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Cost-Benefit Analysis of International Airports: Methodology for Evaluating Financial Feasibility and Economic Viability

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ABSTRACT: Large-scale projects like airports have significant economic and social impacts on a nation. The construction of such projects requires substantial investment from both the government and various private entities. Therefore, it is essential to assess the financial feasibility of these projects through thorough project appraisal. The purpose of a Cost-Benefit Analysis (CBA) is to determine if a project is solid, justified, and feasible by evaluating whether the benefits outweigh the costs. Cost-Benefit Analysis of airports involves calculating all expenditures incurred during the project's development which principally involves the cost of construction of the airport against the revenues generated from the airport from aeronautical and non aeronautical operations. Cost Benefit Analysis provides project managers with the tools to make informed decisions about a project's feasibility, determining whether it is sound and reasonable, and establishing a baseline for comparing different initiatives. Data for this analysis will be gathered using a mixed-method approach, combining both quantitative and qualitative techniques. This methodology involves evaluating cost-benefit analysis, cost analysis (including internal rate of return, net present value, benefit-cost ratio, and payback period). This research focuses on a methodology for accessing the financial feasibility of the airport with a case study.

Keywords:- Airports, Project Management, Cost Benefit Analysis, Aeronautical Operations, Non Aeronautical Operations.

I.   INTRODUCTION

Cost Benefit Analysis is widely accepted for aviation capital investments, as airports demand large resources. CBA works by calculating benefits and expenditures over time and them expressing them as a discounted present value. When CBA is used to evaluate airport proposals, it can raise challenges such as how to deal with competing modes of transportation and intermodal interactions, as well as whom the true users and beneficiaries of new airport projects are. Medical crises, Military and civilian flights training and aviation airports all demand some type of thought and valuation in judgment. Moreover, some general aviation airports all demand some type of thoughts and valuation in judgment. Moreover, some general aviation airports serve as support hubs for industry clusters, managing emergency replacement shipment for just-in-time manufacturing options that often involves private players as well. The cost-benefit analysis of research, development, and innovation is a recent field that provides a comprehensive framework for evaluating large-scale, capital-intensive RDI infrastructure. This approach identifies the social value of unlocking the potential of RDI infrastructure through its use and non-use benefits. Using CBA to solve the risks and uncertainties of optimism bias in projections, the analysis unfolds the societal value and supports sustained economic growth over long periods of time. The approach sticks to the main principles of CBA but with new and heuristic methods. While many concepts have their origins in traditional CBA practices from other sectors, such as transport, energy, and water, application to RDI infrastructure is still relatively new. This approach is based on welfare economics, just like its long-time application in more conventional infrastructure sectors. The Federal Aviation Administration is investing a lot of money in mitigating runway intrusions. The cost of these improvements is also high, and from 2014 to 2016, the runway status light cost exceeded $ 101 million, with an average cost since 2004 of $ 33 million. Nickerson also takes responsibility for improving cost-benefit analysis and making resource allocation decisions regarding the utilization of limited resources for improving safety and cost-effective runway reduction. In 2018, the runways accidents reached $20 billion, and calculating cost is a much more complex investment throughout the enterprise. It is considered the highest with the cost-benefit analysis. Investing in productivity security is a feature of the overall security enhancement and has the most significant impact. Additionally, both the direct and indirect costs further need to be taken into consideration along with their benefits. Eventually, as investment increases, so does the return on investment [David C. Ison, et al2020].

During the development phase of the mid-19th century, the CBA became the best tool for assessing transportation projects. CBA is used as a tool for evaluating North American shipping projects at Canadian locations. The impact considered for transportation by analytical techniques is to consistently assess travel time savings and safety improvements to understand all the costs and benefits of the project. KNA uses a quantitative and qualitative assessment of its net impact on transportation projects as a general approach. It depends on the model and predictions, and it depends heavily on the factors and inputs chosen. There is a conflict between the level of design required to implement a detailed CBA and its use in comparing alternatives required in the planning and decision-making process. Several alternatives have been proposed to raise the bar for this study. Studies show that the same project evaluated using CBA guidelines from different countries can produce different results that deviate from construction in the evaluation decision. The profits calculated for a transportation project can be divided into direct or internal profits for users of the transportation infrastructure. The methodology is used in this study as NPV from an evaluation point of view.[S. Sachsen et al 2016].

Economic benefit of airport infrastructure tends to meet demand in transportation and it is usually categorized into air and landslides. In economic evaluation project, consideration of constraints with projects and without projects where they must look for institutional constraints present in the market. Transportation infrastructure investments can improve service dependability and predictability. [Jose-Dorsmas Jorge, et al .2016]

Large-scale projects aimed at fostering public investment require sophisticated and supportive networks. Traditional (static) cost-benefit analysis (CBA) serves as an early-stage decision-making tool for business development. Research has highlighted several key attributes that conventional CBAs often lack, such as flexibility, dynamic elements, and systematic thinking. To address these gaps, new frameworks have been developed that incorporate these qualities. Integrating concepts like flexibility and uncertainty to adjust to changing expectations can significantly improve the effectiveness of standard CBA. In addition to focusing on development projects, audits have identified specific areas for improvement in CBAs. Much of the existing literature emphasizes cost and time, while the benefits and their contributors are less frequently discussed. This is particularly true for large or oversized projects, which have extensive timelines and numerous variables impacting different stages of the project. Consequently, time is a critical variable, arguably as important as cost. The economic and social priorities of a project are crucial in analyzing its financial and social elements. For example, a study on the public-private partnership (PPP) at Delhi Airport examined the social, economic, and financial impacts of expanding Terminal T3 to accommodate increased flight traffic. Using a "with and without" approach, the financial analysis initially showed poor results, which later turned positive. The societal impact will be assessed once the initiative becomes operational, demonstrating that benefits encompass both social and economic dimensions. While CBA is a valuable tool for determining financial feasibility, it does have some limitations. One notable issue is the asset's residual value, which is the value generated at the end of its life cycle. Traditional infrastructure CBAs often fail to account for residual value and the discount rate, both of which can significantly affect the net present value (NPV) of a project. The discount rate, in particular, can negatively impact NPV by undervaluing future cash flows. [Heather Jones, et al. 2014].

Financial appraisal can be done in two ways: based on the value of the finished product or the costing of the project based on value. CBA is of great significance during investment evaluation and not during social factors. The main focus of CBA is to identify, quantify, and monetize costs and benefits derived from the project to make conclusions. Major measures used in CBA are NPV and IRR that are used to judge the current cash inflow and outflow and the future benefit to be derived. A project is accepted if the NPV is positive; otherwise, it is rejected. The IRR is the discount rate when the NPV is zero. If the capital value is set high, the project is either adopted or rejected. [Silvija Bruna and others, 2011]. To illustrate the practical applications of cost-benefit analysis (CBA), this research assumes an airport project and uses it as a concrete example to work on.

II.   OBJECTIVES

- To determine the complete cost of construction of airport and the monetary benefits generated in the form of revenue from the project.
- To determine the costs involved in the construction of airport across the full span of construction in a phase wise manner.
- To study various sources of which will generate the revenue for the airport.
- To forecast the revenues generated from various sources from the operations of aeronautical and non aeronautical operations.
- To generate the cash flow of the airport.
- To determine the Net Present Value and Internal Rate of Return of the airport at 10%, 12%, 14% and 16%

III.   FINANCIAL FEASIBILITY

This is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. This is commonly used in capital budgets to determine which projects are likely to generate the most profit. A positive present value of a project or investment means that the discounted present value of all future cash flows associated with that project or investment is positive and therefore attractive.

