"Triple Bottom Line Applied to Airport PPP Creating Model of Service Excellence – The GMR IGIA Airport Success Case Study"

Dr. Prachi Javadekar
CEO Parigha Research and Business Consultancy
India
Maharashtra Pune

Gandhali Divekar
Policy Researcher
Parigha Research and Business Consultancy
India

Abstract: Indira Gandhi International Airport (IGIA) - was opened in July 2010. The IGIA is the busiest airport in the country handling about 46 million passengers a year. It is also the busiest in South Asia and is expected to handle 100 million passengers by 2030. Built at a cost of INR128.5bn ($2.7bn), the 5.4 million square feet (502,000m2) terminal is reported to be the eighth largest in the world. It can handle 34 million passengers a year. The airport is operated by Delhi International Airport (DIAL), a public-private consortium led by GMR Group. The stakeholders, GMR (54%), Airports Authority of India (26%), Eraman Malaysia (10%) and Fraport (10%), currently have concession to operate the airport for 30 years, classic case of PPP success.

This paper will explore relationship of PPP with Triple Bottom line perspective of airport, with enterprising aspirations of creating national asset and delivering quality service of global excellence, with special reference to IGIA airport creation by GMR Group.

Key Words: Aviation, Airports, SERQUAL, PPP, Economic Impact, Policy, Entrepreneurship.

Introduction:

Indian Aviation Industry: The Aviation industry can be defined as those activities that are directly related to the transporting of people and goods by air from one place to another, this industry plays a major role in every countries economic activity and it aids in opening up of the countries market to both domestic and foreign investor. The two branches of the commercial air transport industry, passenger and freight had contrasting fortunes in 2015.

India is the 9th largest aviation market in the world with a size of around US$ 16 billion. India aviation industry carries huge growth potential due to large and growing middle class population, its rising aspirations, rapid economic growth and higher disposable incomes.
The Indian aviation market grew by 27.4% in 2015-16 over 2014-15 taking the total passenger throughput at 184 million, making it the fastest-growing aviation market in the world according to data released by the International Air Transport Association (IATA). Passenger throughput is expected to reach around 370 million by 2020, with domestic traffic constituting around 80% of the total.2

The Indian air transport (including air freight) attracted FDI of US$ 931 million between April 2000 and March 2016, according to data released by the Department of Industrial Policy and Promotion (DIPP).- Ref DGCA 3

Airport Stakeholders4

- Passengers
- Air lines - Air carriers, Pilots and technicians, Front Desk, Ground Staff
- Airline service providers – air carrier operators and routers
- General aviation users
- Airport organization
- Investors and bond-holders
- Concessionaires and Retail

Airports provide access to air transportation services to regional residents and businesses. Airports operate as Utilities providing infrastructure to service providers and their supply chain under “revenue neutral” financial regulations (Carney & Mew 2003) (p. 230). The service providers collaborate to provide seamless, safe, and secure service to the consumers of air travel services. The challenge faced by airport operators is building the infrastructure, leasing it to the service providers, and managing the service providers to ensure that a quality service is delivered to customers,5 and ultimately supporting the growth of the regional economy (Figure 1). To track performance and manage change and growth, airport operators must measure and benchmark airport performance and their service provider partners in a complex, collaborative service environment.

Review of Literature

This study put forward a conceptual framework that will explore relationship amongst, delivering quality service at the airport, complimented with PPP model of business functioning with entrepreneurship venture.

'Triple Bottom Line'

This relationship is explained in the way of 'Triple Bottom Line', of which one component is delivering quality service. Triple bottom line6 A triple bottom line measures a company's degree of social

---

3 According to the DGCA (Directorate General of Civil Aviation) and MOCA (Ministry of Civil Aviation), the Indian domestic air traffic is expected to cross 100 million passengers by 2017 from 81 million passengers in 2015. Indian domestic airlines also carried 23 million passengers in during the period of January-March 2016 as compared to 18.5 million during the same period last year. This period thereby registered a growth of 24.03%.


