPM methodology implicitly accounts for these trends.

In additional analysis, the following associated issues are also considered:

- (i) Internal rate of return based on book values.
- (ii) Evaluate the return implicit in a divestment transaction involving BIAL.
- (iii) Discuss trends in other infrastructure projects, for e.g., highway monetization using InVITs.

2.1. Airports' Economic Regulatory Framework Worldwide

In order to understand the regulatory framework across the world, we studied 12 countries' Regulatory Authorities regulating more than 25 airports. We documented the following:

- Till structure
- Methodology used to compute CoE
- Prescribed leverage
- Capitalization guidelines for airports

A detailed consolidation of the study is presented in Table R1. The following are the key takeaways:

- **Cost of Capital Methodology:**
 - None of the regulators mandate the use of CAPM as a method to estimate CoE but most airports use it as a standard.
 - Dublin (Ireland) uses a WACC methodology that incorporates additional factors, like passenger pass-through time, baggage handling time, etc.
- **Extent of Private Participation:** Except for the United Kingdom and Australia in the sample, governments hold more than 10% equity in their airports.
- **Till Structure:** Most airports apart from Singapore and Brazil follow a single or a dual till mechanism. Singapore and Brazil follow a hybrid till.
- **Leverage (D/E ratio):** The regulators do not mandate or limit the operators to follow a specific leverage. The 5-year actual leverage based on shareholders' fund (SF) and paid-up equity (PE) is discussed in Table R1.

- Changi Airport, wholly owned by the government, has the lowest leverage using both SF and PE, i.e., 6.80% and 13.62%, respectively, across all the international airports discussed here.
- Heathrow Airport has the highest leverage using both SF and PE, i.e., 83.41% and 99.79%. This situation arose because nominal share capital was reduced by a factor of 10 and transferred to distributable reserves, which were paid to equity holders. This action resulted in lowering of equity and thereby abnormally high leverages.
- Malaysia Airport Holdings Berhad (Holding Company) and Airports of Thailand (Holding Company) use a debt and equity mix (SF 43.75% and PE 66.15%) that matches the average leverage across all the international airports discussed here.
- **Dividend Distribution:** There is no mandate by any of the regulators to pay out dividends.
 - Malaysia Airport Holdings (MAHB) has made it a policy as a company to declare 50% of its profits as dividends.
 - Airports of Thailand have a policy of paying at least 25% of its profits as dividends.

Given this understanding of the international regulatory scenario and capitalization structure, we next move on to understand various international airports' operation in terms of their funding mechanism and returns they make for their private investors. For this purpose, we first shortlist a set of international airports based on their proximity to BIAL in these features. Next, we document the methodology used for shortlisting these airports.

Table R1: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds (Book Debt to Paid-Up Equity Capital) 5-Year Avg. Col(5)	Norm for Share Ownership Structure Col(6)
1	Australia ¹⁰	Australian Competition and Consumer Commission (ACCC)	Dual Till	Not mandated, but uses CAPM, by way of Building Block Methodology.	<ul style="list-style-type: none"> • Sydney – 72.00% (49.48%) • Melbourne – 75.78% (95.96%) 	<ul style="list-style-type: none"> • ACCC does not mandate. • The top 21 holders (~91.20% holding) in Sydney do not include any of the government authorities.
2	New Zealand ¹¹	Commerce Commission (CC)	Dual Till	<ul style="list-style-type: none"> • Not Mandated • The CC takes an expert opinion from NERA Economic Consulting (which uses CAPM) • CC computes WACC as per best available estimates, defining a range. • The commission then compares it with post-tax IRR, a combination of target returns for Aeronautical Pricing Activities and the forecast revenue of other regulated activities. • CC checks whether the IRR falls within WACC range as computed earlier and makes a decision on WACC with the help of substantial supportive information. 	<ul style="list-style-type: none"> • Auckland – 28.61% (81.33%) 	<ul style="list-style-type: none"> • CC does not mandate. • But in Auckland, ~81.9% of the total shares are publicly held and traded. • Again ~18.1% of the shares are held by Auckland Municipal council
3	United Kingdom ¹²	Civil Aviation Authority (CAA)	Single Till	<ul style="list-style-type: none"> • Not Mandated • However, CAA uses CAPM 	<ul style="list-style-type: none"> • Heathrow – 83.41% (99.79%) • Gatwick – 80.14% (82.79%) 	<ul style="list-style-type: none"> • CAA does not mandate

¹⁰ <https://www.accc.gov.au/>

¹¹ <https://comcom.govt.nz/>

¹² <https://www.caa.co.uk/home/>

Table R1: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds (Book Debt to Paid-Up Equity Capital) 5-Year Avg. Col(5)	Norm for Share Ownership Structure Col(6)
4	South Africa ¹³	No information available publicly	Single Till	<ul style="list-style-type: none"> Airport charges are regulated through the use of a price cap formula¹³ CPI-X, which limits the increase in a basket of revenue weighted tariffs to a rate of inflation (efficiency factor – X) The X-factor is determined by applying the building blocks methodology whereby each block of activities is identified, namely operating costs, depreciation, return on capital and taxation. 	Data Not Available	No mandated norm but South African government owns 74.6%
5	South Korea	No information available publicly.				
6	Malaysia ¹⁴	Malaysian Aviation Commission (MAVCOM - Primary Economic Regulator)	Single Till	<ul style="list-style-type: none"> Not Mandated MAVCOM uses CAPM to estimate cost of equity. 	Malaysia Airport Holdings Berhad (MAHB) – 43.75% (74.46%)	Malaysia Airports owns several airports across Malaysia. Retail shareholders hold~53.7% in MAHB.
7	Ireland ¹⁵	Commission for Aviation Regulation (CAR)	Single Till	<ul style="list-style-type: none"> Not mandated Uses CAPM to compute WACC with additional factors like load, baggage handling time, etc.¹⁵ 	Dublin Airport Authority PLC – 48.26% (84.75%)	State ownership
8	Indonesia	No information available publicly.				

¹³ <http://www.airports.co.za/business/investor-relations/economic-regulation>

¹⁴ <https://www.mavcom.my/en/home/>

¹⁵ <http://www.aviationreg.ie/fileupload/2014final/2014%20Final%20Determination.pdf>

Table R1: Regulatory Framework Worldwide

S. No.	Country Col(1)	Regulating Authority Col(2)	Norms for Till Specified Col(3)	Calculation of COE specified(Yes/No) Col(4)	Book Debt to Shareholders' Funds (Book Debt to Paid- Up Equity Capital) 5-Year Avg. Col(5)	Norm for Share Ownership Structure Col(6)
9	Singapore ¹⁶	Civil Aviation Authority of Singapore	Hybrid Till (70– 80%) ¹⁶	CoE is computed as a sum of: <ul style="list-style-type: none"> • Computed pre-tax weighted average cost of capital (WACC) on the average regulated asset base. • Computed pre-tax WACC on the average security asset base not recovered 	Changi Airport Group – 6.80% (13.62%)	Fully government owned
10	Netherland ¹⁷	Human Environment and Transport Inspectorate	Dual Till	Mandates use of WACC based on CAPM	Schipol Group – 34.52% (95.98%)	PPP
12	Thailand ¹⁸	Civil Aviation Authority of Thailand	Dual Till	Not mandated but uses CAPM	Airports of Thailand – 20.90% (66.15%)	70% mandatorily government owned
13	Brazil ¹⁹	National Civil Aviation Agency (ANAC)	Hybrid Till	<ul style="list-style-type: none"> • Not Mandated • ANAC uses CAPM to estimate cost of equity. 	Data Not Available	PPP up to 60% observed

¹⁶ <https://www.caas.gov.sg/>

¹⁷ <https://english.ilent.nl/>

¹⁸ <https://www.caat.or.th/en/>

¹⁹ <http://www.anac.gov.br/en>

2.2. Comparable Airports (Comparable to BIAL)

The above table (Table R1) provides information on airports in different jurisdictions and assesses the existence of airport data). Europe, South Africa, South East Asia, and Australasian regions were deemed to be relevant for the study. Middle East (hub airports) and China (lack of credible data), the Americas (different environment) were excluded. Next, within the four regions, the study narrowed down on 12 airports: Sydney, Melbourne, Auckland, MAHB, AoT, Changi, Incheon, Heathrow, Gatwick, Dublin, Amsterdam, and Johannesburg. Although Table R1 provides information on Brazil, we excluded it because it lies in the Americas (different environment). Then, we assessed the (proximity score) of each international airport to BIAL based on the following parameters.

- Revenue till structure:
 - 1 – Single Till or where information is not available
 - 2 – Dual Till
 - 3 – Hybrid Till
- Ownership structure:
 - 1 – if 100% Government Owned/Funded
 - 2 – if Government / private owned/funded, not being Public Private Partnership
 - 3 – if Public Private Partnership Funded
- Operations Scale (OpS): For each comparable airport, k , we computed the ratios of passenger, cargo, and aircraft movement of these airports to that of BIAL in each of the years from 2015 to 2017. Note that all comparable airports are international airports. These ratios are based on past 3 years' data as available from the respective airports' websites/annual reports. Next, an equal weighted sum for these airports is computed using average of the ratios under each category (passenger, cargo and air traffic) as per Equation 2.1²⁰:

²⁰ By construction, the *OpS* score for BIAL with respect to BIAL (itself) would be 3. To see this, note that each of the ratios (R_{pi} , R_{ci} , R_{Ai} , for passenger, cargo and air traffic, respectively) for a given year would be equal to 1 by definition, and therefore an equally weighted average of these ratios must be equal to 1. Then, cumulating these numbers over the 3 years (2015 to 2017) would yield an *OpS* score of 3. If the *OpS* score for an international

$$OpS_k = \sum_{i=2015}^{i=2017} \left(\frac{1}{3}\right) * R_{Pi} + \left(\frac{1}{3}\right) * R_{Ci} + \left(\frac{1}{3}\right) * R_{Ai}$$

Equation 2.1 – Operations Scale

where

OpS_k = Operations scale for comparable airport k

i = Year 2015, 2016 and 2017

R_{Pi} = Ratio of passengers of the comparable airport to that of Bangalore airport,

Equation 2.2,

$$R_{Pi} = \frac{P_i}{P_B}$$

Equation 2.2 – Passenger Ratio

P_i = No. of passengers for the comparable international airport in year i

P_B = No. of passengers for BIAL in year i

R_{Ai} = Ratio of aircraft movements of the comparable airport to that of Bangalore airport,

Equation 2.3 – Air Traffic Ratio,

$$R_{Ai} = \frac{A_i}{A_B}$$

Equation 2.3 – Air Traffic Ratio

A_i = No. of aircraft movements for a comparable international airport in year i

A_B = No. of aircraft movements for BIAL in year i

R_{Ci} = Ratio of cargo of the comparable airport to that of Bangalore airport, Equation 2.4,

$$R_{Ci} = \frac{C_i}{C_B}$$

Equation 2.4 – Cargo Ratio

airport from the comparable set with respect to BIAL is 6, then we can conclude that the international airport's scale of operation is about twice (score of 6 divided by 3) of that of BIAL.

C_i = Total cargo movement in metric tonne for a comparable international airport in year i

C_B = Total cargo movement in metric tonne for BIAL in year i

- Finally, the proximity score for comparable airport, k , with respect to Bangalore airport (B) is denoted by $PS_{k,B}$. It is the net Euclidean Distance from each of the parameters w.r.t. BIAL (Equation 2.5)

$$PS_{k,B} = \sqrt{(RT_B - RT_k)^2 + (OS_B - OS_k)^2 + (OpS_B - OpS_k)^2}$$

Equation 2.5 – Proximity Score w.r.t. BIAL

RT_B = Revenue Till Score of BIAL

RT_k = Revenue Till Score of comparable airport, k

OS_B = Ownership structure Score of BIAL

OS_k = Ownership structure Score of comparable airport, k

OpS_B = Equal Weighted Operations Scale of BIAL

OpS_k = Equal Weighted Operations Scale of comparable airport, k

Table 2.1 reports the scores of all airports considered with their weights w.r.t. BIAL. As observed, Incheon Airport is out of bounds w.r.t BIAL. We discard this in the final analysis.

Intuition of the Proximity Score

The Proximity Score provides a Euclidean distance measure of a benchmark airport (from the comparable set) relative to the airport under consideration (BIAL, in this case). The proximity score considers three dimensions of comparison: (i) till mechanism, (ii) ownership structure, and (iii) operational scale. By construction, the proximity score for BIAL would be 0, but the proximity score of the benchmark international airport in the comparable set would depend on how different it is with respect to BIAL, with a high score indicating a dissimilar airport and a low score indicating a more similar airport.

Table 2.1: Proximity scores of different airports w.r.t BIAL

The table represents the difference between the scores for BIAL and the respective airport. The proximity score is defined as $\mathbf{PS}_{k,B} = \sqrt{(\mathbf{RT}_B - \mathbf{RT}_k)^2 + (\mathbf{OS}_B - \mathbf{OS}_k)^2 + (\mathbf{OpS}_B - \mathbf{OpS}_k)^2}$, where RT stands for revenue till, OS is Ownership and Funding Mechanism, and OpS is Operations. The subscripts B and k represent Bangalore and the comparable airport, respectively. MAHB is the holding company of Kuala Lumpur Airport. AoT is the holding company of Bangkok Airport.

S. No.	Airport (Col 1)	Revenue Till ($RT_B - RT_k$) (Col 2)	Ownership Structure ($OS_B - OS_k$) (Col 3)	Operations ($OpS_B - OpS_k$) (Col 4)	Proximity Scores ($PS_{k,B}$) (Col 5)
	Bangalore	0.00	0.00	0.00	0.0000
1	Auckland	1.00	1.00	0.62	1.5449
2	Melbourne	1.00	1.00	-0.89	1.6716
3	Johannesburg	2.00	1.00	-0.04	2.2364
4	Gatwick	2.00	1.00	-0.94	2.4245
5	Sydney	1.00	1.00	-2.32	2.7171
6	Dublin	2.00	2.00	0.17	2.8333
7	Amsterdam	1.00	1.00	-8.34	8.4582
8	Changi	0.00	2.00	-8.34	8.5737
9	Heathrow	2.00	1.00	-8.75	9.0281
10	MAHB	2.00	1.00	-9.87	10.1161
11	Incheon	2.00	2.00	-10.36	10.7347
12	AoT	1.00	1.00	-11.83	11.9111

We have excluded the US and Canadian airports as their administrative, operations and governance structure are significantly different from this set. Also, there is negligible government participation in these airports. The Brazilian airports are relatively new to the concept of privatization (~2011). Hence, we did not include airports from Brazil also.