A positive NPV means that the investment is worth it, a 0 NPV means that the inflows are equally out flows, and a negative NPV means that the investment is not good for the investor. The formula for NPV depends on the number and consistency of future cash flows. To calculate the NPV, estimation of future cash flows for each period and determining the correct discount rate. If there's one cash flow from a project that will be paid one year from now, then thecalculation for the NPV is as follows:

NPV = [Cash flow / (1+i)^t]- initial investment
Where,
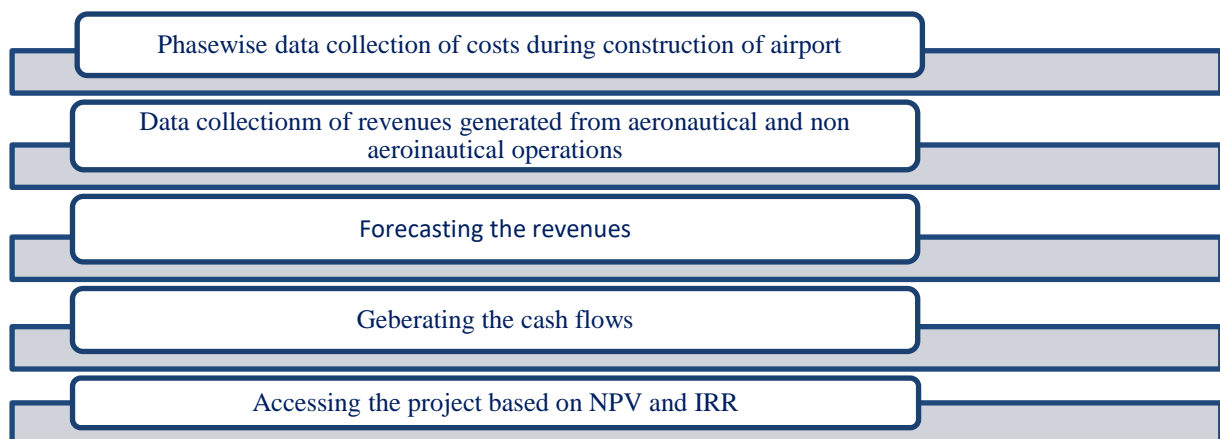*i*- Required return or discount rate
t- Number of times periods

If analyzing a longer-term project with multiple cash flows, then the formula for the NPV ofa project is as follows:

The signs of NPV can explain a lot about whether an investment is appropriate.

•   NPV> 0: The inflow PV is larger than the outflow PV. It's a good investment because the money you get from your investment is worth more than today's costs.
•   NPV = 0: The inflow PV is the same as the outflow PV. There is no difference between the value of money earned and the value of money invested.
•   NPV < 0: Inflow PV is smaller than outflow PV. It's a bad investment because the moneyyou get from an investment is now less valuable than the cost.

It is a metric used in financial analysis to estimate the profitability of potential investments. It is the calculation used to estimate the profitability of potential investments. It is the guideline for evaluating whether to proceed with a project. IRR is calculated using the same concept as net present value (NPV), except it sets the NPVequal to zero. If IRR on a project is greater than the minimum Required Rate of Return (RRR) typically the cost of capital then the project can be pursued. IRR is ideal for analyzing capital budgeting projects to understand and compare potential ratesof annual return over time.

IV.   METHODOLOGY

Phasewise data collection of costs during construction of airport

Data collectionm of revenues generated from aeronautical and non aeroinautical operations

Forecasting the revenues

Geberating the cash flows

Accessing the project based on NPV and IRR

V.   COST INCURRED

Considering the case study of Rajiv Gandhi International Airport, Hyderabad for better illustration, the said airport features two runways measuring 3,707 by 45 meters (12,162 ft × 148 ft), and 4,260 by 60 meters (13,980 ft × 200 ft). The combined area of the said runways is approximately 422,415 square meters. The taxiways are an area of 663,070 square meters, while the terminal apron is 65,000 square meters. The long-term

parking apron is 226,132 square meters. Ground Support Equipment (GSE) Maintenance occupies 5,526 square meters, and the General Aviation Apron is 10,140 square meters. The Hangars Apron is 101,753 square meters, and the Cargo Apron is 67,872 square meters. The airport's perimeter fence encloses an area of 11,598 square meters, and the perimeter road extends over 350,400 square meters. The access road to the west of the terminal measures 49,308 square meters, while the east access road is 45,087 square meters. Overall, the total terminal access roads cover 136,710 square meters. Landside parking at grade level is 87,378 square meters, parking near the Hangars Building is 14,237 square meters, and parking at the Cargo Building is 22,100 square meters. The terminal itself occupies an area of 122,262 square meters, and the cargo area is 32,994 square meters. The Aircraft Rescue and Fire Fighting (ARFF) area in the north is 11,614 square meters, with three ARFF vehicles stationed there. The General Aviation Terminal spans 2,323 square meters, and there are four Hangar Buildings. The Power Station covers an area of 11,550 square meters, the Technical Building is 18,600 square meters, and the Catering Building is 4,269 square meters. The construction of the airport was done in four phases, with costs distributed across these phases.