5 Manuscript received February 16, 2010. David Schaar and Lance

6 is a phrase introduced in 1994 by John Elkington and later used in his 1997 book "Cannibals With Forks: The Triple Bottom Line of 21st Century Business," which seeks to broaden the focus on the financial bottom line by
responsibility, its economic value and its environmental impact. A key challenge is the difficulty of measuring the social and environmental bottom lines, which necessitates the three separate accounts being evaluated on their own merits as, Breaking Down 'Triple Bottom Line'-The elements of the triple bottom line are referred to as "people, profits and planet."- People in the Bottom Line , Environmental Responsibility, The Financial Bottom Line

- **Service Quality**

What constitute the customer services variables and evaluate the level of service rendered by Airport by comparing expectation and perception. Service quality is a consumers’ overall impression of relative inferiority or superiority of the organization and its services

SERVQUAL

Service quality is interpreted as perceived quality which means a customer’s judgment about a service. The authors of SERVQUAL which has been extensively used in assessing service quality of different service providers including airlines suggested that “Quality evaluations are not made solely on the outcome of a service; they also involve evaluations of the process of service delivery” (Parasuraman et al., 1985). Within the SERVQUAL model, service quality is defined as the gap between customer perceptions of what happened during the service transaction and his expectations of how the service transaction should have been performed. SERVQUAL

refers to five dimensions of quality which is initiated by Parasuraman and his team during the year – 1988 such as;

i. Tangibility – the physical environment of the airport.
ii. Reliability – performing the services promptly and accurately to the passengers.
iii. Responsiveness – Crew’s willingness to help and assist the passengers.
iv. Assurance – promising attitude which inspires the passengers.
v. Empathy – individual attention given to the passengers in the airport

- **PPP** - PPP in India

Public–Private Partnership (PPP) is a government service or private business venture which is funded and operated through a partnership of government and one or more private sector companies. These schemes are sometimes referred to as PPP, P3.

Thus PPP refers to a long-term contractual partnership between the public and private sector agencies, specifically targeted towards financing, designing, implementing and operating infrastructure facilities and services in the State. These PPPs aim to achieve the twin objectives of high growth and equity on a sustainable basis.

Pressure to change the standard model of public procurement arose initially from concerns about the level of public debt, which grew rapidly during the macroeconomic dislocation of the 1970s and 1980s. In a competitive global environment, governments around the world were focusing on new ways to finance projects,

---


8 https://infrastructureindia.gov.in/documents/10184/0/kelkar+Pdf/0de6fb64-4501-42ba-a083-ca3ce99cf999

---

70
build infrastructure and deliver services. Initially, most public–private partnerships were negotiated individually, as one-off deals, and much of this activity began in the early 1990s. In 1992, the Conservative government of John Major in the UK introduced the private finance initiative (PFI), the first systematic programme aimed at encouraging public–private partnerships.

The Government of India defines a P3 as "a partnership between a public sector entity (sponsoring authority) and a private sector entity (a legal entity in which 51% or more of equity is with the private partner/s) for the creation and/or management of infrastructure for public purpose for a specified period of time (concession period) on commercial terms and in which the private partner has been procured through a transparent and open procurement system." The union government has estimated an investment of $320 billion in the infrastructure in the 10th plan. The major infrastructure development projects in the Indian state of Maharashtra (more than 50%) are based on the P3 model. In the 2000s, other states such as Karnataka, Madhya Pradesh, Gujrat, Tamil Nadu also adopted this model.

In general, public authorities can consider PPP arrangements in any of the following circumstances. When: The project cannot be provided with the financial resources or expertise of the public sector alone.

A private partner would increase the quality or level of service over that provided by the public sector on its own.

I. Airport Infrastructure In India –
- Building physical structure facilitating exchange of goods and humans.
- Building physical infrastructure for sub services and facilities, which helps smooth facilitation of goods and humans.

Discussion

Fig 1. Airport Infrastructure In India
Airports being nuclei of economic activity assume a significant role in the national economy. The quality of airport infrastructure, which is a vital component of the overall transportation network, contributes directly to a country's international competitiveness and the flow of foreign investment. While cargo carried by air in India weighs less than 1% of the total cargo exported, it accounts for 35% of the total value of exports. Better cargo handling facilities lead to enhanced levels of importation, especially of capital goods and high-value items. Likewise, 97% of the country's foreign tourists arrive by air and tourism is the nation's second largest foreign exchange earner.

