CE657 - CONSTRUCTION ECONOMICS & INFRASTRUCTURE FINANCING

FINAL PROJECT REPORT

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REPORT PART 1

Basic Organization Structure of the SPV (Special Purpose Vehicle)

Delhi International Airport Private Limited (DIAL) was established as a Special Purpose Vehicle (SPV) under a Public-Private Partnership (PPP) framework to operate, manage, and develop the Indira Gandhi International Airport, Delhi. The SPV was incorporated on 1 March 2006 following a competitive bidding process led by the Airports Authority of India (AAI), and the formal Operation, Management and Development Agreement (OMDA) was signed on 4 April 2006. The primary purpose of DIAL is to modernize, expand, and operate the airport over a 30-year concession period and also can extend up to 30 years more.

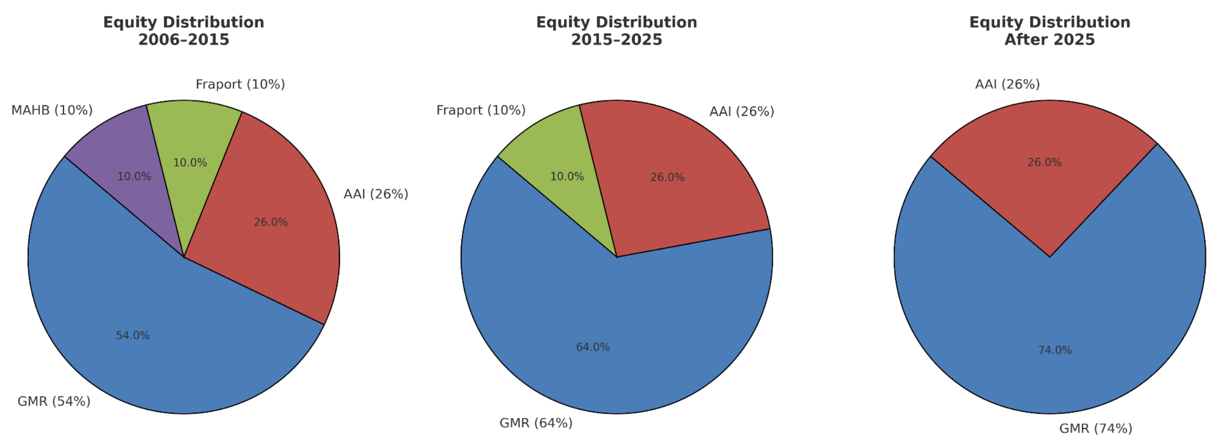

Fig 1: Evolution of Equity Shareholding Structure in DIAL (2006–2025 and Beyond)

The organizational structure of DIAL is functionally divided into key verticals to ensure operational efficiency and support infrastructure development.

The main divisions under the SPV are:

- Operations Division: Responsible for airport logistics, airline coordination, safety, and passenger services.

- Finance Division: Manages budgeting, capital expenditure, financial planning, and funding arrangements.
- Engineering Division: Overseas infrastructure development, modernization projects, and technical maintenance.
- Commercial Division: Handles retail operations, advertisements, real estate management, and non-aeronautical revenue streams.
- Legal Division: Ensures compliance with regulatory and legal obligations, contract management, and statutory requirements.

Each division is headed by a senior executive who reports to the Managing Director/CEO. The structure promotes accountability, transparency, and performance-oriented governance, aligning with international airport operation benchmarks and the principles of the PPP concession model.

Details of financing

The financing structure of the project is detailed as follows:

Funding Source	Amount (₹ Cr)	Share (%)
Equity	2300	18.40%
Loans	5266	42.11%
Security Deposit	1471	11.77%
Internal Accruals	50	0.40%
Development Fee (charged to user)	3415	27.32%
Total	12505	100%

The major funding is expected through loans and user development fees, together accounting for nearly 70% of the total project cost. Equity contribution stands at 18.4%, while the remainder is met through security deposits and internal accruals. Notably, the Development Fee, charged directly to passengers, forms a significant portion of the funding mechanism, introduced to bridge the financing gap arising from increased project costs.

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Details of Revenue Estimates and Operating Costs

The revenue model for the Delhi International Airport (DIAL) SPV is based on projected passenger growth, steady fare escalation, and a consistent non-aeronautical income stream. Operating and maintenance costs are projected to grow moderately over time, ensuring strong operating margins throughout the 30-year concession period.

1. Revenue Assumptions

Parameter	Value
Base Year (Passenger Traffic)	**2010**
Passenger Traffic (in 2010)	**23 million** passengers per annum
Traffic Growth Rate (CAGR)	**7%** per annum
Domestic user development fee	275
International user development fee	650
Domestic Traffic	**67**% of Passenger Traffic
International Traffic	**33**% of Passenger Traffic

Passenger traffic is assumed to grow steadily at 7% CAGR from a base of 23 million in 2010. This results in a significant escalation of aeronautical revenue over the concession period.