VI.   COST COMPONENTS OF AIRPORT
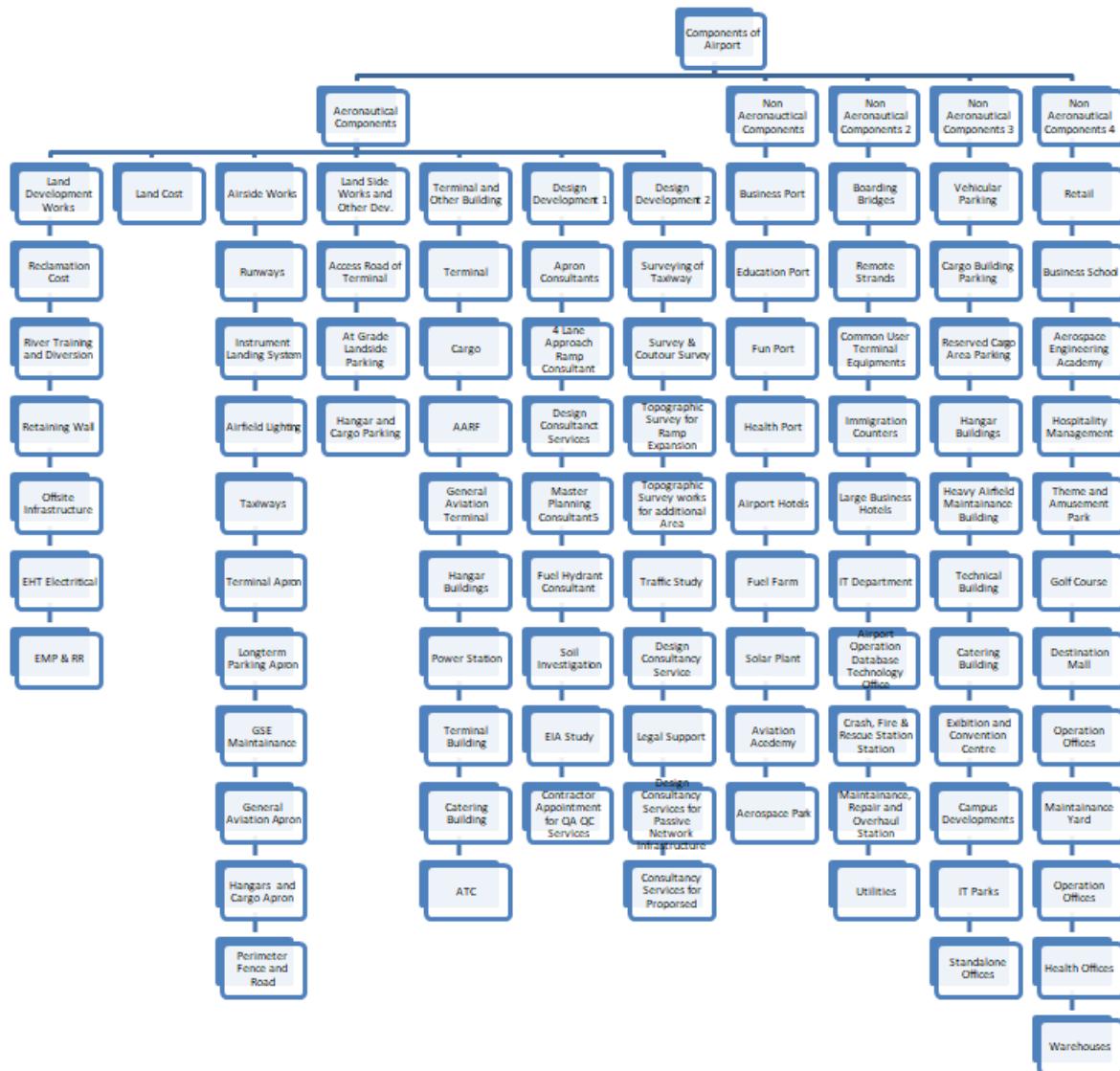
1.   **Figure 1 : Cost Components**

VII. REVENUE GENERATION

Considering the case study of Rajiv Gandhi International Airport (RGIA), the data was collected from the financial year 2008-09 to 2020-21, with projections extending up to 2044-45 and is expressed in tabular format. This data includes the average daily number of domestic flights, international flights, and cargo flights, as well as the annual air traffic movement for each specific year. Notably, there was a significant decline in air traffic during the fiscal year 2019-2020 due to the pandemic. The capacity of Hyderabad Airport is 34 million passengers per year. Up until April 2019, the airport had recorded a total of 12 million passengers. However, due to the pandemic in April, the airport experienced a loss of 4 million passengers, resulting in a passenger movement of 8 million (8,048,248) passengers. During the fiscal year 2020-2021, Hyderabad Airport recorded 86,081 flights and the total cargo tonnage imported and exported amounted to 110,789 metric tons

Flights per day					
FY	Domestic	International	Cargo	Flights per day	Flights Per Year
2008-2009	202	22	5	229	**83734**
2009-2010	204	26	6	236	**86051**
2010-2011	206	29	6	241	**88017**
2011-2012	211	31	7	249	**90706**
2012-2013	216	33	7	256	**93404**
2013-2014	224	36	7	267	**97570**
2014-2015	230	39	8	277	**101015**
2015-2016	236	42	8	286	**104470**
2016-2017	239	43	9	291	**106110**
2017-2018	241	45	9	295	**107761**
2018-2019	244	46	10	300	**109423**
2019-2020	154	22	10	186	**81057**
2020-2021	201	38	11	250	**86015**
2021-2022	213	40	12	265	96586
2022-2023	226	42	12	280	102236
2023-2024	239	44	13	296	108217
2024-2025	254	46	14	314	114550
2025-2026	269	48	15	332	121254
2026-2027	285	51	16	352	128352
2027-2028	302	53	17	372	135867
2028-2029	320	56	18	394	143824
2029-2030	340	59	19	417	152249
2030-2031	360	62	20	442	161169
2031-2032	382	65	21	467	170613
2032-2033	404	68	22	495	180612
2033-2034	429	72	23	524	191200
2034-2035	454	75	25	555	202410
2035-2036	482	79	26	587	214280
2036-2037	511	83	28	622	226849
2037-2038	541	87	30	658	240157
2038-2039	578	91	31	697	254246
2039-2040	608	96	33	737	269170
2040-2041	645	101	35	781	284969
2041-2042	683	106	37	827	301700
2042-2043	724	111	40	875	319415
2043-2044	768	117	42	927	338174
2044-2045	**814**	**123**	**45**	**981**	358039

Table 1 : Forecast of flights per day till FY. 2044-45

VIII.   REVENUE FROM LANDING

The landing charges for Hyderabad Airport were collected from the Ministry of Civil Aviation Website which is bifurcated according to international and domestic flights.

Weight of aircraft	Rate per landing (In INR)
Up to 25 MT	223.90 per MT
25 to 50MT	5597.50+402.90 per MT in excess of 25 MT
50 to 100MT	15670+415.40 per MT in excess of 100 MT
100 to 200MT	36440+420.20 per MT in excess of 100 MT
More than 200MT	478460+405.60 per MT in excess of 200 MT

Table 2 : Landing charges domestic flights for FY 2024-2025

Weight of aircraft	Rate per landing (In INR)
Up to 25 MT	376.40 per MT
25 to 50MT	9410+762.40 per MT in excess of 25 MT
50 to 100MT	28470+852.60 per MT in excess of 100 MT
100 to 200MT	71100+970.20 per MT in excess of 100 MT
More than 200MT	168120+1001.30 per MT in excess of 200 MT

Table 3 : Landing charges internal flights for FY 2024-2025

FY	Domestic	International	FY	Domestic	International
2008-2009	138.28Cr	37.28Cr	2028-2029	1157.09Cr	359.87Cr
2009-2010	136.28Cr	31.82Cr	2029-2030	1348.76Cr	418.27Cr
2010-2011	151.39Cr	41.37Cr	2030-2031	1576.24Cr	440.68Cr
2011-2012	168.16Cr	50.76Cr	2031-2032	1835.85Cr	509.40Cr
2012-2013	189.47Cr	59.69Cr	2032-2033	1948.04Cr	587.45Cr
2013-2014	213.36Cr	69.89Cr	2033-2034	2266.27Cr	743.62Cr
2014-2015	243.38Cr	83.76Cr	2034-2035	2647.15Cr	866.10Cr
2015-2016	249.90Cr	99.95Cr	2035-2036	3073.28Cr	992.41Cr
2016-2017	282.07Cr	118.40Cr	2036-2037	3598.78Cr	1149.87Cr
2017-2018	310.27Cr	133.29Cr	2037-2038	4616.50Cr	1328.90Cr
2018-2019	348.52Cr	153.50Cr	2038-2039	5376.28Cr	1532.24Cr
2019-2020	388.15Cr	172.60Cr	2039-2040	6274.67Cr	1762.97Cr
2020-2021	269.48Cr	90.80Cr	2040-2041	7310.97Cr	1857.36Cr
2021-2022	386.90Cr	172.53Cr	2041-2042	8531.45Cr	2152.35Cr
2022-2023	496.10Cr	199.77Cr	2042-2043	9937.51Cr	2484.80Cr
2023-2024	579Cr	230.74Cr	2043-2044	11587.4Cr	2862.20Cr
2024-2025	604.61Cr	109.18Cr	2044-2045	13520.8Cr	3318.87Cr
2025-2026	689.76Cr	282.05Cr			

Table 4 : Forecast of revenue generated from landing charges for domestic and international flights till FY 2044-45

IX.   REVENUE FROM PARKING CHARGES

The data from parking charges of Hyderabad airport was collected from the website of Ministry of Civil Aviation.