9https://www.pppinindia.gov.in/

10 Policy on Airport Infrastructure of India By Task Force on Infrastructure of India, NIC 02-13
The Airports Authority of India (AAI)\textsuperscript{11} manages and operates 123 out of a total of 134 airports in India. This includes 12 international airports, 99 domestic airports and 12 customs airport. The remaining eleven airports (5 international airports and 6 domestic airports) are managed by PPP concessionaires, State Governments and the private sector. The domestic air traffic improved at a CAGR of 11.3% — from 71 million in FY07 to 121.3 million in FY12. It is expected to touch 209 million by FY17. During the same period, international air traffic grew at a CAGR of 9.4% to reach 40.7 million, and is estimated to reach 60 million by FY17.

Five international airport projects were successfully completed through the public–private partnership (PPP) mode,

<table>
<thead>
<tr>
<th>City</th>
<th>Estimated project cost (at financial close)</th>
<th>Type of PPP</th>
<th>Commencement of operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cochin International Airport Limited (CIAL)</td>
<td>INR3.0 billion</td>
<td>BOO</td>
<td>June 1999</td>
</tr>
<tr>
<td>GMR Hyderabad International Airport Limited</td>
<td>INR17.6 billion</td>
<td>BOO</td>
<td>March 2008</td>
</tr>
</tbody>
</table>

\textsuperscript{11} www.aai.aero/servlet controller

II. PPP Airport Development in India and Relationship with service delivery

Delhi International Airport Limited is a joint venture, formed as a consortium between three major players: GMR Group (64%), AAI (26%) and Fraport AG (10%)\textsuperscript{12}. In March 2015 Malaysia Airports (Mauritius) Private Limited left the consortium by entering into an agreement with GMR Group which acquired its 10% share for a consideration of $80 million. The consortium was formed to oversee the

\textsuperscript{12} "Airports Authority of India". Aai.aero. 2016-11-27. Retrieved 2016-12-02.
operation and construction of Delhi International Airport’s terminal and runway buildings. Delhi International Airport Limited took over the management of Delhi International Airport in January 2006 and commenced with the improvement essential to upgrade the passenger services to the world standard requirement. In June 2010 Delhi International Airport Limited opened an integrated passenger terminal (terminal 3) which increases the capacity of departure for Delhi airport and can handle up to 37 million passengers per annum.

Why did India go for PPP model 13– Enterprising vision to create excellent infrastructure of world class standards for the nation combined with nation’s development agenda of building airports of global standards.

Lack of Increasing demand for infrastructure and inadequate capital, with efficient execution

Using Private Capital to supplement Public Investment – Under the tenets of the Chicago Convention, ownership and management of airports and air navigation services may be delegated to the private sector; using this the Government of India embarked upon a massive privatization exercise of the privately developed airports.

Financing one of the largest infra projects (amidst regulatory uncertainty) was a daunting task for GMR. 14 Due to aggressive timelines, the project cost was not fixed and was susceptible to commodity price rises. Price of key commodities soared during 2008-09 (steel & cement prices increased by over 35%). GMR adopted an innovative project financing approach. Equity and Internal Accruals (USD 510 million) were utilized. Maximum possible Term Loans were raised (USD 1094 million). Combination of Rupee Term Loan & External Commercial Borrowings used to reduce the debt cost. Refundable Security Deposits were raised through monetization of land parcels – and this amount was infused into the project. Short-term Viability Gap Funding was levied on passengers. Financing sources such as ECBs, refundable deposits, land lease deposits enabled them to make project viable.

Thus, despite all the Challenges, DIAL was able to deliver projects in a timely manner before the Commonwealth Games, 2010 and redefined the benchmark of airport development projects in India.

III. Triple Bottom-line Applied To Airport PPP

Social Impact – Job Multiplier Effect15

Concept of Aerotropolis and associated industrial development – With the Hyderabad and IGIA

Airport PPP projects, the concept of Aerotropolis, or Airport City, was brought to India. This concept, which espouses the development of a self-sustaining city around an airport, promises to take Indian urban development to the next level.