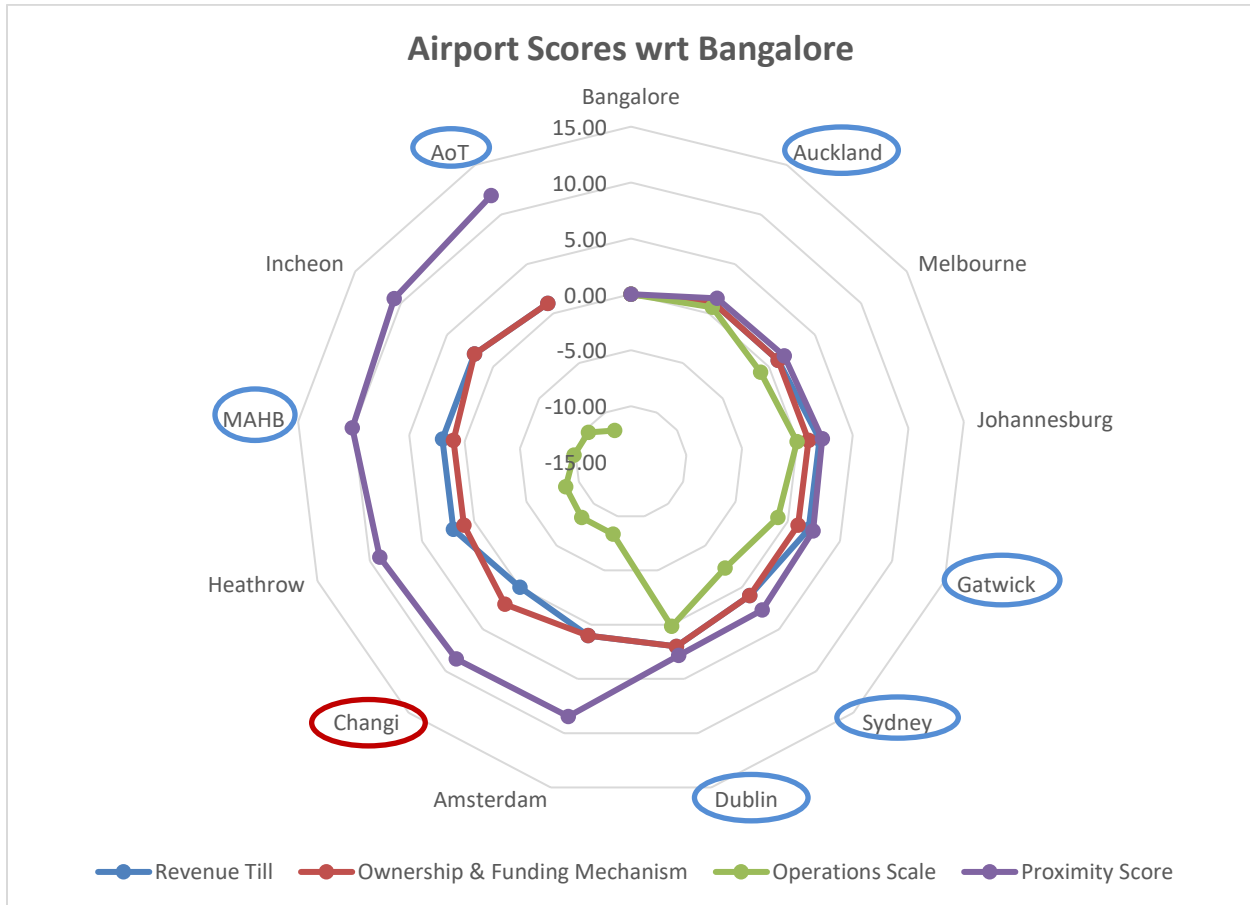
We shortlisted 7 airports for a detailed study based on the overall proximity scores of these airports. The criterion for the shortlist was governed by the proximity score, data availability, and to ensure that we have a healthy mix of similarity and dissimilarity to compare as well as contrast. *Fig 2.1* map these airports w.r.t. BIAL on a radar chart based on their proximity scores. The radar chart sweeps in the clockwise direction, with the proximity score spiraling outwards. The scores range from ~1.5449 for Auckland to ~11.9111 for AoT. The lower the score, the nearer the airport is w.r.t. BIAL.

We adhered to three principles in determining the comparison set of international airports: (i) listed airports that provided market-based price data are preferred to unlisted airports, (ii) if an airport is unlisted, we seek credible beta information from regulatory authority, if available in public domain, and (iii) among comparison airports in the same geography/jurisdiction, we give preference to the listed airports, and among the listed airports, the one with more proximity.

Heathrow was excluded from the list to avoid geographical clustering (giving preference to Gatwick because of its proximity to BIAL). In the case of Australia, regulators do not provide any information on asset beta. The only recourse to a good estimate of beta is to rely on market information. Since Sydney is a listed airport, we can estimate Sydney airport's beta using market data. Melbourne airport is unlisted, and the regulatory authority also does not provide any estimate of beta. Thus, we prefer to include Sydney airport in our comparison set despite Melbourne airport being more proximate to BIAL because Sydney airport's beta estimates can be reliably computed using market price data. Also, lack of comprehensive data made us exclude Amsterdam airport, Incheon airport, and Johannesburg airport.

Fig 2.1: Airport Proximity Scores w.r.t. Bangalore

The chart depicts the scores of various parameters (Revenue Till, Ownership Structure, Operations and the Overall Proximity Score) of various international airports w.r.t. BIAL. All scores originate at BIAL (all scores are 0 here). As one sweeps clockwise, the Proximity Score moves away from Bangalore, thus making Auckland the nearest airport to Bangalore and AoT the farthest. Negative scores are possible only for Operations score. Heathrow airport was excluded to avoid geographical clustering (giving preference to Gatwick). The 6 airports (Sydney, Gatwick, Auckland, MAHB, AoT and Dublin) encircled in **blue** and 1 airport (Changi) encircled in **red** are used for comparative study vis-à-vis BIAL (sec 2.2). The airports encircled in **blue** (Sydney, Gatwick, Auckland, MAHB, AoT and Dublin) are used for asset beta computation of BIAL as discussed in chapter 3 (sec 3.2.1). MAHB is the holding company of Kuala Lumpur Airport. AoT is the holding company of Bangkok Airport.



Data Sources: Individual airports' website; balance sheets and regulators' website.

Recommendations (Comparable Set of International Airports for BIAL)

- *The study considered different jurisdictions and assessed the existence of airport data and the relevance of the airport (See Table R1 of the study). Europe, South Africa, South East Asia, and Australasian regions were deemed to be relevant for the study. Middle East (hub airports) and China (lack of credible data), the Americas (different environment) were excluded. Next, within the four regions, the study narrowed down on 12 airports: Sydney, Melbourne, Auckland, MAHB, AoT, Changi, Incheon, Heathrow, Gatwick, Dublin, Amsterdam, and Johannesburg. These airports were considered for determining the proximity score because traffic density data was available.*
- *For estimating the asset beta (Chapter 3), we adhered to three principles in determining the comparison set of international airports: (i) listed airports were preferred to unlisted airports, (ii) if the airport is unlisted, we sought credible beta information from the regulatory authority, if available in public domain, and (iii) among comparison airports in the same geography/jurisdiction, we gave preference to the listed airports, and within the listed airports, the one with more proximity.*
- *The final comparison set for estimating asset beta consists of 6 airports (2 from Australasia – Sydney and Auckland, 2 from South East Asia – MAHB and AoT, and 2 from Europe - Gatwick, and Dublin). These airports were finally considered based on availability of market price data and the experience of the regulatory authority in assessing airport beta. The geographic spread of comparison set airports gives us confidence that the estimation of asset beta is robust.*
- *In the set of 6 airports considered for estimating asset beta, 4 airports are from developed countries and 2 airports from developing countries. Note that Indian airports face less demand risk because of generous true-ups offered in the PPP agreement. Thus, Indian airports are unlikely to face more systematic risk than developed country airports and can be benchmarked against comparable developed country airports in the comparison set.*
- *In the case of Australia, regulators do not provide any information on asset beta. Therefore, including a listed airport (Sydney) is preferable to including Melbourne because beta estimates can be reliably computed using market price data.*

We next analyze these airports vis-à-vis BIAL for its capitalization structure, funding mechanism and investors' returns.

2.2.1. Capitalization and Ownership Structure

Heathrow is 100% privately owned by Heathrow Airport Holdings Limited with no government stake. The erstwhile government entity of British Airports Authority (BAA) was privatized in 1987 and raised capital through the open market. It also constituted a part of FTSE 100 with peak operating profits of GBP 11 million in the mid-1990s. It was delisted in

2006 following a takeover by a consortium of operators led by Spanish MNC, Ferrovial, S.A. This consortium currently operates Heathrow. Its current ownership structure is shown Table 2.2.²¹

The Gatwick airport was also originally part of BAA and then Ferrovial, S.A. However, subsequent stake sales have altered the ownership structure. Table 2.3 shows the current pattern.

Table 2.2: Ownership structure of Heathrow Airport

Shareholders (Col 1)	Share (Col 2)
Ferrovial	25.00%
Qatar Holding	20.00%
Caisse de dépôt et placement du Québec	12.62%
Government of Singapore Investment Corporation	11.20%
Alinda Capital	11.18%
China Investment Corporation	10.00%
Universities Superannuation Scheme	10.00%
Total	100.00%

Source: <https://www.heathrow.com/company/investor-centre/investor-presentations>

Table 2.3: Ownership structure of Gatwick Airport

Shareholders (Col 1)	Share (Col 2)
VINCI SA	50.01%
Other Shareholders (undisclosed)	49.99%
Total	100.00%

Source: <https://www.gatwickairport.com/globalassets/business--community/investors/april-2020/ivy-holdco-limited-consolidated-financial-statements-31-december-2019.pdf>

²¹ <https://www.heathrow.com/company/investor-centre/investor-presentations> as viewed on 12 Dec 2020

Sydney and Auckland are publicly listed companies with the ownership structure as depicted in Table 2.4 and Table 2.5, respectively.

Table 2.4: Ownership structure of Sydney Airport

Shareholders (Col 1)	Share (Col 2)
HSBC Custody Nominees (Australia) Limited	26.9%
BNP Paribas Nominees Pty Ltd	18.4%
J P Morgan Nominees Australia Limited	12.8%
Citicorp Nominees Pty Limited	6.6%
Balance Retail Holdings	35.3%
Total	100.00%

Source:

https://assets.ctfassets.net/v228i5y5k0x4/4VyuoCbo3sqHVBggCxV7h3/5ad8f884f3ac89516391d8ea459d50ff/SYD_Annual_Report_2019_FINAL.pdf

Table 2.5: Ownership structure of Auckland Airport

Shareholders (Col 1)	Share (Col 2)
Auckland Council Investments Limited	18.09%
Balance Retail Holdings	81.91%
Total	100.00%

Source:

<https://corporate.aucklandairport.co.nz/investors/results-and-reports>

The two major international airports at Bangkok (Suvarnabhumi Airport and Don Mueang) are owned and operated by a holding company, Airports of Thailand Public Company Limited (AoT). This holding company is a government-owned publicly listed company.²² Totally, 70% of the ownership is held by the state's Finance Ministry with foreign ownership capped

²² www.airportthai.co.th as viewed on 28 Feb 2020

at 30%, other major shareholders include Thai NVDR Company Limited (4.49%), South East Asia UK (Type C) Nominees Limited (2.76%) and State Street Europe Limited (1.67%).

The Kuala Lumpur airport manages on very similar lines of Bangkok by Malaysia Airport Holdings Berhad (MAHB), a holding company, in Table 2.6.

Table 2.6: Ownership structure of Malaysia Airport Holdings Berhad (MAHB)

Shareholders (Col 1)	Share (Col 2)
Khazanah Nasional Berhad	33.21%
Citigroup Nominees (Tempatan) Son Berhad (Employees Provident Fund Board)	13.06%
Balance Retail Holdings	53.73%
Total	100.00%

Source: https://mahb.listedcompany.com/misc/ar/mahb_ar2019.pdf

The Changi airport and Dublin airport are fully state-owned airports, through subsidiary companies.

Majority stake in BIAL is held by a consortium led by the FIH Mauritius Investments Ltd. The shareholding patterns of the four (4) major Indian private airports (Bangalore, Delhi, Mumbai, and Hyderabad) are provided in Table 2.7 through Table 2.10. The Indian government (state/central or their subsidiary) has a 26% stake in each of these.

Table 2.7: Ownership structure of Bangalore International Airport Ltd. (BIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	13.00%
Karnataka State Industrial and Infrastructure Development Corporation Limited (KSIIDC)	13.00%
Siemens Project Ventures GmbH	20.00%
FIH Mauritius Investments Limited	54.00%
Total	100.00%

Source: Website of BIAL²³

Table 2.8: Ownership structure of Delhi International Airport Ltd. (DIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	26.00%
GMR Airports Limited	64.00%
Fraport AG Frankfurt Airport Services Worldwide	10.00%
Total	100.00%

Source: Annual Report of DIAL 2019-20

²³ <https://www.bengaluruairport.com/corporate/about-bial.html> as viewed on 12 Dec 2020.

Table 2.9: Ownership structure of Mumbai International Airport Ltd. (MIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	26.00%
Adani Group	74.00%
Total	100.00%

Source: Business Standard, 1 Sep 2020²⁴

Table 2.10: Ownership structure of Hyderabad International Airport Ltd. (HIAL)

Shareholders (Col 1)	Share (Col 2)
Airport Authority of India	13.00%
Government of Telangana	13.00%
MAHB (Mauritius) Private Limited	11.00%
GMR Airports Limited	63.00%
Total	100.00%

Source: Website of HIAL²⁵

2.2.2. Funding Mechanism

As highlighted in Table 2.4 and Table 2.5, the Asset Management Companies (AMCs) and pension funds are a major shareholder in Australia and New Zealand. In the case of Malaysia and Thailand, the holding company is listed.

2.2.3. Trends in Airports Operations'

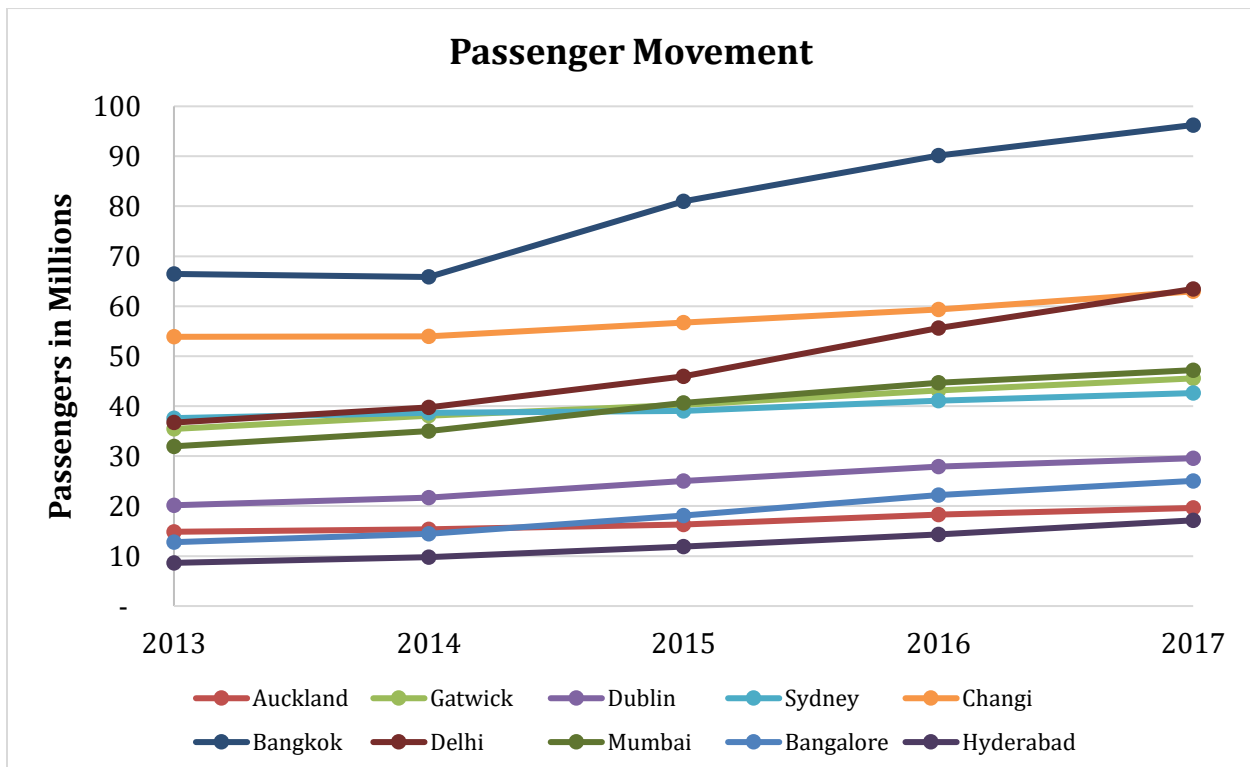
Fig 2.3 – Fig. 2.6 show the recent trends of passenger movement, total revenue, revenue/passenger and Earnings After Tax (EAT) for all airports. As seen from these charts, all parameters indicate a healthy state, with the following key takeaways:

²⁴ https://www.business-standard.com/article/companies/adani-group-acquires-74-per-cent-stake-in-mumbai-international-airport-120083100215_1.html as viewed on 12 Dec 2020.

²⁵ <https://www.hyderabad.aero/our-company.aspx> as viewed on 12 Dec 2020.