Weight of Aircraft	Parking Charges per Hour (first 2 hours free parking period)	Parking Charges per Hour (Beyond 2 hours parking)
Up to 25 MT	3.30 Per Hour Per MT	6.60 Per Hour Per MT
25 to 50 MT	82.50+5.60 Per MT Per Hour in Excess of 25 MT	165+11.20 Per MT Per Hour in Excess of 25 MT
50 to 100 MT	225.50+7.10 Per MT Per Hour in Excess of 50 MT	445+14.20 Per MT Per Hour in Excess of 50 MT

Table 5 : Parking charges for international flights in FY 2024-25.

Weight of Aircraft	Parking Charges per Hour (first 2 hours free parking period)	Parking Charges per Hour(Beyond 2 hours parking)
Up to 25 MT	3.20 Per Hour Per MT	6.40 Per Hour Per MT
25 to 50 MT	80+4.90 Per MT Per Hour in Excess of 25 MT	160+9.80 Per MT Per Hour in Excess of 25 MT
50 to 100 MT	202.50+5.80 Per MT Per Hour in Excess of 50 MT	405+11.60 Per MT Per Hour in Excess of 50 MT
100 to 200 MT	492.50+9.30 Per MT Per Hour in Excess of 100 MT	985.00+18.60 Per MT Per Hour in Excess of 100 MT
More than 200 MT	1422.50+9.50 Per MT Per Hour in Excess of 200 MT	2845+19.00 Per MT Per Hour in Excess of 200 MT

Table 6 : Parking charges for domestic flights in FY 2024-25.

FY	Domestic	International	FY	Domestic	International
2008-2009	0.28Cr	2.46Cr	2026-2027	2.90Cr	**12.93Cr**
2009-2010	0.28Cr	2.46Cr	2027-2028	3.39Cr	**15.96Cr**
2010-2011	0.36Cr	2.73Cr	2028-2029	3.88Cr	**17.56Cr**
2011-2012	0.45Cr	3.04Cr	2029-2030	4.51Cr	**20.46Cr**
2012-2013	0.53Cr	3.42Cr	2030-2031	5.23Cr	**25.35Cr**
2013-2014	0.62Cr	3.50Cr	2031-2032	6.04Cr	**29.51Cr**
2014-2015	0.74Cr	4.00Cr	2032-2033	6.89Cr	**31.32Cr**
2015-2016	0.81Cr	4.11Cr	2033-2034	8.02Cr	**36.43Cr**
2016-2017	0.95Cr	4.63Cr	2034-2035	9.35Cr	**42.56Cr**
2017-2018	1.07Cr	0.47Cr	2035-2036	9.81Cr	**49.55Cr**
2018-2019	1.24Cr	5.7Cr	2036-2037	11.28Cr	**57.72Cr**
2019-2020	1.39Cr	6.37Cr	2037-2038	13.04Cr	**67.49Cr**
2021-2022	1.39Cr	6.35Cr	2039-2040	16.54Cr	**91.7Cr**
2022-2023	1.61Cr	7.41Cr	2040-2041	23.23Cr	**124.70Cr**
2023-2024	2.05Cr	8.64Cr	2041-2042	26.8Cr	**145.24Cr**
2024-2025	2.38Cr	10.06Cr	2042-2043	31.10Cr	169.29Cr
2025-2026	**2.64Cr**	**11.76Cr**	**2043-2044**	**35.82Cr**	186.82Cr

Table 7 : Forecast of revenue generated from parking charges from both domestic and international flights till FY 2044-45.

X.   REVENUE FROM HOTELS

Our project group visited the Novotel Hotel at Rajiv Gandhi International Airport (RGIA) and conducted a small survey regarding the accommodation and room rates. We discovered that the hotel has a total of 350 rooms of various types.

Superior 2 Single Beds
- Area: 25 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 8000 per night

Superior Queen Bed Pool View
- Area: 25 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 9000 per night

Superior 2 Single Beds Pool View
- Area: 25 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 9000 per night

Premium Executive Floor 1 Queen Bed
- Area: 25 sqm

- Capacity: 2 adults and 2 children
- Rate: Rs 10000 per night

Premium Executive Floor 2 Single Beds

- Area: 25 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 10000 per night

Premium Executive Floor 1 Queen Bed Pool View

- Area: 25 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 10500 per night

Premium Executive Floor 2 Single Beds Pool View

- Area: 25 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 10500 per night

Deluxe Suite 1 Queen Size Bed

- Area: 53 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 16000 per night

Executive Suite 1 Queen Size Bed

- Area: 60 sqm
- Capacity: 2 adults and 2 children
- Rate: Rs 20000 per night

After collecting these rates, we analyzed the potential revenue generated for the airport from the hotel's operations. This analysis spans from the fiscal year 2008-2009, when the hotel became operational, to projections for the fiscal years 2024-2045.

FY	GHRL Hotel Division	FY	GHRL Hotel Division	FY	GHRL Hotel Division
2008-2009	4.00Cr	2020-2021	1.80Cr	2032-2033	**2.95Cr**
2009-2010	6.00Cr	2021-2022	2.00Cr	2033-2034	**3.04Cr**
2010-2011	7.00Cr	2022-2023	2.20Cr	2034-2035	**3.13Cr**
2011-2012	8.00Cr	2023-2024	2.26Cr	2035-2036	**3.23Cr**
2012-2013	8.00Cr	2024-2025	2.33Cr	2036-2037	**3.32Cr**
2013-2014	9.00Cr	2025-2026	2.40Cr	2037-2038	**3.42Cr**
2014-2015	1.00Cr	2026-2027	2.76Cr	2038-2039	**3.53Cr**
2015-2016	1.10Cr	2027-2028	2.55Cr	2039-2040	**3.63Cr**
2016-2017	1.27Cr	2028-2029	2.62Cr	2040-2041	**3.74Cr**
2017-2018	1.40Cr	2029-2030	2.70Cr	2041-2042	**3.85Cr**
2018-2019	1.50Cr	2030-2031	2.78Cr	2042-2043	**3.97Cr**
2019-2020	1.60Cr	2031-2032	2.87Cr	2043-2044	**4.09Cr**
				2044-2045	**4.21Cr**

Table 8 : Forecast of revenue generated from hotels till FY 2044-45.

XI. REPAIR, MAINTAINANCE AND OVERHAUL

The revenue generated operations of repair, maintenance and overhaul for airlines in hangers is bifurcated in this category.

FY	Revenue	FY	Revenue	FY	Revenue
2008-2009	253.00Cr	2020-2021	792.75Cr	2032-2033	**2487.97Cr**
2009-2010	277.85Cr	2021-2022	872.02Cr	2033-2034	**2736.77Cr**
2010-2011	305.64Cr	2022-2023	959.22Cr	2034-2035	**3010.44Cr**
2011-2012	336.20Cr	2023-2024	1055.14Cr	2035-2036	**3311.49Cr**
2012-2013	369.82Cr	2024-2025	1160.65Cr	2036-2037	**3642.64Cr**
2013-2014	406.80Cr	2025-2026	1276.72Cr	2037-2038	**4006.90Cr**

2014-2015	447.48Cr	2026-2027	1404.39Cr	2038-2039	**4407.59Cr**
2015-2016	492.23Cr	2027-2028	1544.83Cr	2039-2040	**4848.35Cr**
2016-2017	5414.60Cr	2028-2029	1699.32Cr	2040-2041	**5333.19Cr**
2017-2018	595.30Cr	2029-2030	1869.25Cr	2041-2042	**5866.51cr**
2018-2019	655.16Cr	2030-2031	2056.17Cr	2042-2043	**6453.16Cr**
2019-2020	720.68Cr	2031-2032	2261.79Cr	2043-2044	**7098.48Cr**
				2044-2045	**7808.33Cr**

Table 9 : Forecast of revenue generated from repair, maintenance and overhaul till FY 2044-45.