Impact on Regional Economy – With the Airport-centric approach of urban development, gainful employment has been generated to the tune of 1.57 million in the case of Delhi Airport (representing 25.9% of

13https://ppp.worldbank.org/public-private-partnership/overview/ppp-objectives
14 http://www.cag.gov.in/sites/default/files/cag_pdf/ppp-project.pdf/
Union_Performance_Commercial_Implementation_Public_Private_Partnership_Ministry_Civil_Aviation_5_2012_Chapter_1

15 NCAER – Economics Impact Study of Delhi Airport
Delhi’s total employment) and 840,000 jobs in the case of Hyderabad Airport.

Knock-on effects on government run airports and international rankings of Indian

IV. Service Levels and improvements\textsuperscript{16} - airports – PPP airport projects have consistently been ranked at the top of the Airports Council

International (ACI) Airport Service Quality (ASQ) ratings for Best Service Delivery in their respective categories. This drive, and focus on quality has raised the bar for the Indian aviation industry; the new terminals developed by the Government; and their service levels, having been at par with the international standards, as envisioned by the Indian Government.

Service quality in airport Service has several different determinants from product such as high intangibility, cannot be see, cannot be touch, smell or even taste but only can be feel by experiencing the service itself. Hence, services are more challenging to be visualizing by the service provider and customer and it is difficult for the customer to display their confidence of the service unless they experience the service by themselves by comparing standard and perceptions of result performance. Moreover, other associated determinant which is services could not be owned like product but only rent by the customer. Hence, because of this determinant, services also involved tangibility features such as facilities, service personnel and service ambient that help the service providers to perform their service. Physical quality relates to the tangible aspects of a service (Lehtinen and Lehtinen, 1982). In a nutshell, service not only involves intangibility aspects but also helping by the tangible aspects to help the service provider to perform their work.

Airport industry is one of services that have been consistently growing. The operational activities of MAHB formed part of country’s revenue where all charges at the airport either aeronautical or non-aeronautical operated under MAHB were imposed and determined by the government.

Hence, airport needs to perform in a quality manner both ways in employee action and at facilities such as restaurant, ATM, hotel, washrooms, and others that use at the airport to perform the service. Some impacts as determinants of service quality in airport are important in order for them to be an international airport.

Service quality is the delivery of excellent or superior service related to customer expectations. Zeithaml and Bitner, and Lehtinen and Lehtinen \textsuperscript{17} defined service quality in terms of physical quality, interactive quality and corporate (image) quality. Service quality is customer’s long-term, cognitive evaluations of any institutions’ service delivery, Customers will usually compare the service that they expect.

V. Service Excellence at IGIA – Airport under PPP\textsuperscript{18}

Service Excellence is the Entrepreneurial Individual value and belief – reflected at IGIA


\textsuperscript{17} Two Approaches to Service Quality Dimensions, Uolevi Lehtinen and Jarmo R. Lehtinen, The Service Industries Journal Vol. 11 , Iss. 3, 1991

\textsuperscript{18}http://www.newdelhiairport.in/quality.aspx
Delivering excellent service and remaining customer focused is the basic family value, family principal for GMR, which is translate in service delivery with & for various stakeholder of the airport. (Ref Orgn Vision mission, GMR Address)

Delivering excellent customer service is the philosophy of the business as “Quality Exists when Expectation equals Expectation”. Quality Commitment and value followed at IGIA is, ‘Quality Begins With Me’ or ‘At Source Quality’.

Service delivery motto for all individuals at IGIA as “Lets Deliver to Delight”
At IGIA The Quality Efforts & Effects at the airport are primarily controlled by a group of Expert professionals who have organized themselves in the form of a ‘Quality & Service Delivery’ (QSD) team. The prime responsibility of QSD is to ascertain and deliver on superior service as per the standards of the airport administration. This Service dedicated department has been responsible for identifying quality gaps, providing solutions, doing process audits and overall quality control at the airport. There are three verticals under the QSD umbrella; Operational & Process Excellence, Service Excellence and Business Excellence

IGIA has achieved the service excellence with building mutual progress bond with all stake holders of the airport. SERQUAL is implemented to create Service Excellence as Unique differentiating characteristic of DIAL airport in global competition.

Passengers’ expectations are based on the five factors of service quality which become the dimensions for measuring the quality of the service provided in the airport. In airline service industry passengers judge the quality of service by comparing their expected level of service performance with the perceived performance of the airline companies who are generally referred to as service providers. Within the airport industry, airport service quality and passenger satisfaction is measured in the AETRA customer satisfaction survey, conducted by Airports Council International (ACI) and the International Air Transport Association (IATA).