2. Non-Aeronautical Revenue

Parameter	Value
Total Land Allocated	240 acres
Average Non-Aero Revenue per Acre	₹681.63 crore
Total Non-Aero Revenue (58 years)	₹1,63,591.2 crore

Phase	**Period**	**Annual Revenue (₹ Cr)**	**Total 10-year Revenue (₹ Cr)**
Phase 1	2010–2019	2453.868	24,538.68 (15% of Total)
Phase 2	2020–2029	4089.78	40,897.80 (25% of Total)
Phase 3	2030–2039	4907.736	49,077.36 (30% of Total)

Non-aeronautical revenue at DIAL is generated from services like cargo terminals, ground handling, and aircraft cleaning. It also includes commercial activities such as duty-free retail, restaurants, hotels, vehicle parking, and currency exchange. These services supplement core operations and provide a stable income stream.

3. Operating and Maintenance Costs

O&M costs are projected to increase at a consistent pace over the 30-year period, growing from ₹96 crore in 2010 to ₹348.7 crore by 2039. The escalation reflects maintenance of new infrastructure and inflationary pressures but remains low compared to total revenues.

We have used the Ramp Up Method to Project O&M Cost (₹ Cr) for 30 years.

Selected Years	**Projected O&M Cost (₹ Cr)**
2010	96
2015	126
2020	160.8
2025	176
2030	224.8
2035	286.8
2039	348.7

Revenue Sharing Arrangement Across Different Project Phases

Period	Partner	Revenue Share (%)
Before 2015	GMR	29%
	AAI	46% (45.99% to be accurate)
	Fraport AG	1%
	Malaysia Airports Holdings	1%
2015–2025	GMR	35%
	AAI	46%
	Fraport AG	1%
After 2025	GMR	40%
	AAI	46%

Information about Various Security Arrangements

The security arrangements at Indira Gandhi International Airport (IGIA) under the PPP model are carefully structured to maintain sovereign control while enabling operational efficiency. Key aspects are summarized below:

- As per **Clause 3.1.A.4 of the State Support Agreement (SSA)**, critical functions such as Customs, Immigration, Quarantine, Meteorology, and Airport Security are retained by the Government of India. Security at the airport is primarily provided by the **Central Industrial Security Force (CISF)**.

- The cost of providing security services is funded through the **Passenger Service Fee (PSF)** collected from all embarking passengers. According to the OMDA provisions:
  - **65% of PSF** is allocated to a **Security Component (SC)**, credited into a dedicated escrow account to fund CISF deployment and other security-related expenditures.
  - **35% of PSF** is allocated to a **Facilitation Component (FC)**, paid to DIAL for improving passenger services and terminal facilities.

- A separate **escrow account** is maintained for the PSF-Security Component. This escrow is subject to regular audit by the **Comptroller and Auditor General (CAG)** to ensure proper utilization.

- **DIAL** is responsible for the **procurement, installation, and maintenance** of all airport security systems, including perimeter intrusion detection systems, surveillance cameras, and access control devices. However, **arms and ammunition** remain outside DIAL's scope.

- Following clarifications from the **Ministry of Civil Aviation (MoCA)**, expenses related to security equipment procurement can also be reimbursed from the PSF-Security escrow account, improving the financial viability for DIAL.

- Overall, the system ensures that **national security remains sovereign**, while the **private operator (DIAL)** supports by investing in and maintaining security infrastructure.

Key findings from the Financial Model

1. Investment Performance Summary

Internal Rate of Return (IRR): 12%
Net Present Value (NPV) at 12% discount rate: ₹12,222.87 crore

2. Capital Recovery and Cash Flow Behavior

- **Estimated Payback Period:** 17 years for Domestic Loan, 13 years for International Loan

- **Early Cash Flow Behavior:**

  Initial 5 years show moderate cash buildup post construction.
  After ramp-up (~Year 5 onward), cashflows become strongly positive.
- **Debt Servicing:**
  - Domestic and international loans are largely serviced by 2027.

3. Revenue Structure & Major Contributors

- **Main Revenue Sources:**
  - **Aeronautical Revenues:** ~85% (Passenger fees, landing charges, UDF)
  - **Non-Aeronautical Revenues:** ~15% (Retail, Advertising, Cargo, Real Estate)
- **Growth Assumptions:**
  - **Traffic CAGR:** 7% over 30 years

4. Top Cost Components

- **O&M Costs (Operations and Maintenance):**
  Start at around ₹96 crore/year.
  Rise almost steadily to around ₹348 crore/year by the end of project life.
- **Debt Service Payments:**
  Heavy in initial years (Years 1–15)
  Gradual reduction post-2027
- **Security and Terminal Upgrades:**
  Costs funded through collected PSF charges and internal accruals.

5. Key Strategic Drivers for Success

- **Passenger Growth Rate:** Maintaining 6% CAGR is critical for returns.
- **Efficient Cost Management:**
  Keeping O&M escalation in check ensures profitability.
- **Strong Non-Aero Revenue Growth:**
  Retail expansion, parking, hospitality, and advertising income are crucial for strengthening financial resilience.
- **UDF/PSF Dependence:**
  Passenger levies (User Development Fee) provide important supplementary revenue.