XII.   UNBILLED REVENUE

Unbilled revenue was obtained from studying reports from GHAIL and forecasting. The unbilled revenue was the unregistered value.

FY	Unbilled Revenue	FY	Unbilled Revenue	FY	Unbilled Revenue
2008-2009	12.02Cr	2020-2021	37.73Cr	2032-2033	**118.40Cr**
2009-2010	13.22Cr	2021-2022	41.50Cr	2033-2034	**130.24Cr**
2010-2011	14.55Cr	2022-2023	45.65Cr	2034-2035	**143.26Cr**
2011-2012	16.00Cr	2023-2024	50.21Cr	2035-2036	**157.59Cr**
2012-2013	17.60Cr	2024-2025	55.23Cr	2036-2037	**173.35Cr**
2013-2014	19.36Cr	2025-2026	60.76Cr	2037-2038	**190.69Cr**
2014-2015	21.30Cr	2026-2027	66.83Cr	2038-2039	**209.76Cr**
2015-2016	23.43Cr	2027-2028	73.51Cr	2039-2040	**230.73Cr**
2016-2017	25.77 Cr	2029-2029	80.87 Cr	2040-2041	**253.81 Cr**
2017-2018	28.35 Cr	2029-2030	88.95 Cr	2041-2042	**279.19 Cr**
2018-2019	34.30 Cr	2030-2031	97.85 Cr	2042-2043	**307.11 Cr**
2019-2020	37.73 Cr	2031-2032	107.64 Cr	2043-2044	**337.82 Cr**
				2044-2045	**371.60 Cr**

Table 10 : Forecast of revenue generated from unbilled revenue till FY 2044-45.

XIII.   REVENUE FROM CONNERCIAL DEVELOPMENT

Revenue from the rental income from the airport.

FY	Rental Income	FY	Rental Income	FY	Rental Income
2008-2009	6.29Cr	2020-2021	19.74Cr	2032-2033	**37.14Cr**
2009-2010	6.92Cr	2021-2022	21.72Cr	2033-2034	**39.00Cr**
2010-2011	7.61Cr	2022-2023	22.80Cr	2034-2035	**40.95Cr**
2011-2012	8.37Cr	2023-2024	23.94Cr	2035-2036	**43.00Cr**
2012-2013	0.92Cr	2024-2025	25.14Cr	2036-2037	**45.15Cr**
2013-2014	10.13Cr	2025-2026	26.40Cr	2037-2038	**47.41Cr**
2014-2015	11.14Cr	2026-2027	27.72Cr	2038-2039	**49.78Cr**
2015-2016	12.26Cr	2027-2028	29.10Cr	2039-2040	**52.27Cr**
2016-2017	13.48Cr	2028-2029	30.56Cr	2040-2041	**54.88Cr**
2017-2018	14.83Cr	2029-2030	32.09Cr	2041-2042	**57.62Cr**
2018-2019	16.31Cr	2030-2031	33.69Cr	2042-2043	**60.51Cr**
2019-2020	17.95Cr	2031-2032	35.37Cr	2043-2044	**63.53Cr**
				2044-2045	**66.71Cr**

Table 11 : Forecast of revenue generated from rental income at airport till FR 2044-45.

XIV.   REVENUE FROM CONTRACTS

Revenue generated from contracting of civil, electrical and other technical work.

FY	Contracts	FY	Contracts	FY	Contracts
2008-2009	127.80Cr	2020-2021	401.11Cr	2032-2033	**1258.88Cr**
2009-2010	140.58Cr	2021-2022	441.23Cr	2033-2034	**1384.76Cr**
2010-2011	154.64Cr	2022-2023	485.35Cr	2034-2035	**1523.245Cr**
2011-2012	170.11Cr	2023-2024	533.88Cr	2035-2036	**1675.57Cr**
2012-2013	187.12Cr	2024-2025	5872.77Cr	2036-2037	**1843.12Cr**
2013-2014	2058.37Cr	2025-2026	646.00Cr	2037-2038	**2027.43Cr**
2014-2015	226.42Cr	2026-2027	710.60Cr	2038-2039	**2230.183Cr**
2015-2016	249.06Cr	2027-2028	781.66Cr	2039-2040	**2453.20Cr**
2016-2017	273.96Cr	2028-2029	859.83Cr	2040-2041	**2698.52Cr**
2017-2018	301.36Cr	2029-2030	945.81Cr	2041-2042	**2968.37Cr**
2018-2019	331.50Cr	2030-2031	1040.39Cr	2042-2043	**3265.21Cr**
2019-2020	364.65Cr	2031-2032	1144.43Cr	2043-2044	**3591.73Cr**
				2044-2045	**3950.90Cr**

Table 12 : Forecast of revenue generated from contracts till FY 2044-45.

XV.   REVENUE FROM CARGO DIVISION

The charges per kilogram of cargo for domestic and international flights for RGIA were found by the cargo department. The data includes both the domestic and international flights.

1. Standard Charges for Processing & Handling	MIN	PER KG
(TSP Charges inclusive of Offloading/Loading/ Shifting & Forklift Usage)	**INR**	INR
a) General Cargo / Unaccompanied Baggage (Per Shipping Bill)	120	**1**
b) Special (AVI) (Per Shipping Bill)	200	**1.4**
c) PER / DGR / VAL (Per Shipping Bill)	230	**2.43**
d) Fruits & Vegetables (No Cold Room Usage)	75	**0.65**
e) Meat Product	**200**	**1.1**

Table 13 : Export charges in FY 2024-25.

a) General Cargo / Unaccompanied Baggage	**200**	**1**
b) Special (AVI)	200	**1.4**
c) DGR / VAL/PER (if cold storage is used)	250	**2.43**
1. Strapping Charges (**Export/Import**)	INR 5.00 / pkg	
2. Courier Handling	**120**	1.2
3. Return Cargo Charges	INR 500 per AWB	
4. Bonded Trucking (Loading Charges)	120	1

Table 14 : Demurrage Charges / Storage (Per KG per day or Part Thereof) Free time for all

Standard Charges for Processing & Handling	MIN	PER KG
(TSP Charges inclusive of Offloading/Loading/ Shifting & Forklift Usage)	INR	INR
a) General Cargo (Bill of Entry)	200	4.75
b) Special (AVI) (Bill of Entry)	200	8.89
c) PER / DGR / VAL (Bill of Entry)	250	9.5
d) Unaccompanied Baggage (Bill of Entry/UB Declaration)	200	4.75

Table 15 : Import charges in FY 2024-25.

a) General Cargo / Unaccompanied Baggage	Subject to Minimum of
	Rs. 295.00
- Shipments cleared within 120 hrs including free period	1.3
- 121 hrs to 720 hrs	2.6
- Beyond 720 hrs	3.9

Table 16 : Demurrage charges / storage (per kg per day or part thereof) free time for all categories of cargo 48 hours

b) Special Cargo (AVI)	Subject to Minimum of
	Rs.580.00
- Shipments cleared within 120 hrs including free time	2.6
- 121 hrs to 720 hrs	5.2
- Beyond 720 hrs	7.8
c) PER / DGR / VAL	Subject Minimum of
	Rs. 1160.00
- Shipments cleared within 120 hrs including free period	5.2
- 121 hrs to 720 hrs	10.4
- Beyond 720 hrs	15.6

Table 17 : Demurrage charges / storage (per kg per day or part thereof) free time for all categories of special cargo 48 hours