Understand Service Excellence
Level of Service Standards and associated criteria to evaluate the level of service is a rather complex issue. Passengers are concerned with completion of air journey at a reasonable cost, with minimum delay, and inconvenience. Airlines are concerned with on-time schedules, minimum operating costs and profitability. Airport Operator is interested to provide modern facilities which meet the expectations of passengers, airlines and community (where airport is located), with suitable returns on investment.

Analysis and conclusion:
Funding:
Delhi International Airport Limited (DIAL) is a consortium of the GMR Group (54%), Fraport (10%) and Malaysia Airports (10%), and the Airports Authority of India retains a 26% stake. AAI of India, has a huge stake in the venture, with a share of 45.99% of the gross revenue of the
airport as concession fee. The large revenues AAI earned from Dial thus became a major source for funding the development of other airports owned by AAI across the country.\textsuperscript{20} Between 2005-06 to 2011-12, the aero revenue has recorded an increase of about 42\%, whereas non-aero revenue during this period has gone up by nearly 317\%. The growth in aero revenue could be attributed largely to increase in traffic but a whopping growth of 317\% in non-aero revenue has occurred due to sincere efforts put in this regard by the GMR Consortium, driven by entrepreneurial values.\textsuperscript{21}

**Entrepreneurial Vision and venture – “We are Building national wealth”**\textsuperscript{22} Born on the 14th of July 1950; Grandhi Mallikarjuna Rao, GM Rao is the billionaire industrialist and the founder of GMR Group, which is a global infrastructure developer and operator now holds presence in 7 countries, actively involved in energy, highways, large urban development and airports sectors, and is also known for building and operating world class national assets. In the beginning of the 90’s, during India liberalized its market economy underwent structural change with new opportunities. In the year 1991, GM had applied and managed to win the bid for the Hyderabad airport, out-beating competitors like L&T. Though building an airport was not his area of expertise, he bided. So he took the most important step that any entrepreneur should take — he called in the experts in this stream of the business. He put in most of his time, energy and money in learning, the process from experts in airport construction, management from Germany, Singapore and Malaysia, etc to teach himself and his team members. After shifting his entire focus, in 1999, he saw that the Andhra Pradesh Government had called for a global tender to set up a Greenfield international airport. While 26 companies showed interest, but finally one three placed their bids. GM tied up with the Malaysian Airport Authority and placed his bid too and won the project. Next Bid was for IGIA, modernization of Delhi airports in 2003. GMR spent over Rs. 34 Cr. on the bidding process itself and put together a team that began to study airports, and also included 15 international consultants to bid for the Delhi. This gave them the upper-edge amongst the other competitors and also helped to bag the projects.

**Creation of service excellence:**
In 2010, IGIA was conferred the fourth best airport award in the world in the 15–25 million category, and Best Improved Airport in the Asia-Pacific Region by Airports Council International. The airport was rated as the Best airport in the world in the 25–40 million passengers category in 2015, by Airports Council International. Delhi Airport was awarded The Best Airport in Central Asia and Best Airport Staff in Central Asia at the Skytrax World Airport Awards 2015. IGI also stood first in the new rankings for 2015 Airport Service Quality (ASQ) Awards.\textsuperscript{23} Airport service quality themes are categorized into three major dimensions: servicescape, service providers, and services

\textsuperscript{21} 15th Loksabha,94th Report Public Foler/PAC_Reports/Civil/94th%20Report.pdf
\textsuperscript{22}http://www.yosuccess.com/success-stories/gm-rao-gmr-group/
\textsuperscript{23}ACI Airport Service Quality Awards 2009, Asia Pacific airports sweep top places in worldwide awards from the Wayback Machine
→ Change in Focus “From traveller to Customer”
The important change that was brought in is change in belief of the airport service provider. Airports are not mere transit hub, but beyond that. The dwell time experience of the customer decides the future business. Hence, airport is not the business of providing only physical infrastructure, but also facilitating the passenger’s journey from booking the airline ticket to arrival at the destination.

→ Creation of Quality Culture
Quality culture at IGIA revolves around 3 P’s: People, Product/Service and Process. There are well-defined quality practices for all three aspects.
In people IGIA values its employees and provides opportunities to enhance their skill base through competency gap analysis, trainings, job rotations and strong employee engagement.