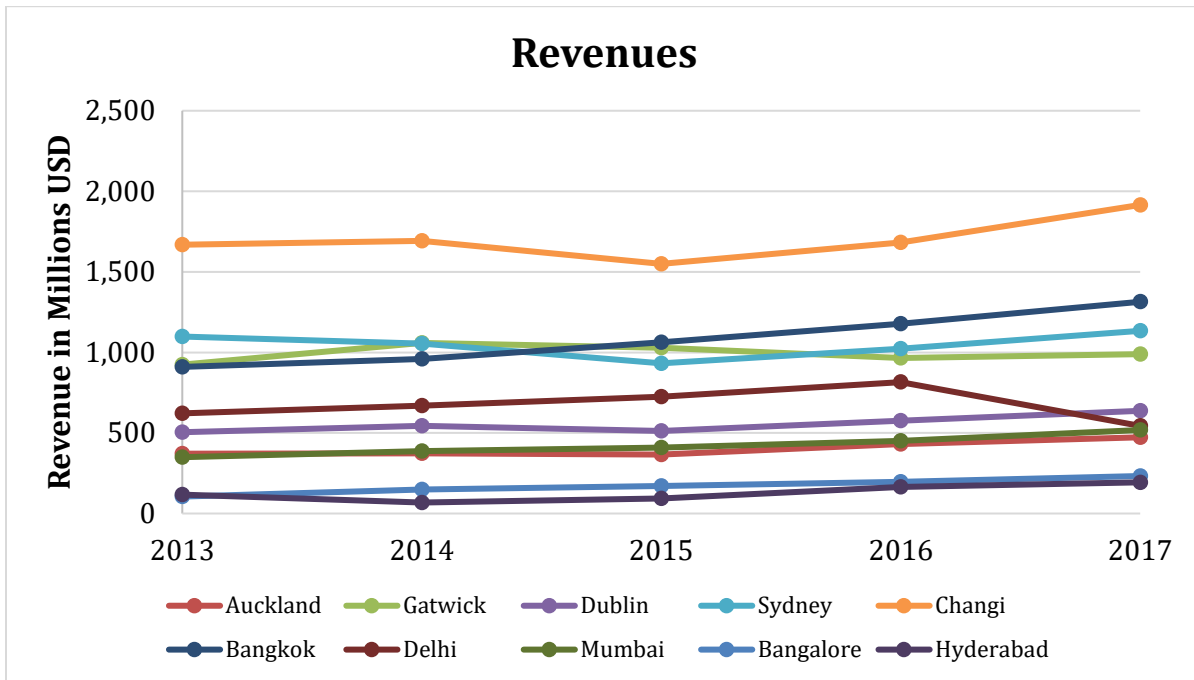
- All airports have experienced a steady growth in passenger volumes (Fig 2.3) over the period of 5 years.
- Revenue trends are also in sync with passenger trends (Fig 2.4) except for Delhi (2017) and Hyderabad (2013).
- Earnings After Taxes (EAT) have also been rising except for Changi airport – Fig 2.6.

Fig 2.2: Passenger Movement Trends



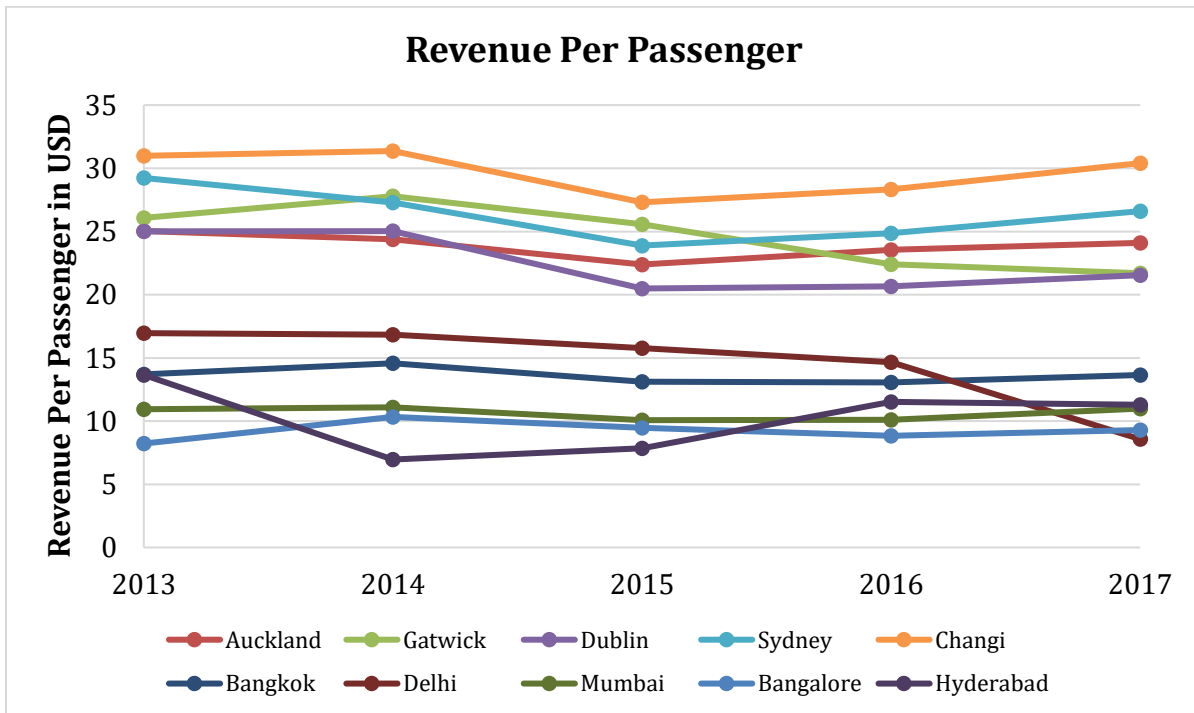
Data Source: Passenger and traffic statistics published by the respective airports' official website for international airports and the Airports' Authority of India's website for Indian airports.

Fig 2.3: Revenue Trends



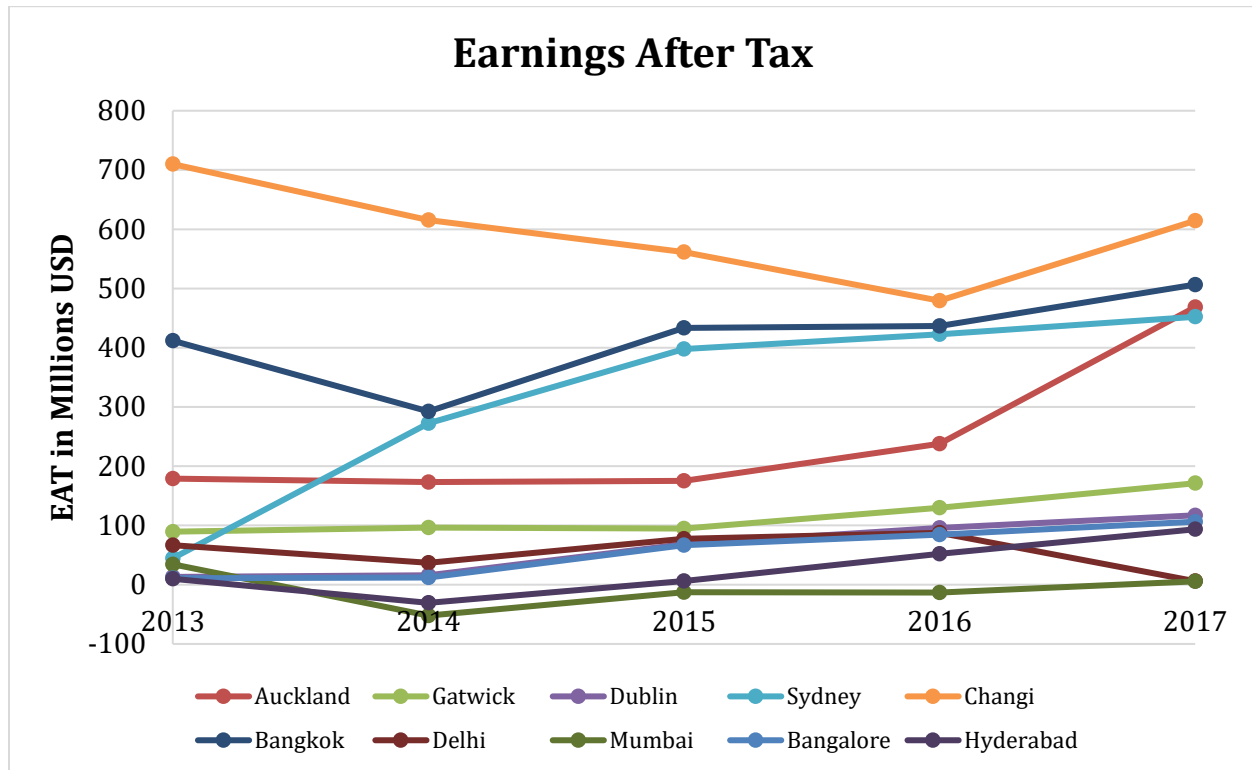
Data Source: Balance sheets of the respective airports

Fig 2.4: Revenue Per Passenger Trends



Data Source: Balance sheets and passenger movement data from official websites

Fig 2.5: Earnings after Tax Trends



Data Source: Balance sheets of the respective airports

Given these insights, we now try to draw some lessons for the Indian airports. We tried to establish a correlation between EAT vs. revenue per passenger. The hypothesis is, with an increase in passenger movement and EAT, revenue per passenger should be fairly stable or decrease. In other words, if traffic as well as EAT is healthy, the total airport charges per passenger should be constant or decrease because being public services there is pressure on airports to reduce tariffs whenever possible. Table 2.11 presents this scenario for our comparable set of airports and Table 2.12 presents this scenario for Indian airports.

Table 2.11 : Relationship between Revenue Per Passenger vs. EAT (Comparable Set)

[In this table, we try to test the following hypothesis: Does increase in passenger movement and EAT stabilize the Revenue per Passenger? This seems to be true for the comparables' set.]

Airport (Col 1)	EAT Trend (Col 2)	Passenger Movement Trend (Col 3)	Revenue Per Passenger Trend (Col 4)	Correlation Coeff. (Col 5)
Auckland	↑	↑	↔	0.9908
Sydney	↑	↑	↔	0.7234
AoT*	↑	↑	↔	0.1352
Singapore	↓	↑	↔	0.3149
Gatwick	↑	↑	↔	0.6333
Dublin	↑	↑	↔	0.0857

Data Source: Balance sheets and official website of individual websites

*Includes only passenger data, revenue data and earnings after tax data, for Bangkok and Don Mueang Airports only, not the holding company, Airports of Thailand as a whole.

Table 2.12: Relationship between Revenue per passenger vs. EAT (Indian Airports)

[In this table, we try to test the following hypothesis: Does increase in passenger movement and EAT stabilize the Revenue per Passenger? This seems to be true for the set of comparable airports (Table 2.11). It is not so for Indian airports.]

Airport (Col 1)	EAT Trend (Col 2)	Passenger Movement Trend (Col 3)	Revenue Per Passenger Trend (Col 4)	Correlation Coeff. (Col 5)
Mumbai	↑	↑	↑	0.1122
Delhi	↑	↑	↓	0.7528
Hyderabad	↑	↑	↑	0.6237
Bangalore	↑	↑	↑	0.3218

Data Source: Balance sheets and AAI's official website

As can be seen from Table 2.11, while EAT and revenues have been on an increasing trajectory for Indian airports, revenue per passenger, on average, is marginally increasing

with positive and negative growths in individual years (except in the case of Delhi where it has been decreasing consistently).

2.3. Associated Issues

2.3.1. Internal Rate of Return to Equity Investors

We study the returns that investors in airports in the comparable set have earned over the past 5 years (2013–17). For this, we take the approach of computing the Internal Rate of Return (IRR) for all the airports. Internal Rate of Return (IRR) is the compounded annual rate of return that the investor earns annually for his investment over a given period.²⁶ Fig 2.6 shows the results. The key takeaways are as follows:

1. Auckland and Sydney being listed companies with pension and long-term mutual funds, show the way forward for good airport funding and management. The healthy IRR suggests access to long-term funds can ease pressure on OPEX. Furthermore, any plans for expansion can be envisaged with lower rates for CAPEX and lower Cost of Debt (CoD).
2. Airports of Thailand: The Regulator does not mandate any dividend distribution. However, AoT as a company has a policy to pay out at least 25% of total profits as dividend.²⁷ On average, they have paid USD 197.26 million in the past 5 years and have the highest IRR in the group.
3. In case of Dublin, as per National Aviation Policy 2015, it is stated that profitable commercial state companies should pay financial dividend to the state; the guideline figure is 30% of profit after tax. Dublin has been gradually earning profits and dividend has been paid from the year 2015 onwards. However, a low IRR of 4% is due to losses incurred before 2015.
4. Even in the Indian airports, AERA does not mandate dividend payments; however, airports have recently started paying out dividends to their investors. Apart from MIAL, all others (BIAL, HIAL and DIAL) have been consistently profitable over the 5

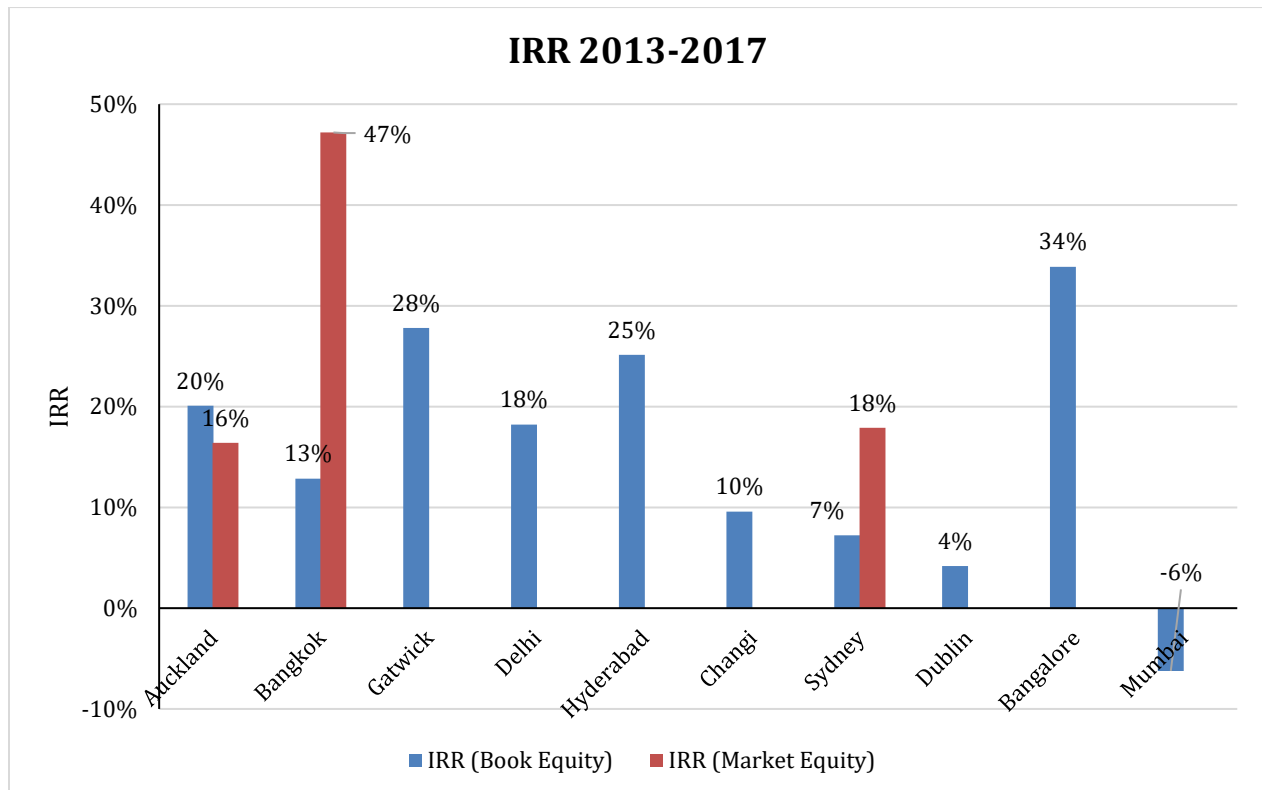
²⁶ <https://corporatefinanceinstitute.com/resources/knowledge/finance/internal-rate-return-irr/> as viewed on 12 Dec 2020.

²⁷ <http://investor.airportthai.co.th/dividend.html> as seen on 12 Dec 2020.

years. However, BIAL and HIAL have recently started paying dividends, while DIAL has paid dividends only once in 2017-18. MIAL is yet to declare dividends.

Fig 2.6: Past 5 years' IRR based on Book and Equity Returns

Internal Rate of Return (IRR) is the compounded annual rate of return that the investor earns annually for his investment over a given period of time²⁶. We computed the IRR based on book equity and their market capitalization (wherever applicable). The book equity method considers beginning equity, all dividends accrued (2013–2017) and ending equity (including retained earnings). The IRR based on market equity is the annualized market return based on market prices (including dividends for 2013–2017).