Courier Handling	200	4.9
MOT (**Merchants Overtime Charges**) beyond customs working hrs and on Notified Holidays with customs permission		Rs. 215.00 per Bill of Entry
Handling of VAL Cargo beyond Customs working hours		Rs. 1,000.00 per AWB

Bonded Trucking (Unloading Charges)	**200**	0.65	

Domestic Charges (Outbound)			
Standard Charges for Processing & Handling		**MIN**	PER KG
TSP Charges inclusive of Offloading/Loading/Shifting & Forklift		**INR**	INR
a) General Cargo		100	**0.65**
b) Special (AVI) (Per Shipping Bill)		200	**2.05**
c) PER / DGR / VAL (Per Shipping Bill)		200	**2.05**
Demurrage Charges / Storage			
a) General Cargo		125	**0.65**
b) Special (AVI)		200	**1.4**
c) DGR / VAL/PER (if cold storage is used)		200	**2.05**
Courier Handling		100	**0.75**
Amendment of Airway Bill			Rs.100/AWB
Return Cargo Charges			Rs.100/AWB
Strapping charges			INR 5.00/Bag

Table 18 : Domestic outbound charges

Demurrage Charges / Storage (Per KG / Per Day)		
a) General Cargo	200	**1.25/td>**
b) Special (AVI)	250	**2.20/td>**
c) PER / DGR / VAL	250	**2.20/td>**
Domestic Charges (inbound)		
Standard Charges for Processing & Handling	**MIN**	PER KG
(TSP Charges inclusive of Offloading/Loading/ Shifting & Forklift Usage)	INR	**INR**
a) General Cargo	125	**1.1**
b) Special (AVI)	200	**2.1**
c) PER / DGR / VAL	200	**2.1**
Courier Handling	125	**1.2**
Strapping charges		INR 5.00 per Bag

Table 19 : Domestic inbound charges.

FY	Cargo Airport	FY	Cargo Airport	FY	Cargo Airport
2008-2009	23.18Cr	2020-2021	727.63Cr	2032-2033	**228.36Cr**
2009-2010	25.50Cr	2021-2022	800.40Cr	2033-2034	**251.19Cr**
2010-2011	28.05Cr	2022-2023	880.44Cr	2034-2035	**276.31Cr**
2011-2012	30.85Cr	2023-2024	968.48Cr	2035-2036	**303.95Cr**
2012-2013	33.94Cr	2024-2025	106.53Cr	2036-2037	**334.34Cr**
2013-2014	37.33Cr	2025-2026	117.18Cr	2037-2038	**367.78Cr**

2014-2015	41.07Cr	2026-2027	128.90Cr	2038-2039	**404.55Cr**
2015-2016	45.18Cr	2027-2028	141.79Cr	2039-2040	**445.01Cr**
2016-2017	49.69Cr	2028-2029	155.97Cr	2040-2041	**489.51Cr**
2017-2018	54.66Cr	2029-2030	171.57Cr	2041-2042	**538.46Cr**
2018-2019	60.13Cr	2030-2031	188.73Cr	2042-2043	**592.31Cr**
2019-2020	66.14Cr	2031-2032	207.60Cr	2043-2044	**651.54Cr**
				2044-2045	716.70Cr

Table 20 : Forecast of revenue from cargo till FY 2044-45.

XVI.   ENABLING MARKETING OF PRODUCTS OF WOMEN ENTREPRENEURS

FY	Empower	FY	Empower	FY	Empower
2008-2009	0.20Cr	2020-2021	0.64Cr	2032-2033	**1.99Cr**
2009-2010	0.22Cr	2021-2022	0.70Cr	2033-2034	**2.19Cr**
2010-2011	0.25Cr	2022-2023	0.77Cr	2034-2035	**2.41Cr**
2011-2012	0.27Cr	2023-2024	0.84Cr	2035-2036	**2.65Cr**
2012-2013	0.30Cr	2024-2025	0.93Cr	2036-2037	**2.92Cr**
2013-2014	0.33Cr	2025-2026	1.02Cr	2037-2038	**3.21Cr**
2014-2015	0.36Cr	2026-2027	1.12Cr	2038-2039	**3.53Cr**
2015-2016	0.40Cr	2027-2028	1.24Cr	2039-2040	**3.89Cr**
2016-2017	0.43Cr	2028-2029	1.36Cr	2040-2041	**4.28Cr**
2017-2018	0.48 Cr	2029-2030	1.50 Cr	2041-2042	**4.70 Cr**
2018-2019	0.53 Cr	2030-2031	1.65 Cr	2042-2043	**5.18 Cr**
2019-2020	0.58 Cr	2031-2032	1.81 Cr	2043-2044	**5.69 Cr**
				2044-2045	6.29 Cr

Table 21 : Forecast of revenue generated from female run businesses till FY 2044-45.

XVII.   REVENUE FROM RETAIL

Revenue from rental income at the airport which includes stores, showrooms, etc.

FY	Retail	FY	Retail	FY	Retail
2008-2009	4.29Cr	2020-2021	13.47Cr	2032-2033	**42.28Cr**
2009-2010	4.72Cr	2021-.2022	14.82Cr	2033-2034	**46.51Cr**
2010-2011	5.19Cr	2022-2023	16.30Cr	2034-2035	**51.16Cr**
2011-2012	5.71Cr	2023-2024	17.93Cr	2035-2036	**56.27Cr**

2012-2013	6.28Cr	2024-2025	19.72Cr	2036-2037	**61.90Cr**
2013-2014	6.91Cr	2025-2026	21.69Cr	2037-2038	**68.09Cr**
2014-2015	7.60Cr	2026-2027	23.86Cr	2038-2039	**74.90Cr**
2015-2016	8.36Cr	2027-2028	26.25Cr	2039-2040	**82.39Cr**
2016-2017	9.20Cr	2028-2029	28.87Cr	2040-2041	**90.63Cr**
2017-2018	10.12Cr	2029-2030	31.76Cr	2041-2042	**99.70Cr**
2018-2019	11.13Cr	2030-2031	34.94Cr	2042-2043	**109.67Cr**
2019-2020	12.24Cr	2031-2032	38.43Cr	2043-2044	**120.63Cr**
				2044-2045	**132.70Cr**

Table 22 : Forecast of revenue generated from retail till FY 2044-45.

XVIII. REVENUE FROM ADVERTISEMENTS

Revenue generated from the endorsements at the airport.

FY	Advertisement	FY	Advertisement	FY	Advertisement
2008-2009	3.81Cr	2020-2021	11.96Cr	2032-2033	**37.54Cr**
2009-2010	4.19Cr	2021-2022	13.16Cr	2033-2034	**41.30Cr**
2010-2011	4.61Cr	2022-2023	14.47Cr	2034-2035	**45.43Cr**
2011-2012	5.07Cr	2023-2024	15.92Cr	2035-2036	**49.97Cr**
2012-2013	5.57Cr	2024-2025	17.51Cr	2036-2037	**54.97Cr**
2013-2014	6.13Cr	2025-2026	19.26Cr	2037-2038	**60.46Cr**
2014-2015	6.75Cr	2026-2027	21.19Cr	2038-2039	**66.51Cr**
2015-2016	7.42Cr	2027-2028	23.31Cr	2039-2040	**73.16Cr**
2016-2017	8.16Cr	2028-2029	25.64Cr	2040-2041	**80.48Cr**
2017-2018	8.98Cr	2029-2030	28.20Cr	2041-2042	**88.53Cr**
2018-2019	9.88Cr	2030-2031	31.03Cr	2042-2043	**97.38Cr**
2019-2020	10.87Cr	2031-2032	34.13Cr	2043-2044	**107.12Cr**
				2044-2045	**117.83Cr**

Table 23 : Forecast of revenue generated from advertisements till FY 2044-45.