The 2nd P i.e. Product or Service plays a key role in sustainable organizational success. This is part of Operational Excellence drive which ensures that IGIA services are at par with best in class airports and this is reflected through consistently good ratings by passengers on an ACI led Airport Service Quality Program.

Process Excellence at IGIA takes care of third P – Process. All work systems at the airport ecosystem are established, implemented, monitored and improved through a strong process management, easy process document sign-off, education, SLAs, OLAs, effective and efficient KPI tracking and through regular process audits and assessments.

→ Quality is Function
To establish a total quality culture at IGI Airport, IGIA incorporated a dedicated Quality function in 2006. It has been responsible for identifying quality gaps, providing solutions, doing process audits and overall quality control at the airport.

Quality has institutionalized in the form of CIP culture, 5S, KAIZEN – first of its kind in airport environment in India.

→ Stake holders and internal customers first
At IGIA Quality service delivery, is to be owned by all service providers which are
part of long service chain. IGIA identified important stakeholders, their function and importance in the value chain to align the organizations service philosophy. Important stakeholders are AAI, Aviation ministry and state government which mainly controls the functions which are beyond the control of airport operators are ATC, Security, Customs, Immigration and Meteorological services. Internal customers other than passengers are, Airlines, Aircraft companies, Freight Forwarding companies, Atrocity Developers, Retail and merchandizers.

→ **Creation of Competitive Infrastructure**

Physical infrastructure and technology play very vital role in service delivery. Technology transactions are the important service perception impactors. At IGIA, Service philosophy is translated in creating infrastructure that will facilitate comfort and ease of the customer at every point of his movement on the airport, which begins from drop at the airport.

Airport Infrastructure is designed as per average daily traffic and projective growth in the traffic.

**Challenges faced by GMR during Airport development process:**

GMR as a private player had to overcome many challenges in the pre and post bid winning phase on account of the PPP mode of investment.

1. The stringent OMDA requirements concerning the passenger boarding bridges, minimum connect time, queuing time for check in, baggage delivery requirements, etc. were taken care of by GMR in a very effective manner. All the requirements were fulfilled above expectations and within a very short span of time.

2. During the phase of project development, GMR had to deal with issues pertaining to capacity enhancement with minimum interruption to existing operations, maximise capacity to handle long-term traffic growth, while meeting the required service standards set out in the OMDA, operating facilities (T1B building) built in 1940, making IGI Airport encroachment Free: There were nearly 2,500 encroachments spread across IGI Airport over the past 5 decades, non-existence of As-Built drawings (for utilities like Electricals / Telephone / IT), significant media attention, on account of working in a public domain, relocation of Airline and statutory agencies offices.

3. During the construction phase GMR had to take care of extremely short deadlines, extensive stakeholder management, lack of trained manpower in the sector, lack of project financing for large scale projects.

Innovative & proactive approaches had to be adopted by GMR group to meet these tight deadlines and deliver a world-class airport in time for Commonwealth Games. “Cost plus” EPC contract, comprehensive project risk management and parallel process of Design and Construction enabled to cut around 12 months of time from total execution.

More than 50 Government Departments were involved in the project, besides other stakeholders. GMR adopted a strong Project Management strategy which involved the regular and accurate tracking of progress with continuous reporting to top management for decision making, reports shared with related government / regulatory agencies to ensure speedy approvals and avoid bottlenecks, Invitations to bureaucrats and politicians to visit the project site to take
stock of progress, audits were done on the Project Cost, Project management process etc. by reputed consultants. These intense stakeholder interactions required significant effort and planning.

Sourcing skilled global talent for a world-class project proved to be a challenge as it was still a nascent sector in India with complex & diverse skill requirements. GMR had to take care of 2160 AAI employees along with 22,000 workers during the IGIA project. GMR adopted a multi-pronged strategy. They brought in global leaders in airports sector as part of its team (manpower from ~ 25 countries), focused training programs in India, Germany and Malaysia for skill enhancement with their partner Fraport, Built a team of world-renowned consultants, Worked with all contractors to ensure complete talent availability – more than 30,000 workers were engaged for T3 project, Operational readiness & Transfer (ORAT) team from Munich was deployed for the transfer from old facility to new.