Data Source: Respective balance sheets of individual airports and Bloomberg for market data

2.3.2. Operators' Returns: A Case of BIAL Divestment

In the FY 2009-2010, Bangalore Airport & Infrastructure Developers Private Limited (BIADPL), a fully owned subsidiary of GVK Power & Infrastructure Limited, purchased a stake of 43% from Flughafen Zurich AG, Switzerland and L&T Infrastructure Development Projects Limited at a cost of INR 1,173.107 Crores. Again, during FY 2011-2012 BIADPL infused a further capital of INR 613.820 Crores. However, for strategic reasons, they offloaded 33% of their stake for a consideration of 2,202 Crores to Fairfax India Holdings

Corporation (FHC). Then, in FY 2017-18, they completed the exit by selling off their remaining stake of 10% at 1,290 Crore. During their holding period, they also received a dividend of INR 16.54 Crores in the year 2016-2017. The net profit turns out to be ~95% or INR 1,783 Crores over 9 years. We performed an annual Internal Rate of Return (IRR)²⁶ analysis to understand the real returns accrued to BIADPL. Table 2.13 details the working of the same.

Table 2.13: IRR computation for BIAL divestment (All amounts in INR Crore)

	2009- 2010	2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018
Investments	(1,173)		(614)	0	0	0	0	0	0
Dividend	0	0	0	0	0	0	0	166	0
Sale proceeds	0	0	0	0	0	0	0	2,2017	1,290
Cash flows for IRR	(1,173)	0	(614)	0	0	0	0	2,2183	1,290
IRR									10.57%

Data Source: Balance Sheets of BIAL and GVK from 2009 – 2018

As observed from Table 2.13, the net IRR is 10.57% per annum for the given holding period of 9 years from 2009–'18. This appears to be quite close to the AERA recommended return for the second control period (FY2016-17 to FY2020-21), viz. ~11.33%, but lower than BIAL's submission of 17%.²⁸

2.3.3. Prevalent Trends in other Infrastructure Space

Securities and Exchange Board of India (SEBI) framed guidelines to set up the Infrastructure Investment Trust or InVITs like REITs. The structure of the same is showcased in Fig 2.7. Essentially, these InVITs function as a mutual fund, enabling individual/institutional investors to gain an exposure to the stable cash flows from an infrastructure asset without being exposed to the risks involved in setting them up. As per the regulations, completed and

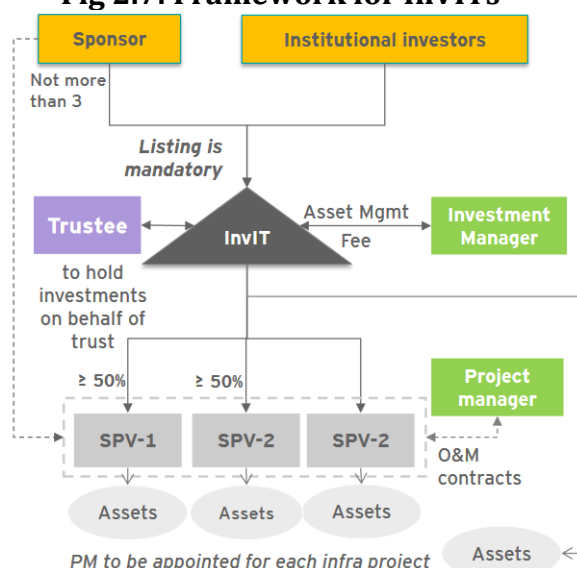
²⁸ AERA Consultation Paper No. 05/ 2018-19 from file: AERA/20010/MYTP/BIAL/CP-II/2016-17/Vol-III

revenue generating projects in PPP mode are eligible to be securitized through this procedure. Several projects in the roads and power sector are part of InVITs.

As of 2018, a prominent InVITs in the road space was IRB InVIT Fund sponsored and managed by IDBI. This had an income of 5,157 Cr. with 13 road projects. Another prominent InVIT in the power sector was IndiGrid sponsored and managed by the Sterlite group. This had an income of 406 Cr with 6 project SPVs.

The InVIT structure could be considered as one of the options while privatizing other airports owned by the Government of India.

Fig 2.7: Framework for InVITs²⁹



Source: Ernst & Young Report on Infrastructure Investment Trusts

2.4. Determinants of CoE used in the Set of Comparable Airports

As we saw in section 2.1, although none of the regulators mandate the CAPM methodology, all the airport operators use the CAPM to determine the Cost of Equity. We know that the risk-free rate and ERPs in the CAPM equation (Equation 1.1) are macro-economic in nature, but the key in CoE determination is the equity beta. Regulators of Auckland airport, Heathrow airport, Gatwick airport and Dublin airport state the betas that they use in their

²⁹ PM in figure refers to Project manager.

CoE computations. Table 2.14 – Table 2.17 show the asset and equity betas for different control periods used in Heathrow, Gatwick, Dublin and Auckland across control periods.

Table 2.14: Auckland Regulator Betas

Auckland					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity		Asset	
		(Col 3)		(Col 4)	
		Low	High	Low	High
Commerce Commission	July 2008 - June 2012	0.68	1.08	0.50	0.70
Commerce Commission	July 2013 - June 2017	0.89		0.60	
Commerce Commission	July 2017 - June 2022	0.74		0.60	

Data Source: Final Report - Auckland International Airport's Pricing Decisions (July 2017 – June 2022), dated 01 November 2018, ISBN No. 978-1-869456-65-8

<https://comcom.govt.nz/regulated-industries/airports/projects/review-of-price-setting-event-3#projecttab>

Table 2.15: Heathrow Regulator Betas

Heathrow					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity		Asset	
		(Col 3)		(Col 4)	
		Low	High	Low	High
Civil Aviation Authority	April 2008 - March 2013	0.90	1.15	0.56	
Civil Aviation Authority	April 2014 - December 2019	1.10		0.50	
NERA Estimated	January 2020 - December 2024	1.30	1.40	0.55	0.60

Data Source: Economic Regulation of Heathrow and Gatwick Airports (2014-2019), February 2014

<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=6074>

Table 2.16: Gatwick Regulator Betas

Gatwick					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity		Asset	
		(Col 3)		(Col 4)	
		Low	High	Low	High
Civil Aviation Authority	April 2008 - March 2013	1.00	1.30	0.80	
Civil Aviation Authority	April 2014 - December 2019	1.13		0.56	

Data Source: Economic Regulation of Heathrow and Gatwick Airports (2014-2019), February 2014
<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=6074>

Table 2.17: Dublin Regulator Betas

Dublin					
Determined By (Col 1)	Control Period (Col 2)	Betas			
		Equity		Asset	
		(Col 3)		(Col 4)	
		Low	High	Low	High
NERA Estimated	2006 - 2009	1.40		0.70	
NERA Estimated	2010 - 2014	1.20	1.40	0.60	0.70
Commission of Aviation Regulation	2015 - 2019	-	-	0.50	0.60

Data Source: Maximum Level of Airport Charges at Dublin Airport, dated 07 October 2014.
<https://www.aviationreg.ie/fileupload/2014final/2014%20Final%20Determination.pdf>

2.5. Sensitivity of Betas – Indian Scenario

What are the real risks? From a CAPM perspective, the only real risk is demand risk, i.e., the airport's exposure to the macroeconomic conditions. Beta measures this exposure. The absence of listed airport assets in the Indian market prevents us from assessing this exposure in a direct manner. However, given passenger volumes are key drivers of revenue for airports, an indirect approach is to measure the sensitivity of growth in passenger volumes to market returns. In order to understand this, we regressed the monthly growth

rate in passenger volumes for BIAL on the monthly returns for the Indian stock market. The passenger growth rate can be viewed as a proxy for the demand driver for BIAL. The stock market return captures the fluctuations in macroeconomic conditions. A high value of the slope from this regression would indicate high exposure of BIAL to demand risk and vice-versa. We found very low regression coefficients (~ 0.3), thus indicating that the demand for BIAL is relatively inelastic and highly constrained by supply under normal circumstances. Appendix 3 details the methodology and results of this analysis.

2.6. Conclusion

In this chapter, we saw the regulatory framework of various airport regulators across the world with a focus on CoE. The key takeaways are as follows:

- All of them use CAPM as a method to estimate CoE but none mandate it.
 - Only Dublin uses a complicated model based on operational metrics/ad hoc assumptions.
- D/E ratios are not mandated, however, the actual D/E ratios using shareholders' fund and paid-up equity range from 43.75% to 81.33%.

Next, we identified airports that were closest to BIAL w.r.t. operations, ownership structure and till. Then, we studied these comparable airports for any lessons for Indian airports in general, and BIAL. A valuable lesson to be drawn is that CAPEX requirements can be addressed through the open market route. Also, we concluded that while other airports are in a mature or saturated phase, Indian airports are still in a growth phase with high potential. Furthermore, this argument is strengthened by the demand analyses of Indian airports. Also, we looked at other sectors like road and power and how InVITs is helping cash flows.

Given we have now identified our comparables' set, we are all set to go ahead with CoE estimation for BIAL. As we have established the distance of these airports, we evolve methodologies to impute the betas for BIAL. The next chapter is devoted to establishing these estimates and determining CoE and providing an illustrative example for FRoR computation.

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Chapter 3 – Determination of Cost of Equity and Fair Rate of Return

Airport regulators world over use the Capital Asset Pricing Model (CAPM) to estimate the Cost of Equity (CoE) for their private operators. Further, these costs are estimated in blocks of time period keeping in mind the current macro-economic realities as well as operational requirements. This is true of AERA as well. It is done for 5 years “Control Periods”. The current control period for BIAL ends on 31.03.2021 and the next 5 years’ control period is from FY2021-22 to FY2025-26. In this chapter, we estimate the CoE and provide an illustrative example of FRoR computation for BIAL. As highlighted in chapter 2, we identified 6 international airports that were very similar to BIAL in terms of their operations, funding mechanism and till structures and studied them in detail. Further, we also highlighted the pertinent lessons for Indian airport operators and regulators therein.

First, we revisit the CAPM methodology and state the assumptions and the relevance therein. Next, we elaborate on the process of obtaining the individual components of CoE, viz., betas (assets as well as equity), risk-free rate and the Equity Risk Premium (ERP). Finally, we provide an illustrative example of the CoD and FRoR computation.

3.1. Capital Asset Pricing Model

The Capital Asset Pricing Model was developed in the 1960s by Sharpe³⁰ (1964) and Lintner (1965).³¹ It can be used to estimate a project’s cost of capital, which is the expected rate demanded by potential investors. The cost of capital is used to assess the value of risky cash flows from investment projects made by businesses. According to the CAPM, the project’s cost of capital is linearly related to a measure of project risk (known as beta), which essentially captures the sensitivity of the project’s cash flows to the state of the economy. The greater is the sensitivity, the greater is the risk faced by potential investors and the greater is the expected return of these investors, or the cost of capital. Thus, estimating the

³⁰ Sharpe, William F. 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance* 19 (September): 425–42.

³¹ Lintner, John. 1965. The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics* 47 (February): 13–37.

beta of the project is required to estimate the cost of equity. Equation 1.1 (**highlighted below**) is used to compute the Cost of Equity (CoE).

$$CoE = R_f + \beta_E (R_M - R_f),$$

where

CoE = Cost of Equity

R_f = Risk-free rate.

$R_M - R_f$ = Equity Risk Premium (ERP).

β_E = Equity beta.

Assumptions

- Homogeneous expectations (distinguishes from portfolio theory)
- Quadratic utility or multivariate normality of returns
- Rational, risk-averse investors
- Perfect capital markets
- Unrestricted short selling
- Borrowing and lending at the riskless rate

Relevance of CAPM

The empirical validity of the CAPM has been debated by academics and researchers.^{32,33} However, it is by far the most widely accepted by business practitioners to determine the cost of capital.

³² Fama, Eugene F., and French, Kenneth R.; 1992. The cross-section of expected stock returns. *Journal of Finance* 47 (June): 427–65.

³³ Jagannathan, Ravi, and Wang, Zhenyu. 1993. The CAPM is alive and well. Research Department Staff Report 165. Federal Reserve Bank of Minneapolis

Discussion Summary on Estimation Approach

- *While the CAPM is a theoretical model based on assumptions that do not necessarily hold in the real world, its simplicity and intuitive appeal have made it the on-going favorite model for determining cost of equity in any market-based economy. Our procedures for determining Cost of Equity using the Capital Asset Pricing Model are consistent with the best practices adopted by international airport regulatory authorities and by regulatory authorities across the world for a wide range of utilities (Table R1, Ch. 2).*
- *In particular, the CAPM says that the cost of equity should be related to demand (or business) risk, as measured by correlation of a firm's stock returns with the returns on the market portfolio. More importantly, the CAPM points out that idiosyncratic difference in firms should NOT affect the cost of equity because investors in a market-based economy hold portfolios rather than individual assets and thus are able to diversify away the idiosyncratic risk exposure. In short, idiosyncratic factors (e.g., airport specific factors) do not affect the estimation of cost of equity when using the CAPM methodology.*
- *Furthermore, it is important to note that "true-up" of costs afforded to Indian airports shields them from demand risk; this is a feature that indicates that Indian airport operators (under the PPP arrangement) face low systematic risks and in that sense, developed country airports can also be used as benchmarks while estimating asset beta.*
- *Given the conceptual underpinnings of CAPM (as pointed out above), the standard approach is to find a comparable set of airports and impute a cost of equity based on the betas for a comparable set of firms. Our approach accounts for ownership structure, operational scale, revenue till arrangement while identifying the "optimal" mix of comparable airports. Thus, comparable airports that are more proximate to BIAL are given more weightage when averaging the asset betas of comparable airports to estimate the asset beta of BIAL. This procedure essentially implies that the proximity-score weighted average asset beta of comparable firms mimics a tracking portfolio of firms that provides the best proxy for the systematic risk inherent in BIAL.*
- *In summary, we use a procedure that is consistent with the application of the CAPM and which accounts for key differences in ownership, funding, and operation scale. Our approach is also unique in that it is driven by actual data considerations rather than plausible motivations for drivers of cost of equity.*

3.2. Methodology for CoE Estimation

As seen in section 3.1, we need three components to estimate the CoE using CAPM. These components are the risk-free rate (R_f), equity beta and the equity risk premium (ERP). R_f and ERP are mostly macro-economic in nature and thus one can rely on time-series data to estimate these variables. However, determining the equity beta is more challenging, especially for unlisted companies such as BIAL. As will be discussed in section 3.2.1, we overcome this issue by using a set of comparable airports. We use the R_f that is available from public sources. For determining ERP , we combine our own estimates for ERP (study by Anshuman, Biswas, Jain and Sharma, 2019) with the ERP estimates from Grant Thornton and Damodaran.³⁴ For the purpose of illustration, we estimate the cost of Debt (CoD) of BIAL by determining the cost of debt for infrastructure firms that have issued debt with a similar credit rating as BIAL.

The control periods for DIAL and MIAL are slightly staggered from that of BIAL and HIAL. To maintain consistency in the cost of equity estimates across the four major PPP airports, we have used the same time-period to estimate of ERP and risk-free rate for BIAL and HIAL as used for DIAL and MIAL. This consistency in approach for the four major PPP based airports is advisable given that there is transient variation in equity risk premium which can differentially impact the cost of equity of these airports.³⁵

3.2.1. Methodology Summary

Now that we have the set of comparable airports and computed their respective Proximity Distance Scores w.r.t. BIAL (sec 2.2), we can now move on to estimating the Cost of Equity (CoE) and providing an illustrative example of Fair Rate of Return (FRoR) computation. Here are the steps involved in the process:

1. Unlever the betas of listed Comparable Airports (secs 3.2.32 and 3.3.2)

³⁴ Anshuman, Biswas, Jain, and Sharma (2019); Predictability of Equity Risk Premium in India.

³⁵ For instance, the market fell by around 30% in the first three months and then recovered the entire loss by the end of the year. These large fluctuations are unprecedented and related to the Covid crisis. ERP estimates fluctuate between 5.2% to 7.2% over 2020 depending on time at which it is estimated.

2. Next, we estimate Asset Betas for BIAL (secs 3.2.3 and 3.3.3) with Proximity Distance Scores (sec 2.2) as inputs
3. Then, we re-lever Asset Betas to get Equity Betas for BIAL (secs 3.2.4, 3.3.4 and 3.3.4) with Target Gearing Ratios (sec 3.3.4) as inputs
4. Next, we obtain the **CoE (sec 3.3.9)** using Equity Risk Premium or ERP (sec 3.3.6) and Risk Free Rate (sec 3.3.9) as inputs
5. Finally, we illustrate the computation of the **FROr (sec 3.3.9)** with Cost of Debt (CoD) as an input (sec 3.3.7). Please note that this computation is for illustrative purpose only as CoD is time sensitive. The CoD must be estimated based on information available at that point in time in future. The entire process is summarized as a flowsheet in [Appendix 4](#).