XIX.   REVENUE FROM FOOD AND BEVERAGES

Revenue generated from food and beverages sold within the airport.

FY	Revenue	FY	Revenue	FY	Revenue
2008-2009	4.18Cr	2020-2021	13.15Cr	2032-2033	**41.28Cr**
2009-2010	4.60Cr	2021-2022	14.47Cr	2033-2034	**45.41Cr**

2010-2011	5.06Cr	2022-2023	15.91Cr	2034-2035	**49.95Cr**
2011-2012	5.57Cr	2023-2024	17.50Cr	2035-2036	**54.94Cr**
2012-2013	6.13Cr	2024-2025	19.25Cr	2036-2037	**60.44Cr**
2013-2014	6.74Cr	2025-2026	21.18Cr	2037-2038	**66.48Cr**
2014-2015	7.42Cr	2026-2027	23.30Cr	2038-2039	**73.13Cr**
2015-2016	8.16Cr	2027-2028	25.63Cr	2039-2040	**80.45Cr**
2016-2017	8.98Cr	2028-2029	28.19Cr	2040-2041	**88.49Cr**
2017-2018	9.87Cr	2029-2030	31.01Cr	2041-2042	**97.34Cr**
2018-2019	10.86 Cr	2030-2031	34.11 Cr	2042-2043	**107.08 Cr**
2019-2020	11.95 Cr	2031-2032	37.53 Cr	2043-2044	**117.78 Cr**
				2044-2045	**129.56 Cr**

Table 24 : Forecast of revenue generated from food and beverages till FY 2044-45.

XX.   REVENUE FROM PARKING CHARGES

Capacity 3000 Lots	
Vehicle Type	**Charges**
4Wheeler Private	**Rs 50 for 1st half an hour**
	Rs 100 For half an hour to one hour
	Rs 150 for one hour to two hours
	Rs 50For each subsequent hour or part there of
	Rs 30 for 24 hours
4Wheeler commercial	**Rs 200 for first one hour**
	Rs 50 for each subsequent hour
	Rs 600 for every 24 hours
2Wheeler	**Rs 30 for first two hours**
	Rs 10 for each subsequent hour or part there of
	Up to a maximum Rs 100 per 24 hours
Coach/ Bus	**Rs 200 for first 2 hours**
	Rs 10 for each subsequent hour or path there of
	up to a maximum of Rs 1000 per 24 hours
Valet Service (Departure levelonly)	**Rs 300 for first 2 hours**
	Rs 500 for next 2 hours
	Rs 500 for every extra day for every 24 hours
	Rs 900 up to 48 hours

Table 25 : Vehicular parking charges at airport.

The revenue generated from parking charges of vehicles of passengers.

FY	Revenue	FY	Revenue	FY	Revenue
2008-2009	6.96Cr	2020-2021	21.85Cr	2032-2033	**65.70Cr**
2009-2010	7.65Cr	2021-2022	23.03Cr	2033-2034	**72.27Cr**
2010-2011	8.42Cr	2022-2023	25.33Cr	2034-2035	**79.50Cr**
2011-2012	9.26Cr	2023-2024	27.86Cr	2035-2036	**87.45Cr**
2012-2013	10.19Cr	2024-2025	30.65Cr	2036-2037	**96.20Cr**
2013-2014	11.21Cr	2025-2026	33.71Cr	2037-2038	**105.82Cr**

2014-2015	12.33Cr	2026-2027	37.09Cr	2038-2039	**116.40Cr**
2015-2016	13.56Cr	2027-2028	40.79Cr	2039-2040	**128.04Cr**
2016-2017	14.92Cr	2028-2029	44.87Cr	2040-2041	**140.84Cr**
2017-2018	16.41Cr	2029-2030	49.36Cr	2041-2042	**154.93Cr**
2018-2019	18.05Cr	2030-2031	54.30Cr	2042-2043	**170.42Cr**
2019-2020	19.86Cr	2031-2032	59.73Cr	2043-2044	**187.47Cr**
				2044-2045	206.21Cr

Table 26 : Forecast of revenue generated from vehicle / passenger parking till FY 2044-45.

XXI.   FIXED ELECTRICITY GROUND POWER CHARGE

Airlines and operators may use the services of FEGP instead of APUs (Auxiliary Power Units) or GPUs (diesel generators). The usage charge for FEGP starts with a minimum of half an hour, with incremental charges for every 15 minutes after that, at the applicable hourly rates. The indicated ground power charges are.

XXII.   AVIATION SECURITY FEE

ASF for domestic passengers will be levied at the rate of Rs. 150/- (exclusive of goods and service tax) per embarking passengers. ASF for International passengers will be levied at the rate of $4.85 per embarking passengers.

XXIII. USER DEVELOPMENT FEE

User Development fees of Rs 5 is collected from each passenger departing the airport

XXIV. RESULTS AND DISCUSSIONS

Airlines and operators have the option to use FEGP services in place of APUs (Auxiliary Power Units) or GPUs (diesel generators). The FEGP usage fees begin with a minimum of 30 minutes, and subsequent charges are applied in 15-minute increments, based on the hourly rates. The specified ground power fees are as follows.

FY	Cash flows	FY	Cashflows
2005-2006	-44,46,65,58,394.00	2026-2027	**37,69,29,64,040.62**
2006-2007	-21,90,77,08,400.00	2027-2028	**40,71,58,40,398.56**
2007-2008	-25,29,39,58,722.00	2028-2029	**47,45,55,04,756.97**
2008-2009	-10,01,99,93,952.00	2029-2030	**53,18,22,59,513.37**
2009-2010	7,02,61,90,447.77	2030-2031	**66,43,84,66,773.95**
2010-2011	7,81,35,78,678.34	2031-2032	**72,61,15,70,049.00**
2011-2012	8,66,47,67,433.85	2032-2033	**82,08,57,44,006.07**
2012-2013	9,60,93,26,400.51	2033-2034	**92,32,73,17,119.83**
2013-2014	10,66,19,38,894.71	2034-2035	**1,03,57,20,80,520.50**
2014-2015	11,79,79,56,354.45	2035-2036	**1,16,70,75,35,067.76**
2015-2016	12,87,34,18,702.51	2036-2037	**1,35,61,95,10,780.16**
2016-2017	14,31,95,22,360.55	2037-2038	**1,52,88,06,88,223.37**
2017-2018	15,77,83,80,794.96	2038-2039	**1,72,59,11,04,495.19**
2018-2019	17,49,98,16,572.32	2039-2040	**1,93,17,06,93,472.73**
2019-2020	19,33,88,73,163.12	2040-2041	**2,18,52,83,60,722.21**
2020-2021	18,63,58,55,130.12	2041-2042	**2,79,79,07,82,703.43**
2021-2022	22,19,32,74,608.92	2042-2043	**3,17,20,96,69,206.52**
2022-2023	25,21,26,27,126.90	2043-2044	**3,57,32,84,36,117.38**
2023-2024	28,17,19,49,576.60	2044-2045	**3,96,42,27,24,968.24**
2024-2025	29,21,36,72,379.11	2045-2046	**4,51,28,19,78,632.87**
2025-2026	**33,99,49,90,477.60**		

Table 27 : Cash flows

To calculate the feasibility of the airport, it was decided to calculate the Net Present Value and Internal Rate of Return of the airport. Hence, the present values were calculated at 10%, 12%, 14% and 16% and an attempt was made to find which Discount rate are the most favorable NPV and at which discount rate was the NPV near to

zero, and that would be the Internal Rate of Return of our project.