Financing one of the largest infra projects (amidst regulatory uncertainty) was a daunting task for GMR. Due to aggressive timelines, the project cost was not fixed and was susceptible to commodity price rises. Price of key commodities soared during 2008-09 (steel & cement prices increased by over 35%). GMR adopted an innovative project financing approach. Equity and Internal Accruals (USD 510 million) were utilized. Maximum possible Term Loans were raised (USD 1094 million). Combination of Rupee Term Loan & External Commercial Borrowings used to reduce the debt cost. Refundable Security Deposits were raised through monetization of land parcels – and this amount was infused into the project. Short-term Viability Gap Funding was levied on passengers. Financing sources such as ECBs, refundable deposits, land lease deposits enabled them to make project viable.

Thus, despite all the Challenges, DIAL was able to deliver projects in a timely manner before the Commonwealth Games, 2010 and redefined the benchmark of airport development projects in India.

<table>
<thead>
<tr>
<th>ASQ Area</th>
<th>Differentiating Area</th>
<th>ASQ Parameter – Airport Service Quality Ranking Parameter</th>
<th>Cost Intensity</th>
<th>SER-QUAL Model Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Access</td>
<td>Availability Of Baggage Cart</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>2</td>
<td>Access</td>
<td>Ground Transport</td>
<td>H</td>
<td>Assurance</td>
</tr>
<tr>
<td>3</td>
<td>Access</td>
<td>Parking Facility</td>
<td>H</td>
<td>Tangibility</td>
</tr>
<tr>
<td>4</td>
<td>Access</td>
<td>Parking Value For Money</td>
<td>H</td>
<td>Assurance</td>
</tr>
<tr>
<td>5</td>
<td>Airport Environment</td>
<td>Ambience</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>6</td>
<td>Airport Environment</td>
<td>Over All Cleanliness Of Airport Terminals</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>7</td>
<td>Airport Facilities</td>
<td>Availability Of Bank / Exchange / ATM</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>8</td>
<td>Airport Facilities</td>
<td>Availability Wash Rooms</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>9</td>
<td>Airport Facilities</td>
<td>Business / Executive Lounges</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td></td>
<td>Category</td>
<td>Description</td>
<td>H</td>
<td>Dimension</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------</td>
<td>----------------------------------------------</td>
<td>----</td>
<td>-------------</td>
</tr>
<tr>
<td>10</td>
<td>Airport Facilities</td>
<td>Cleanliness Of Washroom</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>11</td>
<td>Airport Facilities</td>
<td>Comfort Of Waiting / Gate Areas</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>13</td>
<td>Airport Facilities</td>
<td>Internet Access -Wi-Fi</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>14</td>
<td>Airport Facilities</td>
<td>Restaurant / Eating Facility</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>15</td>
<td>Airport Facilities</td>
<td>Restaurant / Eating Facility - Value For Money</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>16</td>
<td>Airport Facilities</td>
<td>Shopping Facility</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>17</td>
<td>Airport Facilities</td>
<td>Shopping Facility Value For Money</td>
<td>H</td>
<td>Tangible</td>
</tr>
<tr>
<td>18</td>
<td>Arrival Services</td>
<td>Arrival Passport Inspection</td>
<td>H</td>
<td>Responsiveness</td>
</tr>
<tr>
<td>19</td>
<td>Arrival Services</td>
<td>Baggage Delivery Speed</td>
<td>H</td>
<td>Reliability+Responsiveness</td>
</tr>
<tr>
<td>20</td>
<td>Arrival Services</td>
<td>Boarder Baggage Inspection Time - Customs</td>
<td>H</td>
<td>Responsiveness</td>
</tr>
<tr>
<td>21</td>
<td>Check In</td>
<td>Courtesy / Helpfulness Of Check In Staff</td>
<td>H</td>
<td>Empathy + Assurance</td>
</tr>
<tr>
<td>22</td>
<td>Check In</td>
<td>Efficiency Of Check In Staff</td>
<td>H</td>
<td>Empathy + Assurance</td>
</tr>
<tr>
<td>23</td>
<td>Check In</td>
<td>Waiting Time For Check In</td>
<td>H</td>
<td>Reliability</td>
</tr>
<tr>
<td>24</td>
<td>Ease Of Ways</td>
<td>Ease Of Finding Your Ways On Airport</td>
<td>H</td>
<td>Tangibility</td>
</tr>
<tr>
<td>24</td>
<td>Ease Of Ways</td>
<td>Ease Of Making Connections With Other Flights</td>
<td>H</td>
<td>Reliability +Assurance</td>
</tr>
<tr>
<td>25</td>
<td>Ease Of Ways</td>
<td>Flight Information Screens</td>
<td>H</td>
<td>Tangibility</td>
</tr>
<tr>
<td>26</td>
<td>Ease Of Ways</td>
<td>Walking Distance Inside Terminal</td>
<td>H</td>
<td>Empathy</td>
</tr>
<tr>
<td>27</td>
<td>OST</td>
<td>Overall Satisfaction</td>
<td>H</td>
<td>Empathy</td>
</tr>
<tr>
<td>28</td>
<td>Passport / Personal ID Control</td>
<td>Courtesy/ Helpfulness Departures Inspection Staff</td>
<td>H</td>
<td>Empathy + Assurance</td>
</tr>
<tr>
<td>29</td>
<td>Passport / Personal ID Control</td>
<td>Waiting Time Departures Passport Inspection</td>
<td>H</td>
<td>Empathy</td>
</tr>
<tr>
<td>30</td>
<td>Security</td>
<td>Courtesy/ Helpfulness Of Security Staff</td>
<td>H</td>
<td>Empathy + Assurance</td>
</tr>
<tr>
<td>31</td>
<td>Security</td>
<td>Feeling Safe And Secure</td>
<td>H</td>
<td>Empathy</td>
</tr>
<tr>
<td>32</td>
<td>Security</td>
<td>Thoroughness In Security Checking</td>
<td>H</td>
<td>Reliability +Assurance</td>
</tr>
<tr>
<td>33</td>
<td>Security</td>
<td>Waiting Time For Security Check</td>
<td>H</td>
<td>Empathy + Assurance</td>
</tr>
</tbody>
</table>
Airports represent a country’s window to the world. Passengers form their first impressions about a nation from the state of its airports. They can be effectively used as symbols of national pride, if we pay sufficient attention to their quality and maintenance.