3.2.2. Un-levering the Betas of the Listed firms in the Comparable Airports' Set

The comparable set consists of 6 airports – viz. Auckland, Airports of Thailand (AoT), Dublin, Gatwick, Malaysia Airports Holdings Berhad (MAHB) and Sydney. For AoT, MAHB and Sydney, which are listed airports, we can compute equity betas based on market data. We use the following methodology to estimate the asset betas from the equity betas:

- Estimate the equity betas for listed airports from our comparables' set through a regression of returns of these stocks on the returns of the relevant market index using data from Bloomberg.
- Un-lever these equity betas to find the corresponding asset betas using Equation 3.1.

$$\beta_A = \frac{\beta_E}{[1 + (1 - T_C) * \frac{D}{E}]}$$

Equation 3.1 – Unlevering Betas

where

β_A = Asset Beta,

β_E = Equity Beta,

T_C = Marginal Tax Rate,

D/E = **Actual** Market Debt to Equity Ratio

Dublin and Gatwick airports are unlisted but have estimates for asset betas from their respective regulators. Auckland airport is a listed airport, and its beta can be estimated from market data, but the New Zealand regulatory authority has assigned a specific value for the Auckland Airport asset beta after extensively analyzing market data and other airport-specific information. In this case, we give preference to the regulator assigned asset beta because it is based on a comprehensive study.

3.2.3. Estimating Asset Betas for BIAL

Next, we estimate the asset betas for BIAL by two (2) different methods, viz.:

1. Equal weighted average of these 6 airports' asset betas
2. Weighted average of these 6 airports' asset betas. The weights are the inverse proximity score from BIAL using Equation 3.2.

$$\beta_A = \frac{\sum_{k=1}^6 \left(\frac{\beta_k}{PS_{k,B}} \right)}{\sum_{k=1}^6 \left(\frac{1}{PS_{k,B}} \right)}$$

Equation 3.2 – Weighted Avg. Betas

where

β_A = Unlevered Asset betas for BIAL

β_k = Unlevered asset betas for comparable airports, k , viz. MAHB, Sydney, AoT and Regulator estimated Asset Betas, for Auckland, Gatwick, and Dublin airports.

$PS_{k,B}$ is the proximity score of the comparable airport, k , with respect to BIAL.

The proximity score weighted (PSW) betas represents a more refined estimate of the true asset betas in contrast to the equally weighted counterpart as it incorporates the degree of similarity between BIAL and the airports in the comparable set.

3.2.4. Re-levering the BIAL's Asset Beta to get Equity Beta

We estimate equity beta for BIAL by re-levering the asset beta assuming a **Target** market Debt to Equity (D/E) ratios using Equation 3.3.

$$\beta_E = \beta_A * [1 + (1 - T_C) * \frac{D}{E}]$$

Equation 3.3 – Re-levering Betas

where

β_A = Asset Beta,

β_E = Equity Beta,

T_C = Marginal Tax Rate,

D/E = **Target** Market Debt to Equity Ratio

3.2.5. Cost of Equity and FRoR

With all components of CoE now available, we can compute the CoE using the CAPM equation. Once we have CoE, we can also compute FRoR using the Equation 3.4.

$$FRoR = (R_D * g) + R_E * (1 - g)$$

Equation 3.4 – Fair Rate of Return

where

g = Target Debt to (Debt + Equity) Ratio

R_D = **Cost of Debt**

R_E = **Post-Tax Cost of Equity**

Apart from CoE, the Cost of Debt (CoD) is the key components of Equation 3.4. The Cost of Debt (CoD) is estimated as the coupon rate for bonds issued with similar credit ratings as BIAL.

The entire process flow with relevant sections numbers is showcased in [Appendix 4](#).

3.3. Results and Discussion

Below, we present all the relevant results leading up to the computation of CoE and FRoR. We start with shortlisting of airports for beta computations followed by asset and equity betas for them. This is followed by a section on Cost of Debt and finally the CoE and FRoR.

3.3.1. Shortlisting Relevant Airports for Asset Betas for BIAL

The comparable set consists of six international airports. Of these, three airports, Sydney, MAHB and AoT are listed companies with traded stocks. Listed airports are chosen to ensure that their equity betas are readily available for computation using price data from a commercial source like Bloomberg. The asset betas for these airports are computed from the estimated equity betas. For the other three airports, Auckland, Gatwick and Dublin, the country regulatory authorities have provided direct estimates of asset betas for the forthcoming control periods.

3.3.2. Results Related to Estimating Asset Betas of Airports in the Comparable Set

We estimate the asset betas for 6 airports (AoT, Auckland, Dublin, Gatwick, MAHB and Sydney) from the comparable set. For three of these airports (AoT, MAHB and Sydney), we use price data to estimate their equity betas and adjust for leverage to calculate their asset betas. For the other three airports (Auckland, Dublin, and Gatwick), we rely on the estimates of asset beta provided by the relevant regulatory authorities. Table 3.1 shows the equity and asset betas of AoT, MAHB and Sydney. The equity betas are obtained from Bloomberg and corresponding asset betas are estimated by un-levering using Equation 3.1. As highlighted, the asset betas range from 0.40 for Sydney to 0.86 for AoT. Table 3.1 shows the regulator estimated asset betas of Auckland, Dublin, and Gatwick. As highlighted, the asset betas range from 0.55 for Dublin to 0.60 for Auckland.

Table 3.1: Asset and Equity Betas for 3 Comparable International Airports

Note: The equity betas are directly sourced from Bloomberg. The asset betas are computed as $\beta_A = \beta_E / [1 + (1 - T_c) * D/E]$ (Equation 3.1). *** Indicates a 99% statistical significance level of beta estimate.

Airport (Col 1)	Equity Beta³⁶ (Col 2)	Marginal Tax Rates³⁷ (Col 3)	3-Year Avg. Market Debt Equity (Col 4)	Asset Beta³⁸ (Col 5)
Sydney	0.5641***	30.00%	0.5859	0.4000
MAHB	1.0573***	24.00%	0.4927	0.7693
AoT	0.8895***	20.00%	0.0456	0.8582

Data Sources: Bloomberg for Equity Betas; Deloitte Inc. for marginal tax rates

Table 3.2: Regulator Estimated Asset Betas for 3 Comparable International Airports

Regulator		
Airport (Col 1)	Asset Beta (Col 2)	Reference (Col 3)
Auckland	0.60	Table 2.14
Dublin	0.55*	Table 2.17
Gatwick	0.56	Table 2.16

*The regulatory authority has provided two estimates: a low asset beta and a high asset beta. We use the simple average of the low asset beta (0.50) and the high asset betas (0.60), i.e., 0.55.

3.3.3. Results Related to Estimation of Asset Betas for BIAL

Using the methodology described in section 3.2.1, we first computed the asset betas for BIAL using two different techniques, viz. equally weighted and proximity score weighted (Equation 3.2). As discussed earlier as well, the proximity score weighted (PSW) beta better represents the true asset beta as compared to the equally weighted counterpart as they account for the similarity between the Indian airport and the airport in the comparables' set.

³⁶ Source: Bloomberg data from 2016 – 2018 weekly returns

³⁷ <https://www2.deloitte.com/global/en/pages/tax/articles/global-tax-rates.html>, as viewed on 28 Feb 2020

³⁸ $\beta_A = \beta_E / [1 + (1 - T_c) * D/E]$ – Equation 3.1

Table 3.3: Asset Betas for BIAL.

Equally weighted is simple average of comparables' asset betas. PSW is the weighted average of the asset betas with the weights being the (inverse) Proximity Score of the airport (Equation 3.2).³⁹ The proximity score weighted (PSW) beta is a more refined estimate that accounts for airport-specific information.

	Equally Weighted Average Asset Beta	Proximity Score Weighted Average Asset Beta
BIAL	0.6229	0.564689

Recommendation (Proxy for Asset Beta of BIAL)

- *We discussed the two different ways to compute proxies for assets betas of BIAL. Our recommendation based on the proximity score weighted beta estimate is more reliable. The equally weighted approach is useful only when the comparable set of airports is picked from the same environment.*
- *Statistically speaking, if the sample consists of observations from different distributions with different population means, taking a simple statistic like the sample average will be biased. In such cases, a weighted average rather than a simple average in which the weights recognize the degree of difference between the sample observation and the relevant population distribution is considered. Our proximity score weighted beta approach accounts for the “closeness” of the comparable airports to BIAL.*
- *The recommended asset betas for BIAL is **0.564689***

3.3.4. Re-levering Asset Betas of BIAL

Re-levering the asset betas to estimate the equity betas for BIAL is done by assuming a target gearing ratio using Equation 3.3. In Table 3.4, one can see the gearing ratios employed by different international airports for computing the weighted average cost of capital (WACC) in column (2). The column (3) shows the average 5-year book debt to equity ratio (based on paid-up equity capital, as has been done in the case of BIAL). It is evident that the gearing

³⁹ $\beta_A = \frac{\sum_{k=1}^6 \left(\frac{\beta_k}{PS_{k,B}} \right)}{\sum_{k=1}^6 \left(\frac{1}{PS_{k,B}} \right)}$ (Equation 3.2 – Weighted Avg. Betas)

ratio is significantly lower than the book debt to equity ratio for all international airports.⁴⁰ The average gearing ratio is 48% but the 5-year average of the book debt to equity ratio is 83%. Further, we plotted the best-fit linear trend between these two variables, as shown in the chart below. We can see that R-square is virtually 0 suggesting that the two variables are unrelated. Furthermore, both the economic and statistical relation between the two variables is negligible. The coefficient is virtually 0 and the t-stats are also insignificant.

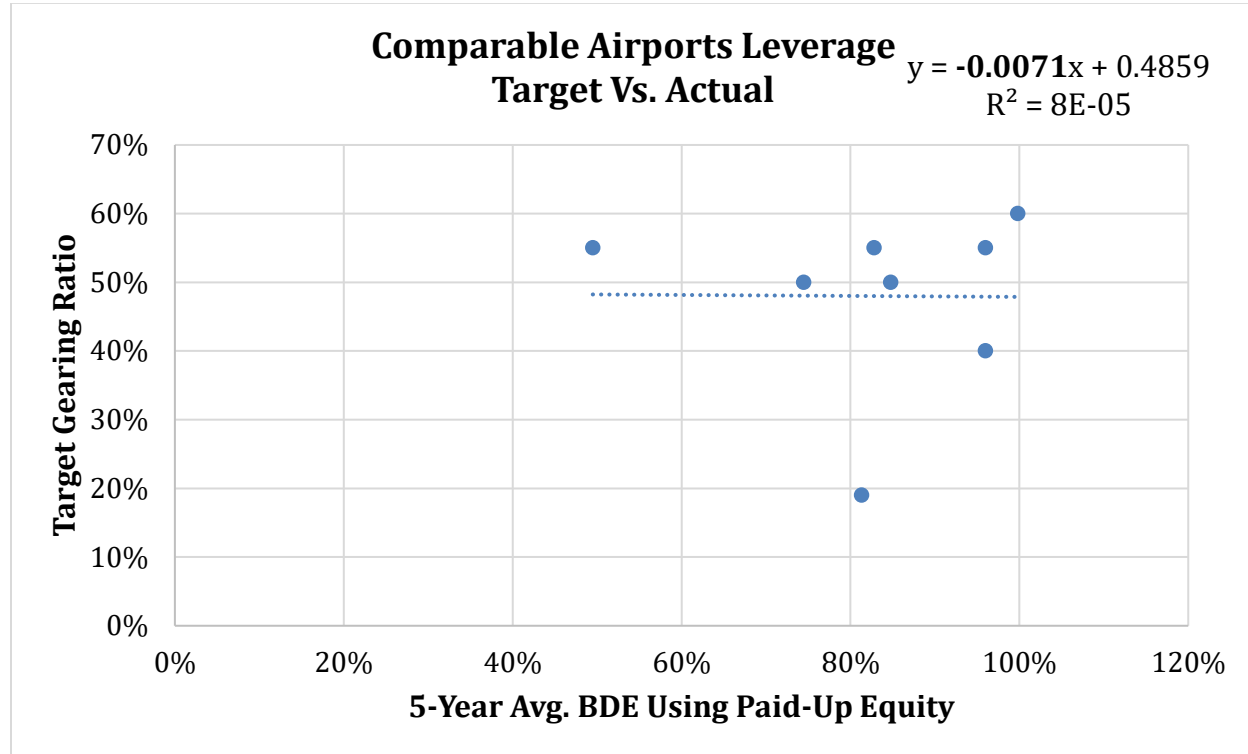
⁴⁰ We were able to use a larger comparable set of international airports – this gives us more confidence in the estimates.

Table 3.4: Target Gearing Ratios

Airport	Target Gearing Ratio	5-Year Avg. BDE based on Paid-Up Equity (based on Share Holder Fund)	Citation	Source
(Col 1)	(Col 2)	(Col 3)	(Col 4)	(Col 5)
Auckland	19.00%	81.33% (28.61%)	Review of Auckland International Airport's pricing decisions and expected performance (July 2017 – June 2022), November 2018, Pg. 97, Table A1.	https://comcom.govt.nz/regulated-industries/airports/projects/review-of-price-setting-event-3#projecttab
Heathrow	60.00%	99.79% (83.41%)	UKRN, Cost of Capital – Annual Update Report, June 2018, Pg. 11, Table	https://www.ukrn.org.uk/wp-content/uploads/2018/11/2018-UKRN-Annual-WACC-Summary-Update-v2.pdf
Gatwick	55.00%	82.79% (80.14%)	UKRN, Cost of Capital – Annual Update Report, June 2018, Pg. 11, Table	https://www.ukrn.org.uk/wp-content/uploads/2018/11/2018-UKRN-Annual-WACC-Summary-Update-v2.pdf
Sydney	55.00%	49.48% (72.00%)	Pricing Proposal 2016-2021, Pg. 16, Table 9	http://www.airservicesaustralia.com
Melbourne	55.00%	95.96% (75.78%)	Pricing Proposal 2016-2021, Pg. 16, Table 9	http://www.airservicesaustralia.com
Dublin	50.00%	84.75% (48.26%)	Commission for Aviation Regulation, Maximum Level of Airport Charges at Dublin Airport 2014 Determination, Pg. 90, Para 7.118.	https://www.aviationreg.ie/regulation-of-airport-charges-dublin-airport/2019-determination.841.html
MAHB	50.00%	74.46% (43.75%)	MAVCOM Aeronautical Charges Framework, October 2018, Pg. 26, Table 9. (Is 40-60%, but a mid-point average of the two taken)	https://www.mavcom.my/wp-content/uploads/2018/10/181019_Aeronautical-Charges-Framework-Consultation-Paper-Final-1.pdf
Amsterdam	40.00%	95.98% (34.52%)	Amsterdam Airport Schiphol Operation Decree, 2017, WACC - Part C of Appendix to Article 32, Pg. 19.	https://www.schiphol.nl/en/download/b2b/.../1T8kLVjBBmOiaKqOO4WC0K.pdf
Average	48.00%	83.07% (58.31%)		

Fig 3.1: Regression Results for Market D/E (MDE) vs. Book D/E (BDE) for Listed International Airports

From the data in Table 3.4, we regress the Target Gearing Ratio for the comparable set as a function of their Actual 5-Year Average Book D/E (2013 – 17) period.



There is a good reason to use a lower target gearing ratio rather than the gearing ratio suggested by the debt to book-equity values. First, the WACC should reflect a long-term steady state gearing ratio which may not be reflected in the current gearing ratio. Second, the WACC is supposed to be determined using market value weights for debt and equity. Since equity values tend to rise over time, it is typically the case that market value based debt to equity ratios will be much lower than book debt to equity measures. While the airports do not explicitly mention this factor as a reason for using lower target gearing ratios than that suggested by book ratios, we believe that this factor could be a significant reason.

To get additional confirmation, we consider the four airports for which we have listed equity securities and estimate the 5-year average of the market debt to equity ratio. The 5-year average leverage using market capitalization (MDE) for the comparable set of listed airports (AoT, Auckland, MAHB and Sydney) is equal to 0.3503 (D/E) or 25.94% (D/D+E). These

figures are also much lower than book debt to equity ratios. Given these findings, we can be reasonably assured that the low gearing ratio of the international airports is consistent with the idea that market-based debt to equity ratios should be used in computing the cost of capital.