Discounted Rate	NPV	IRR
10%	1,23,62,78,74,403.50	**14%**
12%	47,22,10,86,591.45	**14%**
14%	2,20,28,63,000.48	**14%**
14.129%	452.05	**14%**
14.130%	-93,99,743.59	**14%**
16%	**-25,20,75,64,562.62**	**14%**

Table 28 : Cash flow analysis

After calculating the Net Present Value and the Internal Rate of Return on MS Excel, the results were summarized in the above table. We understood that if the airport would increase its income by reducing the Discount Rate by less than 10% or even up to 10%, the airport would be in the most profitable state. Also, we inferred that, the Internal Rate of Return of the project was at 14.129% and at 14.13%, the Airport would be running at loss. Thus, rounding off by introducing a factor of safety, Internal Rate of Return at 14.00% would be the break-even point of the Airport. Consequently, beyond 14.13%, The airport would operate in loss, hence there was no point in giving too much offers, and the airport needed to run under a tight supervision taking care to tap the revenues effectively.

XXV.   CONCLUSION

During the pandemic in FY 2019-2020 the revenue generated was reduced by 4.7%, but in FY 2020-21, the revenue of airport was increased by 17% which showed that, the revenues of the airport were exponentially increased after the pandemic thus bringing the revenue generation back on track. NPVs at lower discounted rates were way better than higher discount. Discount rates till 14% were acceptable and any discount rate beyond 14% shall be rejected as they gave negative NPV. The IRR of the project is 14.129 % which was rounded off and taken as 14% so as to maintain a factor of safety.

 It was learned that the airport would function efficiently and in a most profitable state if the discounted rate was maintained at a much lower rate, preferably below 14%. Which means lower the discount rate, higher the profits. In order to maintain this lower rate, efforts should be made to increase the revenues either by revising the landing and parking charges of the flights and charges on cargo flights as these two are majorly the sources of income for the airport. Also focusing on revenues from advertisements and increasing the number of billboards in the airport along with increased rate per billboard per day shall be made which would increase the revenue for airport. As a result of increase in covid cases every day, a mandatory quick covid test could be made on passengers at the airport before boarding the planes and the charges for same can be fixed and included to their air ticket. The charges of the test should be framed in such a way that, with each test, some revenue gets generated for the airport. Also, the User Development Fee which is currently being charged at Rs 5/- per passenger was discussed in the 16th Annual General Meeting held for FY 2018-19 and hasn't been revised since then. The User Development Fee for the airport shall be increased as it is considered to not have undergone any major changes since 2019. Increasing the parking lots for the cars currently from 3000 will not only reduce the parking crises at the but also increase the revenue generated from parking and with each car, inflow of User Development Fee will increase. It is seen that currently there are 12 cargo planes taking off from the airport per day. Increasing the number of cargo flights will not only increase the trade but also help injecting more revenue in form of cargo. Along with this, care shall be taken to minimize the offers given to the passengers on booking air tickets. The airport should try to give less offers to the passengers and try to tap the revenue which is been lost in the offers. Weight slab of luggage with each passenger can be reduced from 20 Kgs to 15 Kgs and any luggage above 15 Kgs shall be charged in the same manner as the luggage above 20 Kgs is currently being charged. If such changes are implemented properly, in a planned and a strategic manner, the revenues generated can outweigh the costs incurred during the construction of Rajiv Gandhi International Airport and can potentially make it one of the most profitable airports in India.

REFERENCES

[1].   Atkinson, C.L., (2020). *The Federal Aviation Administration Airport Improvement Program: Who Benefits?. Public Organization Review, 20*(4), 789-805
[2].   Sartori, D., Catalano, G., Genco, M., Pancotti, C., Sirtori, E., Vignetti, S. and Bo, C., (2014). *Guide to cost-benefit analysis of investment projects. Economic appraisal tool for cohesion policy*, 5(6), 1-7

[3]. Florio, M., Forte, S., Pancotti, C., Sirtori, E. and Vignetti, S.,(2016). *Exploring cost-benefit analysis of research, development and innovation infrastructures: Development and Innovation Infrastructures: An Evaluation Framework*, 27(3), 3-18

[4]. Kuehn, D., Anderson, T., Lerman, R., Eyster, L., Barnow, B. and Briggs, A., (2017). *A cost- benefit analysis of Accelerating Opportunity. Washington, DC: Urban Institute, 30*(4), 1-7

[5]. Marcinkowska, M., Śniecikowska, J., Fajkis, N., Paśko, P., Franczyk, W. and Kołaczkowski, M., (2020). *Management of dementia-related psychosis, agitation and aggression: a review of the pharmacology and clinical effects of potential drug candidates. CNS drugs,* 34(3), 243-268.

[6]. Jorge, J.D. and de Rus, G., (2004). *Cost–benefit analysis of investments in airport infrastructure: a practical approach. Journal of Air Transport Management*, 10(5), 311-326.

[7]. Ison, D.C., (2020). *Analysis of Runway Incursion Trends: Implications for Cost-Benefit Analysis of Mitigation Investments. International Journal of Aviation, Aeronautics, and Aerospace*, 7(1), 256-276.

[8]. Bazargan, M., Lange, D., Tran, L. and Zhou, Z., (2013). *A simulation approach to airline cost benefit analysis. Journal of Management Policy and Practice, 14*(2), 54.

[9]. Jones, H., Moura, F. and Domingos, T., (2014). *Transport infrastructure project evaluation using cost-benefit analysis. Procedia-Social and Behavioral Sciences,* 3(1), 400-409.

[10]. Landau, S., Weisbrod, G. and Alstadt, B., (2010). *Applying Benefit–Cost Analysis for Airport Improvements: Challenges in a Multimodal World. Transportation research record,* 30(1), 1-7.

[11]. ZAMA, S.M.U., (2018). *Analyzing the structural cost, performance, and flexibility in the terminal design of Mumbai Airport Doctoral dissertation, The British University in Dubai*.(5),33(4), 2-10

[12]. Yang, Z. and Gao, B.,(2020) Cost-Benefit Analysis of Sandakan Airport Expansion Project in Malaysia, 12(2), 10-15

[13]. Daniel, J.I., (2002). *Benefit-cost analysis of airport infrastructure: the case of taxiways. Journal of Air Transport Management, 8*(3), 149-164.

[14]. Murray, K., Wallace, J. and Davies, P., (2015). *Cost Benefit Analysis of the Proposed Runway Extension at Wellington International Airport. Report prepared for Wellington International Airport Limited,* 12(7), 25-49.

[15]. Belay, A.M., Torp, O., Thodesen, C. and Odeck, J., (2016). *A framework for organizing a resilient cost benefit analysis for construction projects. Procedia Engineering,* 25(3),1169- 1176.

[16]. Chaudhuri, S. and Chaudhuri, R., (2017). *A Cost Benefit Analysis Of Delhi Airport PPP Project. Journal of Air Transport Studies*, 8(1), 13-30.

[17]. Weitzman, M.L., (2001). *Gamma discounting. American Economic Review*, 91(1), 260- 271.

[18]. Pulmanis, E. and Bruna, S., Cost-Benefit Analysis (2016). *Challenges And Opportunities In Construction Project Initialization Process*, 12(3), 1-6.

[19]. Givoni, M. and Banister, D., (2006). *Airline and railway integration. Transport policy, 13*(5), 386-397.

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