The initial objectives of PPP vis-à-vis the upside, visibility, economic benefits that have been generated were much beyond what was envisaged initially while adopting the PPP model for Indian airports. This has created a whole new world-class experience for Indian citizens.

References:

3. 1 According to the DGCA (Directorate General of Civil Aviation) and MOCA (Ministry of Civil Aviation), the Indian domestic air traffic is expected to cross 100 million passengers by 2017 from 81 million passengers in 2015. Indian domestic airlines also carried 23 million passengers during the period of January-March 2016 as compared to 18.5 million during the same period last year. This period thereby registered a growth of 24.03%.
5. Manuscript received February 16, 2010. David Schaar and Lance
6. is a phrase introduced in 1994 by John Elkington and later used in his 1997 book "Cannibals With Forks: The Triple Bottom Line of 21st Century Business," which seeks to broaden the focus on the financial bottom line by businesses to include social and environmental responsibilities.
8. 1 https://infrastructureindia.gov.in/documents/10184/0/kelkar+Pdf/0d6ffb64-4501-42ba-a0f3-ca3cc99c9f99
9. 1 https://ppp.indianaviation.gov.in/infrastructureinfrastructure/100136/12.html
10. 1 Policy on Airport Infrastructure of India By Task Force on Infrastructure of India, NIC 02-13
11. 1 www.aai.aero/servlet controller
15. 1 NCAER – Economics Impact Study of Delhi Airport
17. 1 Two Approaches to Service Quality Dimensions, Uolevi Lehtinen and Jarmo R. Lehtinen, The Service Industries Journal Vol. 11, Iss. 3,1991
18. 1 http://www.newdelhiairport.in/quality.aspx
19. 1 http://www.gmrgroup.in/institution-building-vision-values.aspx
23. 1 ACI Airport Service Quality Awards 2009, Asia Pacific airports sweep top places in worldwide awards from the Wayback Machine

Supplementary Weblinks for report and policy references
1. http://www.ibef.org/industry/indian-aviation/showcase