As an additional benchmarking exercise, we also estimated the relation between the market debt to equity and the book debt to equity ratio of a typical infrastructure firm in India. To estimate the relation between market debt to equity ratio and book debt to equity ratio, we first regressed MDE on BDE for various infrastructure companies, using price data for 37 listed infrastructure companies over the recent 5 years. In other words, we estimated the following empirical relation between the two variables, under the restriction that the intercept is 0.

$$MDE = f * BDE$$

Equation 3.5 – BDE/ MDE Relation

where f is the regression coefficient.

The total valid data points in the clean sample were 121. The filters used to remove outliers in the data were an upper cap of 5 for BDE (equivalent of BDE 83:17) and a lower bound of 0 (no debt). Table 3.5 shows details of data for a total of 37 infrastructure companies, which have 121 market debt equity data points for 5 financial year end (2014-2018) that are regressed against the book debt equity (since these 37 companies were not traded over the entire 5-year period, the number of data points does not exactly match that from a 5-year period). A detailed table of such companies can be found in Appendix 2.

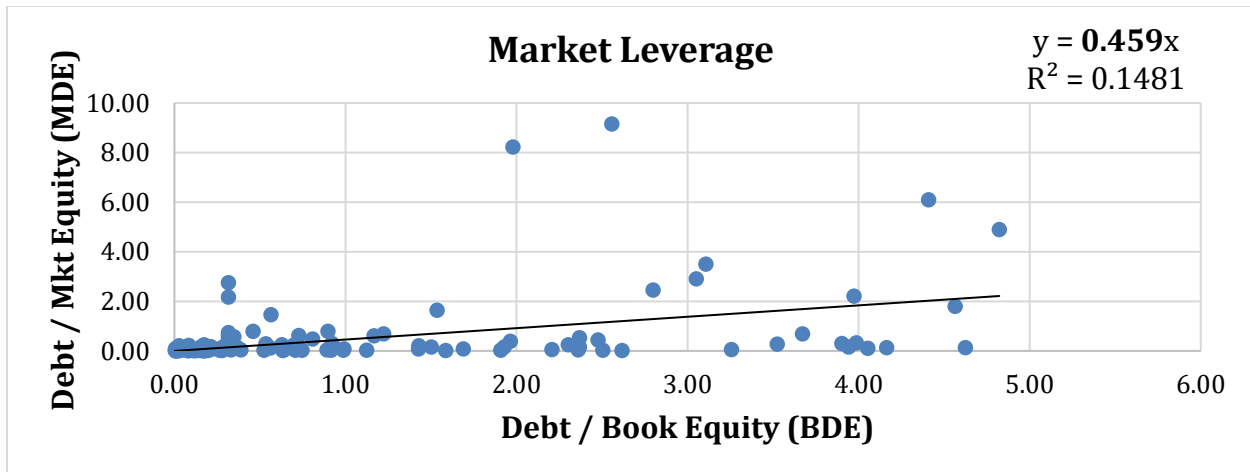
Table 3.5: Number of Infra Companies for MDE to BDE Relation

Availability of Leverage Data (No. of Years) (Col 1)	No. of Companies (Col 2)	Data Points (Col 3)
5	13	65
4	4	16
3	7	21
2	6	12
1	7	7
Total	37	121

We use this regression coefficient to impute the MDE for BIAL by using the BDE of BIAL. Fig 3.2 and Table 3.6 highlight the results.

Fig 3.2: Regression Results for Market D/E (MDE) vs. Book D/E (BDE) for listed Indian Infrastructure Firms

We regress Market D/E (MDE) for 37 listed Indian infrastructure stocks as a function of their Book D/E over the 5-year (2013–17) period, forcing intercept to 0. The slope gives the typical multiple for converting a given BDE to the corresponding MDE. Hence, $MDE = f \cdot BDE$; where m is the slope. It turns out to be 0.459 in this case.



Data Source: CMIE Prowess Equity Database

Table 3.6: BDE vs. MDE regression results for listed Indian Infrastructure Firms.

We regress Market D/E (MDE) for 37 listed Indian infrastructure stocks as a function of their Book D/E over the 5-year (2014–18) period, forcing intercept to 0. The slope gives the typical multiple for converting a given BDE to the corresponding MDE. As seen from the table, the slope is significant at 99% CI.

	Coeff.	Std Error	t Stat	p-value	Lower 99.0%	Upper 99.0%
	(Col 1)	(Col 2)	(Col 3)	(Col 4)	(Col 5)	(Col 6)
Intercept	0	N/A	N/A	N/A	N/A	N/A
MDE/ BDE (slope)	0.459	0.072	6.382	4.17E-09	0.271	0.648

The MDE/BDE ratio is the slope and conversion multiplier. As observed from Fig 3.2 and Table 3.6, the relationship turns out to be given by:

$$MDE = 0.459 * BDE$$

Equation 3.6 – MDE/BDE (Actual)

Now, assuming a BDE of 2:1, we can infer that the market debt to equity ratio can be estimated as $0.459 * 2 = 0.918$ for a typical infrastructure company in India. This number translates into a gearing ratio of 47.86%, a number that is reasonably close to the average gearing ratio of the set of comparable international airports.

The two independent approaches to assessing the gearing ratio based on market price data provide confidence to us that setting the gearing ratio for BIAL on the basis of the average gearing ratio of a set of comparable international airports will be a procedure consistent with global best practices.

Discussion/Recommendation for Gearing Ratio

- *The target gearing reflects a long-term steady state gearing ratio that is lower (and unrelated) to the current debt to equity ratio.*
- *As per valuation concepts, the gearing ratio used in calculating cost of equity should be based on market value estimates of debt and equity. The fact that the target gearing ratio is typically lower than the actual debt equity ratio is consistent with an approach that uses market value based debt to equity ratio.*
- *As a benchmark, we examined the Indian infrastructure space and found that infrastructure firms employ, on average, a market debt to (debt + equity) ratio of 47.86%. The estimate from this analysis is reasonably close to the 48% gearing ratio used on average by international airports.*
- *Firms often employ high gearing ratio in the hope of reducing the cost of capital. This perception is based on a fallacious argument. While it may seem that a higher percentage of cheaper debt capital would reduce the cost of capital, what is ignored is that the risk of residual equity in highly levered firms increases, thereby offsetting the benefits of sourcing more debt capital (in addition, the cost of incremental debt capital increases as the amount of debt increases). A target gearing ratio lower than the typical debt to equity ratio in a regulated public service discourages firms from employing excessive gearing in the hope of reducing their cost of capital. Thus, regulators often rely on a target gearing ratio to help maintain financial resilience of regulated firms in the long term – a social obligation that is critical for delivery of critical public services.*
- *We recommend that the average gearing ratio (D/D+E) of 48% can be used to a proxy for the gearing ratio of BIAL to estimate their Cost of Equity and Fair Rate of Return.*

3.3.5. Results Related to Estimation of Equity Betas for BIAL

We set the target gearing ratio for BIAL using the average gearing ratio of international airports (48%), We then re-lever the asset betas proxies of BIAL using Equation 3.3 to get the equivalent equity betas.

$$\begin{aligned}\beta_E (BIAL) &= \beta_A * \left[1 + (1 - T_C) * \frac{D}{E} \right] \\ &= 0.564689 * [1 + (1 - 0.3) * 0.9231] \\ \beta_E (BIAL) &= 0.9296\end{aligned}$$

Equation 3.7 – Equity Beta for BIAL

Discussion Summary (Equity Beta)

*With the target gearing ratio of 48%, we re-levered the proximity score weighted (PSW) asset betas using Equation 3.3 and arrived at the optimal equity beta as: **BIAL: 0.9296**.*

3.3.6. Equity Risk Premium

The ERP is an essential input in the implementation of the Capital Asset Pricing Model. It captures the additional return demanded by investors for holding equity shares in contrast to holding risk-free deposits (say in a bank in which the deposit is insured against default). It reflects the investing population's compensation for taking up equity risk.

There are various estimates of equity risk premium, depending on the methodology used and the time period considered.⁴¹ The most popular method is to use the historical risk premium as a proxy for the equity risk premium (ERP) going forward. This estimate has been found to be the best predictor of future ERP.⁴² In general, the other predictors (e.g., dividend yield, earnings to price ratio, default spread, etc.) fare worse than the historical average as a predictor of ERP. To broad base the estimation of ERP, we also consider a second methodology, namely, the implicit forward-looking ERP (also referred to as the Implied ERP) based on the current value of the stock market index. Using a simple Gordon Growth model based on dividend growth estimates, one can impute the ERP that is consistent with current valuations of the stock market. Finally, one can also rely on a survey methodology to infer

⁴¹ For instance, a recent study by Manish Saxena (*Valuation Insights: Equity Risk Premium (ERP) for Indian Market*, Grant Thornton, October 2015) has quoted ERP's ranging from 4.0% - 12.50% from various studies such as Jayant Varma & Samir Barua (2006), JM Morgan Stanley (2006), Rajneesh Mehra (2006), Banco de Portugal (2008), Morgan Stanley (2010), VC Circle (2010), ISES Survey (2011) and Goldman Sachs (2011-12). However, the studies are outdated, and their ERP estimates cannot be used for estimating Cost of Equity for Bangalore Airport for the third control period (FY2021-22 to FY2025-26). The paper can be found at, as viewed on 28 Feb 2020:

https://www.granthornton.in/globalassets/1.-member-firms/india/assets/pdfs/grant_thornton-valuation_insights-october_2015.pdf

⁴² Ivo Welch and Amit Goyal; A Comprehensive Look at The Empirical Performance of Equity Premium Prediction; The Review of Financial Studies / v 21 n 4 2008.

the consensus view of ERP. A third methodology is based on Damodaran's model of emerging market equity risk premium based on country risk premium.

In the first approach, we estimate ERP using the historical average of ERP over the 2000-2018 period. Asset pricing studies are typically dependent on a much longer time series to infer meaningful estimates. However, India underwent significant structural changes over time (the pre-liberalization period prior to 1990s and the advent of market liberalization during the 1990s), thus rendering prior data questionable and of lower reliability due to various exogenous reasons. Consistent with these arguments, Anshuman et al (2019) rely on data from the post-2000 period. They report a geometric mean of 7.78% as the estimate of ERP.⁴³

The choice of a geometric mean as a proxy for the ERP for long-term projects follows from the arguments stated by Damodaran.⁴⁴ The CAPM is a one-period model and arithmetic means works well only if the annual returns in the stock and bond markets are serially uncorrelated. However, stock and bond returns are serially correlated in actual data. This serial correlation is particularly important when we estimate ERP for longer horizons (say, 10 years). In summary:

- Arithmetic mean is more appropriate to use if the returns are uncorrelated.
- Geometric mean is more appropriate for longer horizons in which returns are found to be serially correlated.

Second, we rely on a study by Grant Thornton that estimates a forward-looking ERP for India. This ERP estimated is an imputed measure based on the Gordon Growth model. The inputs are market index data and estimates of dividend growth rates of stocks in the market index. The study uses Nifty market index as a proxy for the market index. The NIFTY market index consists of 50 leading Indian companies that fairly represent all the leading industry sectors in India. To estimate the forward-looking ERP, the study uses a 3-stage Gordon's Growth

⁴³ Anshuman, Biswas, Jain and Sharma, "Predictability of Equity Risk Premium in Indian Equity Markets", IIM Bangalore working paper (2019), <https://www.iimb.ac.in/node/6984>

⁴⁴ http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html Country Default Spreads and Risk Premiums as of 1 July 2020, viewed on 12 Dec 2020.

Model. In their study, for Financial Year (FY) 2018-20, the study uses a growth rate of 13% during 2021-25 based on the nominal GDP for India as calculated by IMF, a growth rate of 10% for the period from 2026 onwards, and a perpetual growth rate of 7.50% henceforth. Under these assumptions, the study estimates a forward ERP estimate of 8.00%.⁴¹

In the third approach, we try out Damodaran's methodology computing the Indian equity risk premium based on the U.S implied equity risk premium and the country default spread. The advantage of this approach is that the mature market risk premium has been derived from a much longer historical time series (1960-2018). Damodaran derives the Indian ERP by *adding* an adjustment factor that reflects the sovereign risk estimate of the Indian equity markets. To derive this adjustment factor, Damodaran employs two proxies, one based on rating of sovereign bonds and the other based on CDS spreads, and, in both cases, modifies this adjustment factor by the average ratio of equity volatility and bond volatility across emerging markets (= 1.23). For instance, Damodaran's estimate of ERP for India based on bond ratings is given by the following: 5.96% (mature market implied risk premium) + 1.23*2.15% = 8.60%. Damodaran's CDS based Indian ERP is given by 5.96% + 1.23*(1.85%-0.30%) = 7.87%.⁴⁵

Given these four estimates, we define the proxy for ERP in our study as the simple average of these estimates, i.e., our proxy for ERP is $(7.78\% + 8.00\% + 8.60\% + 7.87\%)/4 = 8.06\%$. This averaging procedure helps eliminate the effect of biases implicit in each of the three studies.⁴⁶

⁴⁵ The CDS for US of 30 bp has been subtracted from the Indian CDS of 185 bp to get an estimate of the adjusted CDS for India.

⁴⁶ Note that Damodaran's approach is ad-hoc and has no theoretical basis. Under a proper application of the CAPM model to a two-country setting, equity risk premium and beta should reflect expected foreign exchange appreciation (see Equation (10) in Kruschwitz, Mandi and Löffler, Business Valuation Review, March 2012 DOI: 10.5791/11-00017.1). Given these confounding issues, we rely on an averaging procedure to estimate the Equity Risk Premium.

Discussion Summary (Equity Risk Premium)

We focused on three recent studies that document the equity risk premium for India. Our primary criterion is that the estimates should be based on market data.

(i) Anshuman et al. (2019) give an estimate of 7.78% based on the historical mean, which is known to be best predictor of ERP across the world (Welch and Goyal (2008), Anshuman et al (2019)). However, the accuracy of ERP estimates also depends on the length of the sample period. The greater the duration, lower are the standard errors. Anshuman (2019) is based on a relatively shorter period (2001-2018).

(ii) Damodaran recommends two estimates: 7.87% based on CDS spreads and 8.60% based on bond ratings, which are known to be sluggish. Damodaran's estimates are based on adjusting the mature country's ERP and therefore is an indirect measure of Indian ERP that only partially reflects the Indian market price data.

(iii) The Grant Thornton report (2017) gives a forward-looking estimate of 8%. It is based on market data but is based on subjective estimates of dividend growth rates given by analysts.

Given these four estimates, each of which is subject to biases, we define the proxy for ERP in our study as the simple average of the four estimates, i.e., our proxy for ERP is $(7.78\% + 7.87\% + 8.60\% + 8\%)/4 = 8.06\%$. This averaging procedure helps eliminate the effect of biases implicit in each of the three studies.

3.3.7. Risk Free Rate

The Risk-Free Rate for a market is the yield on the safest security in that market, typically the debt issued by the Government. In this case we consider four securities issued by the Government of India. Firstly, we obtain the average yield of the 10-year Government of India (GOI) bonds over the past 18 years – 7.56%. Next, we look at the present yield on three GOI bonds – the 1-year Treasury Bill yielding 6.81%, the 3-year GOI bond yielding 7.15% and the 10-year GOI bond yielding 7.60%. Given the long-term nature of infrastructure cash flows, we use the average yield on the 10-year GOI bond (instead of the current risk-free rate) to estimate the relevant Risk-Free Rate. In asset pricing studies, it is useful to look at as a long

historical time series as possible. Given the series of significant reforms during the 90s, we considered the period 2000-2018 for both ERP and Risk-Free rate for maintaining consistency.⁴⁷

3.3.8. Cost of Debt – Illustrative Purpose only

The following section provides an estimate of the cost of debt of BIAL as an illustrative exercise. In general, cost of debt (CoD) must be estimated annually based on the latest information as of that date. The estimates developed for cost of debt in this section have no purpose other than to illustrate the computation of the Fair Rate of Return (FRoR), as discussed further down. Both the CoD and FRoR estimates in this report have no bearing on future annual CoD and FRoR estimates, which would have to be estimated based on information available at that point in time in future.

To estimate the Cost of Debt (CoD) of comparable debt instruments in India, we considered a total of 17,665 debt instruments (Debt Instruments, Commercial Papers and Certificate of Deposit) as per NSDL.⁴⁸ Of these, 709 are rated ‘AA Negative’ as per CARE, CRISIL, ICRA, Brick Work Ratings, India Ratings & Research, SME Ratings and Acuite Ratings. BIAL is rated “AA Negative” by CRISIL, as of 17 Jun 2020. The number of debt instruments issued, from 01/01/2018 till 31/12/2020 of the said rating is 264. Of these, 11 were by infrastructure companies. Table 3.7 gives the average coupon rate of these 11 instruments.

⁴⁷ The Risk Free used in this study reflects default risk and is consistent with the historical average estimate and the implied forward-looking estimates of equity risk premium but inconsistent with the estimates of Damodaran (because Damodaran’s estimates already include a default spread). However, given that under the CAPM, Damodaran’s methodology is questionable (see Kruschwitz, Mandi and Löffler, Business Valuation Review, 2012, DOI: 10.5791/11-00017.1), we use the Risk-Free Rate that is consistent with the historical average estimate and the implied forward-looking estimates of equity risk.

⁴⁸ <https://nsdl.co.in/downloadables/list-debt.php>

Discussion Summary (Cost of Debt – Illustrative Purpose Only)

- *We estimated the average yields of bonds of comparable infrastructure companies (AA bonds). The estimate was 10.05%.*
- *For illustrative FRoR calculations, we use the CoD of 10.05% for BIAL.*
- *Going forward, AERA should seek inputs from the airport operator and accordingly estimate the Cost of Debt as market conditions evolve.*

Table 3.7: Estimation of Cost of Debt (CoD) – For Illustrative Purpose only

Debt Instrument Issuer	Issue Date	Maturity Date	Coupon Rate
AP CR Development Authority	Aug-18	Aug-24	10.32%
AP CR Development Authority	Aug-18	Aug-25	10.32%
AP CR Development Authority	Aug-18	Aug-26	10.32%
AP CR Development Authority	Aug-18	Aug-27	10.32%
AP CR Development Authority	Aug-18	Aug-28	10.32%
G R Infraprojects Ltd.	Nov-18	May-22	9.68%
G R Infraprojects Ltd.	Nov-18	Sep-21	9.69%
Torrent Power Ltd.	May-19	May-24	10.25%
Torrent Power Ltd.	May-19	May-23	10.25%
Torrent Power Ltd.	May-19	May-22	10.25%
Pune Solapur Expressways Pvt. Ltd.	Sep-20	Mar-29	8.80%
Overall Cost of Debt (Average)			10.05%

Source: <https://nsdl.co.in/downloadables/list-debt.php>

3.3.9. Cost of Equity (CoE) and Fair Rate of Return (FRoR)

Using the equity betas shown in Equation 3.7, we compute the CoE using the CAPM. Here, we discuss the recommended CoE and FRoR estimates for BIAL. For the third control period

(FY2021-22 to FY2025-26), Table 3.8 shows these results. The entire process flow with relevant sections numbers is showcased in [Appendix 4](#).

Table 3.8: Variables Used to Estimate CoE and FRoR

The re-levering is based on the following equation $\beta_E = \beta_A [1 + (1 - T_C) * D/E]$ – (Equation 3.3 – Re-levering Betas). Also, the asset betas (β_A) used are the Equally Weighted betas (**0.6229**) for BIAL. Also, the asset betas (β_A) used are the Proximity Score Weighted (PSW) betas, **0.562659** for BIAL. The Cost of Debt (R_D) is for illustrative purpose only.

1. Asset Beta (Proximity Score Weighted) (β_A)

BIAL	0.564689
------	----------

2. Risk Free Rate (R_f)

10-Year GOI Bonds, 18-Year Daily Avg.	7.56%
---------------------------------------	-------

3. Equity Risk Premium (ERP)

Simple Average of estimates from four studies	8.06%
---	-------

4. Cost of Debt* (R_D)

Estimated using 'AA -' rated Debt Instruments from NSDL	10.05%
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*Illustrative Purpose only. Refer section 3.3.7 for details.

Table 3.9: Estimation of Cost of Equity (CoE) for BIAL

This table summarizes the results for BIAL and highlights the 2 important variants of D/E ratios. Of these, we recommend target gearing ratio of 0.9231 or 48:52. The asset betas are the Proximity Score Weighted (PSW)

weighted betas, given by $\beta_A = \frac{\sum_{k=1}^6 \left(\frac{\beta_k}{PS_{k,B}} \right)}{\sum_{k=1}^6 \left(\frac{1}{PS_{k,B}} \right)}$ (Equation 3.2). Further, these are converted to equity betas by re-leveraging using the equation $\beta_E = \beta_A [1 + (1 - T_c) * (D/E)]$ – (Equation 3.3 – Re-levering Betas). The CoE is computed using the CAPM equation, $R_E = R_f + \beta_E (R_M - R_f)$, Equation 1.1. FRoR is computed as $FRoR = (R_M * \frac{D}{D+E}) + [R_E * (1 - \frac{D}{D+E})]$, Equation 3.4.#

Airport: BIAL	Gearing Based on Target Gearing Ratio	Gearing based on MDE-Equity of BDE 2:1
(Col 1)	(Col 2)	(Col 3)
Asset Beta	0.564689	0.564689
Gearing Ratio (D/E)	0.9231**	0.9180***
Gearing Ratio (D/D+E)	48.00%	47.86%
Equity Beta	0.9296	0.9276
Risk Free Rate	7.56%	7.56%
Equity Risk Premium	8.06%	8.06%
Cost of Equity	15.05%	15.04%
Cost of Debt\$	10.05%	10.05%
Fair Rate of Return##	12.65%	12.65%

The tariff computation reflects a pass through of the annual taxes payable, thus the Cost of Equity (R_E) used in the FRoR formula is a post-tax cost of equity. Since taxes are covered by tariffs, tax deductibility of interest is irrelevant for the airport operator and the cost of debt should not reflect any interest tax shield benefits.

**Target Gearing Ratio – calculated using average suggested gearing by the regulators of 8 comparable international airports.

***Market Debt Equity equivalent of BDE using the factor 0.459.

\$Illustrative purpose only. This varies significantly depending on market conditions.

FRoR is an illustrative computation only.

Recommendations for Cost of Equity

Our final recommendation for CoE is based on the following parameters:

- *Gearing Ratio: Target gearing ratio of 48%.*
- *Risk-Free Rate of 7.56% based on the average 10-year GOI yield over 2001-2019. It is good practice to use as much historical information as possible. Prior to 2000, there were significant structural changes that were triggered by 1991 reforms, so we used the period 2001-2019 given that some degree of stability would have been obtained since 1991 reforms.*
- *ERP of 8.06% is based on an average of estimates from three studies*
- *Proximity Score Weighted (PSW) Asset Beta for BIAL: 0.564689*
- **CoE estimate of BIAL is 15.05%**
 - *This estimate is consistent with the findings of survey-based estimates of CoE across sectors in the Indian economy. Fig 3.3 gives the sectoral CoEs for India.*

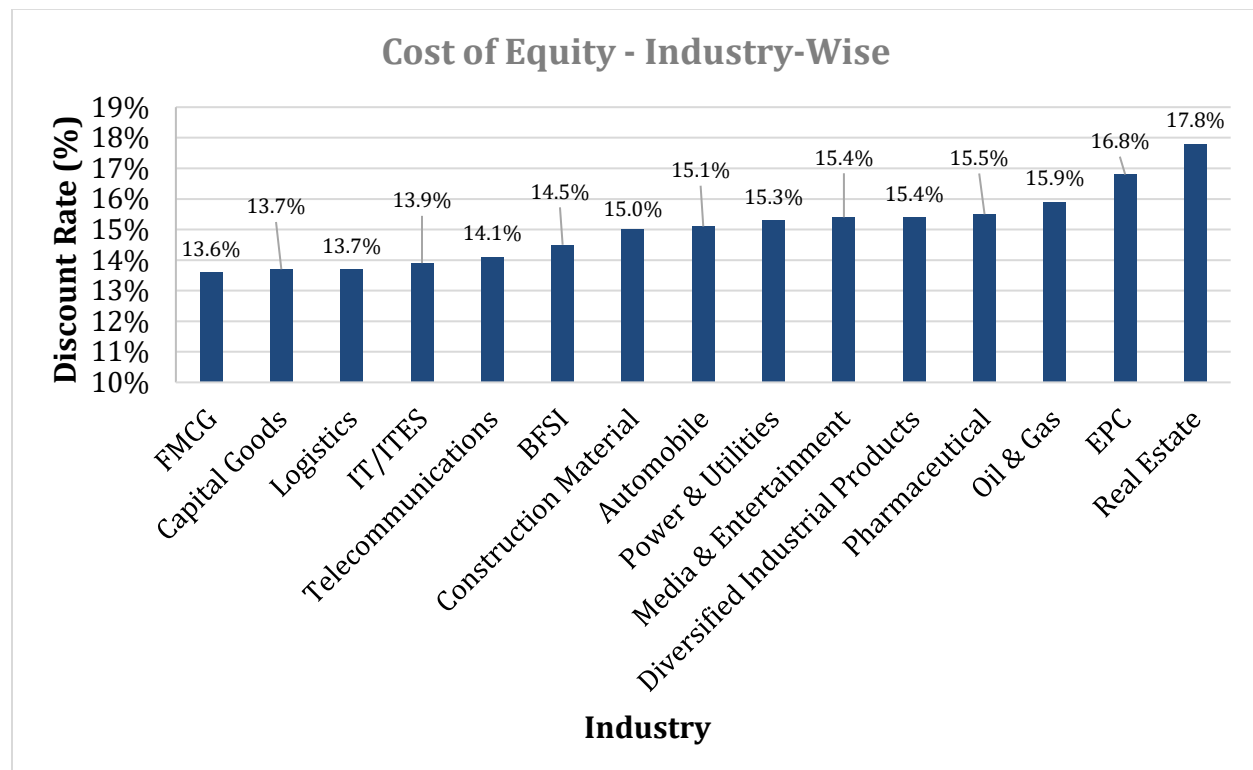
*Illustrative **FRoR** estimate is based on an illustrative cost of debt of 10.05% (note that this is not a recommendation): FRoR of BIAL: **12.65%***

3.3.10. Survey Estimates of Cost of Equity

The chart below presents the findings from an Ernst & Young survey on the variation of cost of equity across different sectors in India. Cost of equity varies from a low of 13.6% for the FMCG sector to 17.8% for the real estate sector.

Fig 3.3: CoE by Sector

The chart shows the sector-wise breakup of CoE in India.



Source: Navin Vohra, Cost of Capital – India Survey, 2017, Ernst & Young

3.4. Conclusion and Final Recommendation

In this section, we estimated the Cost of Equity (CoE) and provided an illustrative example of Cost of Debt (CoD) and Fair Rate of Return (FRoR) computations. First, we computed a proximity score weighted average beta of a comparable set of international airports as a proxy for the asset beta of BIAL. Next, we re-levered this asset beta into an equity beta using the recommended target gearing ratio, as determined by the average suggested gearing ratio of a comparable set of international airports. The equity beta was then used to compute the

Cost of Equity as per the CAPM. . We discussed the Cost of Debt (CoD) and FRoR using an illustrative example. The final recommendations are shown in Table 3.10.

Table 3.10: Final Recommendations

Variable (Col 1)	BIAL (Col 2)
Asset Beta based on Proximity Score	0.564689
Weights of comparable set	
Target gearing ratio (D/D+E)	48%
Target gearing ratio (D/E)	0.9231
Equity Beta	0.9296
Risk Free Rate	7.56%
Equity Risk Premium	8.06%
Cost of Equity	15.05%
Cost of Debt (CRISIL Rating) ^{\$}	10.05%
Fair Rate of Return[#]	12.65%

^{\$}Illustrative purpose only. This varies significantly depending on market conditions.

[#]FRoR is an illustrative computation.

3.4.1. Utility for Estimating CoE (and FRoR Computations)

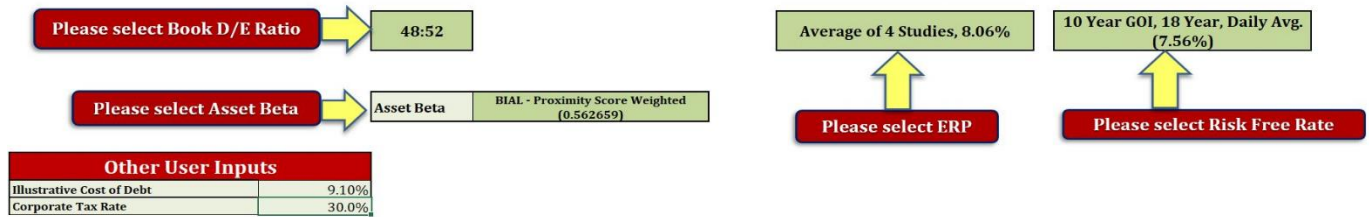
Based on varying set of assumptions, multiple other variants of CoE and FRoR are possible with varying estimates of betas, ERP, Risk-Free Rate, etc. The MS-Excel utility (AERAExcelUtility.xlsm) supplied along with this report gives all possible variants discussed in this study. It gives the CoE and FRoR based on user inputs for different variables. This section discussed the said Excel Utility. The Utility opens to the screenshot provided in Fig 3.4. As can be observed, the user has a choice of 5 variables' input, viz.

1. Target capital structure based on book D/E Ratio (BDE): This ranges from 35:65 to 85:15 with step increment of 5%.
2. Equity Risk Premium (ERP): four different choices of ERP are available:
 - a. Damodaran, 2019, (Scaled CDS) – 8.60%

- b. Damodaran, 2019, (Scaled DS) – 7.87%
- c. Anshuman et al. – 7.78%
- d. Grant Thornton, Forward Estimate – 8.00%

We employ a simple average of these 4 estimates (a-d) – 8.06%

Fig 3.4: Screenshot of User Inputs in Excel Utility



Note: **Cost of Debt** (CoD) in this fig. is illustrative only considering 2019 debts. This varies significantly depending on market conditions as discussed in section 3.3.7

Ref: AERAExcelUtility.xlsm

3. Risk-Free Rate: 4 different values of Risk-Free Rates are available:
 - a. 10-Year GOI bonds daily averaged over 18 years – 7.56%
 - b. 1-Year T-Bill – 6.81%
 - c. 3-Year GOI Bonds – 7.15%
 - d. 10-Year GOI Bonds, current (Jan 2019) – 7.6%
4. Asset Beta: As discussed, the proximity score weighted as well as the equal weighted betas is available as user input options.

Once these choices are made, the Utility automatically takes the corresponding values and displays the same.

Fig 3.5 shows the same. The results are displayed as highlighted in Fig 3.6.

Fig 3.5: Values corresponding to the variables based on user input

Values Derived from User Choices	
Target Gearing Ratio	48.00%
Equity Risk Premium	8.06%
Risk Free Rate	7.56%
Asset Beta	0.564689

Fig 3.6: Final Output in the Excel Utility

Output	
Equity Beta	0.9296
Cost of Equity	15.05%
Illustrative Fair Rate of Return	12.65%

Note: **Fair Rate of Return** (FRoR) is an illustrative computation only and varies significantly depending on CoD as discussed in section 3.3.7

Appendix 1: Summary of ToR Relevant for BIAL Cost of Capital

1. Background⁴⁹

The Authority had determined 'Cost of Equity' for private sector in the year 2011. Now 7 years have been lapsed, hence the Authority intends to conduct the study afresh in the current scenario to perform its statutory regulatory functions.

The Cost of Capital of FRoR (Fair rate of Return) is a significant influencer when Rate of Return Regulation is the opted method of Economic Oversight. The intent of such rate of return is to embody the reasonable return expectation of ALL investors in the project. Regulatory precedents at the time of choosing such Economic Oversight in India favored the use of WACC in which the COE would be determined with the help of the CAPM model.

While other determinants such as debt and capital structure, cost of debt, leverage levels etc., are explicit or evident, it is Cost of Equity in the FRoR formula (that determines WACC), which remains the challenge.

2. Scope of Work

- a) Study of relevant environment, trends in airport capitalization
- b) Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity
- c) Recommendations on Cost of Equity
- d) Follow-on activities

3. Study of the current environment and trends in airport capitalization

Assist the Authority in:

- a) Study of capitalization structure, funding mechanisms, divestment deals reported in recent projects in Asia/Europe, investor returns and co-relation to their return models in these cases.

⁴⁹ Ref: Annexure 1 of agreement signed between IIMB and AERA on 16 Mar 2020

- b) Study recent airport asset divestment cases witnessed in PPP/Other projects in India and/or region. Understand implication of such deals on stakeholder behavior, impact on return models, passenger tariff & capital gains realized & their co-relation to FRoR & Cost of Equity & reason for absence of co-relation.
- c) Prepare an observation summary stating how and why cases from a) and b) have impacted and influenced the determinants of FRoR, in particular Cost of Equity, CAPM model and its underlying premises.
- d) Trace developments in both Business and Regulatory environment from 2009 (beginning of Airport regulation) to evaluate the impact of change in underlying assumptions for CAPM model.
- e) Study to also cover prevalent trends and developments in other regulated infrastructure intensive industries like Power, Roads, etc.

4. Study airport-specific determinants of Cost of Capital with specific focus on Cost of Equity

In the background of study detailed above, an airport-specific study should be undertaken according importance to all determinants of Cost of Capital, but specifically focusing on Cost of Equity including:

- a) **Capital Employed Structure:** Study the components of the capital employed, suitability to the airport project, its feasibility and sustainability.
- b) **Share-holding pattern:** Study the composition of shareholders, their holding period, their prevalent divestment scenario and opportunities and possible impact on Cost of Equity.
- c) **Cost of Equity:** Study the impact of the cost of equity determined for the previous control periods, suggestions for improvement, impact on the passenger fee/ aeronautical charges. Study of the scenario must also cover expectations on return or cost of equity, risk-free return, equity market risk premium, equity beta, asset beta, taxation, etc.

- d) **Dividend distribution policy:** Study the specific airport's dividend distribution policy, and application of Dividend relevance theory in determination of Cost of capital.

Other Determinants

- a) **Cost of debt:** Impact of actual cost of debt for previous control periods, variance to projections, suggestions for improvement, impact on passenger fee/aero charges.
- b) **Debt Structure, Leverage level:** Assessment of the efforts of the Airport in raising Debt via different avenues, Debt service cost reduction & negotiation efforts.
- c) **Debt standing & Market perception of the Airport/Major shareholder:** Risk profile of the Airport operator and/or its largest shareholder and consequent impact on cost of debt.

5. Recommendations on Cost of Equity

Recommendations to include:

- a) Cost of Equity – Risk-free return, risk premium and beta levels.
- b) Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing
- c) Alternative models for determination of cost of equity

6. Follow-on Activities

- a) Assist in drafting of consultation paper for determination of cost of equity and undertaking stakeholder consultations and consolidating comments received from various stakeholders, preparing clarifications on comments thereof.
- b) Assist in drafting the Order on determination of cost of equity.

Appendix 2: Set of Indian Infrastructure Companies

A data set of 37 Indian Infrastructure companies for 5 Years (2014-18) was used to establish the relationship between Market and Book Debt Equity of a company in Equation 3.6. However, not all 37 companies traded in those 5 years. The following table clearly shows which company was traded in the financial year out of such 5 years:

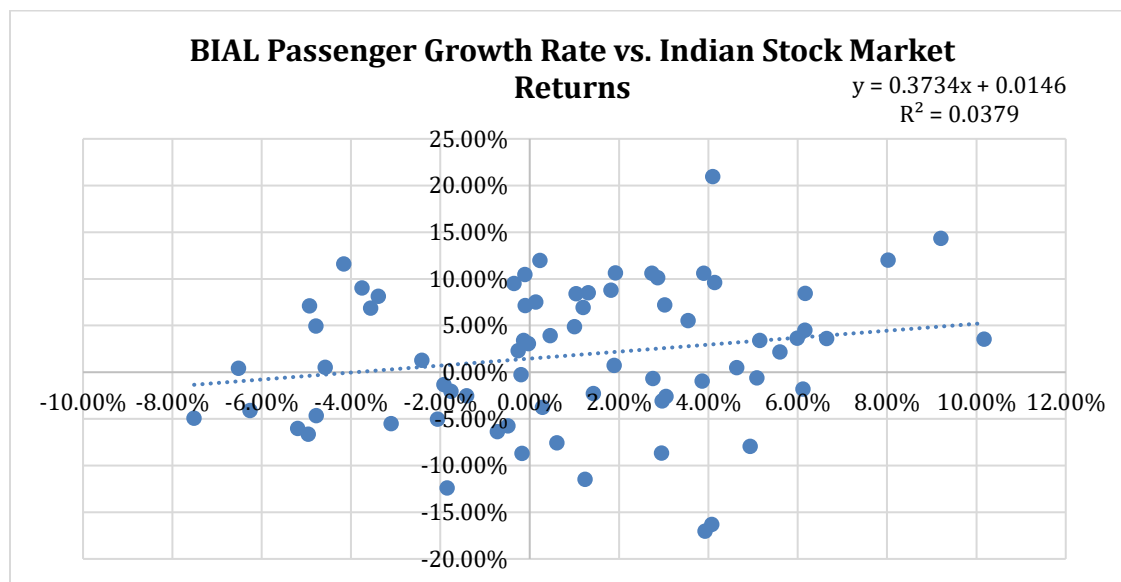
S. No.	Company Name (Col 1)	Traded in Financial Year (Col 2)	Number of years (Col 3)
1	B S Ltd.	2014 - 2018	5
2	C C L International Ltd.	2014 - 2018	5
3	G P T Infraprojects Ltd.	2014 - 2018	5
4	G T L Ltd.	2014 - 2018	5
5	I T D Cementation India Ltd.	2014 - 2018	5
6	Jyothi Infraventures Ltd.	2014 - 2018	5
7	N C C Ltd.	2014 - 2018	5
8	Nu Tek India Ltd.	2014 - 2018	5
9	P N C Infratech Ltd.	2014 - 2018	5
10	Precision Electronics Ltd.	2014 - 2018	5
11	R P P Infra Projects Ltd.	2014 - 2018	5
12	Shriram E P C Ltd.	2014 - 2018	5
13	Vishvas Projects Ltd.	2014 - 2018	5
14	Indo-Asian Foods & Commodities Ltd.	2014 - 2017	4
15	Navkar Builders Ltd.	2014 - 2017	4
16	Sadbhav Infrastructure Project Ltd.	2015 - 2018	4
17	Simplex Projects Ltd.	2015 - 2018	4
18	Excel Realty N Infra Ltd.	2014 - 2016	3
19	Gammon Infrastructure Projects Ltd.	2015 - 2017	3
20	K E C International Ltd.	2014 - 2016	3
21	M B L Infrastructures Ltd.	2014, 2016 - 2017	3
22	Marg Ltd.	2015 - 2017	3
23	Maruti Infrastructure Ltd.	2016 - 2018	3
24	Ruchi Infrastructure Ltd.	2014 - 2016	3

25	Capacit'e Infraprojects Ltd.	2017 - 2018	2
26	Essar Ports Ltd.	2014 - 2015	2
27	G M R Infrastructure Ltd.	2014 - 2015	2
28	P V V Infra Ltd.	2016 - 2017	2
29	Pratibha Industries Ltd.	2017 - 2018	2
30	Suvidha Infraestate Corpn. Ltd.	2014 - 2015	2
31	Atlanta Devcon Ltd.	2016	1
32	Dilip Buildcon Ltd.	2017	1
33	I L & F S Engg. & Construction Co. Ltd.	2014	1
34	Kalpataru Power Transmission Ltd.	2014	1
35	Prime Focus Ltd.	2018	1
36	Valecha Engineering Ltd.	2017	1
37	Yuranus Infrastructure Ltd.	2015	1

Appendix 3: Demand Function in the Indian Context

Charts 1 shows the results for BIAL. The regression comprises month-on-month stock returns from 2013–2018 to the month-on-month passenger growth rate in the same period for BIAL.

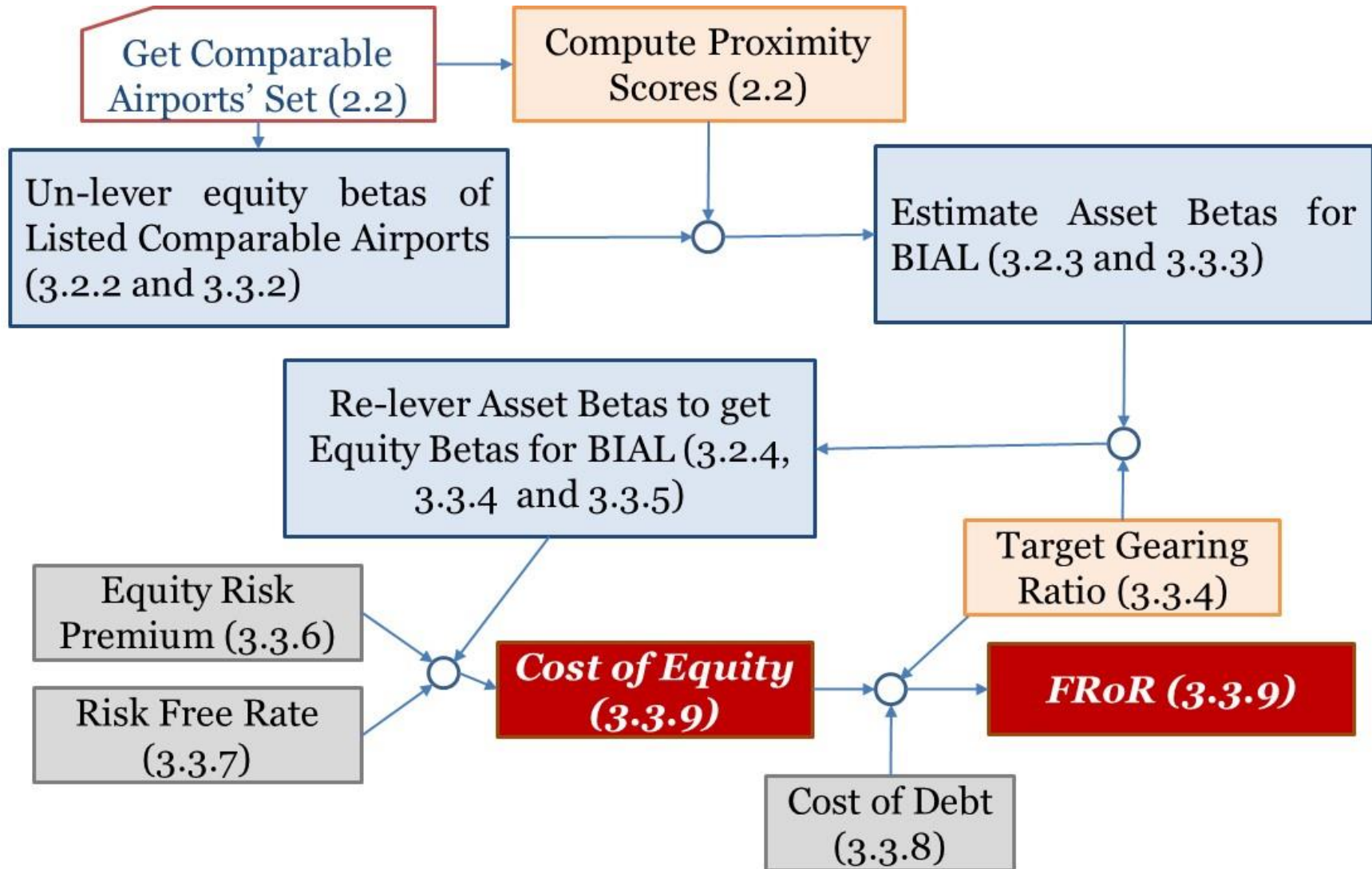
Chart 1: BIAL Passenger Growth Rate vs. Indian Stock Market Returns from 2013–2018



	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 99.0%	Upper 99.0%
Intercept	0.0146	0.0091	1.6112	0.1117	-0.0035	0.0326	-0.0035	0.0326
slope	0.3734	0.2266	1.6479	0.1039	-0.0786	0.8253	-0.0786	0.8253

As highlighted in the charts, the slope (proxy for asset beta) is ~0.37 for BIAL. However, while demand risk is low, there could be other uncertainties playing out.

Appendix 4: Flowchart to compute Cost of Equity (CoE) and FRoR*



* The numbers in bracket indicate the respective section number in the report.

Appendix 5: Section-wise Indexing of Terms of Reference (ToR)

Clause 3a. Study of capitalization structure, funding mechanisms, divestment deals reported in recent projects in Asia/Europe, investor returns and co-relation to their return models in these cases.		
Subject	Section(s) of the Report	Comments/Caveats
Document cases on airport divestments in Asia/Europe with focus on:		
Capitalization	2.2.1	
Funding mechanism	2.2.2	
Investor returns	2.3.1	
Correlation to their return models	2.2.3	The last part of section discusses this and also does a comparative study w.r.t. Indian airports (Ref. Table 2.11 and Table 2.12.)
Clause 3b. Study recent airport asset divestment cases witnessed in PPP/Other projects in India and/or region. Understand implication of such deals on stakeholder behavior, impact on return models, passenger tariff & capital gains realized and their co-relation to FRoR & Cost of Equity and reason for absence of co-relation.		
Subject	Section(s) of the Report	Comments/Caveats
Same as 3a for Indian airport disinvestment in all respects along with	2.2.1 – 2.2.3	
Implications on stakeholder behavior	2.3.2	The case of Bangalore divestment is discussed. MIAL could not be discussed for lack of recent data
Impact on return models, passenger tariff and capital gains and their correlation to FRoR	2.2.3	Indian Airports (DIAL, BIAL, MIAL and HIAL) are compared to international comparables in terms of their IRR
Reason for absence of correlation	Last part of the section 2.2.3	Explicitly gives parameters to find the correlation and the absence currently observed (Ref Table 2.11 and Table 2.12)

3c. Prepare an observation summary stating how and why cases from a) and b) above have impacted and influenced the determinants of FRoR in particular Cost of Equity, CAPM model and its underlying premises.		
Subject	Section(s) of the Report	Comments/Caveats
1. Document Determinants of FRoR (CoE in focus) 2. Impact of 3(a) and 3(b) on the same	2.4	
3d. Trace developments in both Business and Regulatory environment from 2009 (beginning of Airport regulation) to evaluate the impact of change in underlying assumptions for CAPM model	2.1	
3e. Study to also cover prevalent trends and developments in other regulated infrastructure intensive industries like Power, Roads, etc.	2.3.3	Discusses InVITs

Subject	Section(s) of the Report	Comments/Caveats
4a. Capital Employed Structure: Study the components of capital employed, suitability to the airport project, its feasibility and sustainability	2.2.1	
4b. Share-holding pattern: Study the composition of shareholders, their holding period, their prevalent divestment scenario and opportunities and possible impact on Cost of Equity	2.2.1	Refer to Table 2.7 - Table 2.10
4c. Cost of Equity: Impact of the cost of equity determined for the previous control periods, suggestions for improvement, impact on the passenger fee aeronautical charges. Study of the scenario must also cover expectations on return or cost of equity, risk-free return, equity market risk premium, equity beta, asset beta, taxation, etc.	3.2.5 and 3.3.9	
4d. Dividend distribution policy: Study on the specific airport's dividend distribution policy, application of Dividend relevance theory in determination of Cost of capital	2.1 and 2.3.1	Fig. 2.7 and Table 2.11 and Table 2.12
4 (Others) a. Cost of debt: Impact of actual cost of debt for previous control periods, variance to projections, suggestions for improvement, impact on passenger fee/aero charges	3.3.8	
4 (Others) b. Debt Structure, Leverage level: Assessment of the efforts of the airport in raising Debt via different avenues, Debt service cost reduction and negotiation efforts	3.3.4	Table 3.4
4 (Others) c. Debt standing and Market perception of the Airport/Major shareholder: Risk profile of the airport operator and/or its largest shareholder and consequent impact on cost of debt	3.3.8	Table 3.7

Subject	Section(s) of the Report	Comments/Caveats
5a. Recommendation 1: Cost of Equity - risk-free return, risk premium and beta levels	3.4 and Excel Utility provided along with this document.	Excel utility manual is provided in section 3.4.1.
5b. Recommendation 2: Feasibility of adopting a normative approach with regards to the optimum capital structure and debt-equity gearing		
5c. Recommendation 3: Alternative models for determination of cost of equity		
6a. Assist in drafting of consultation paper for determination of cost of equity and undertaking stakeholder consultations and consolidating comments received from various stakeholders, preparing clarifications on comments thereof.	Consultations based on one-on-one interactions with AERA	
6b. Assist in drafting the order on determination of cost of equity		