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Issues in Airport Infrastructure Development under Public Private Partnership

RAJIV GUPTA
Sr. Associate Professor, National Institute of Construction Management And Research (NICMAR), Hyderabad, India, rajivgupta@nicmar.ac.in, rajevgupta@gmail.com

ABSTRACT: *This paper examines the phenomenon of airport infrastructure development under public private partnership mode. It locates the issues in privatization of airports in Asia, as well as across the United States of America, the European Union, and Australia. Further, since Thailand and India have aggressively pursued the PPP route for airport infrastructure development, the issues relating to these two countries are examined in detail. Governments are increasingly justifying development through the PPP mode due to their inability to provide large amount of capital investments that modern airports require and also for efficiency gains that the private sector brings into the project. These efficiencies become manifested in terms of improved service delivery which is set to international standards. However, shortfalls in funding and viability gaps are being met by levy of extra fees in the form of User Development Fee under the user pays principle. This has created an overriding concern for maintaining affordability of services to the airport customers through economic regulation. The rationale behind an increase in service delivery prices is that customers willingly pay for a better perceived service. As a perspective paper, this critique paves the way for further research into the issues discerned. A first draft of this paper was presented in International Conference on Contemporary Business Management (ICOM 2012) from Dec 10th – 12th 2012 organized by Chulalongkorn Business School, Chulalongkorn University, Bangkok, Thailand.*

KEYWORDS: *Affordability of Services, Airport Infrastructure, PPP, Privatisation.*

I. INTRODUCTION

Airports have come a long way from the time that they were mere landing or take-off nodes for aircrafts and entry or exit points for passengers. At that time the supremacy of airlines was evident as countries showcased their international image through their officially designated airlines. Today it is the airports that have gained an international iconic stature. The airports have transformed themselves into vibrant, dynamic spaces fulfilling multifarious needs of their customers viz. the passengers, the airlines and the cargo shippers. According to Graham (2008) a key development has been the commercialization of airports wherein the transformation of an airport from a public utility enterprise to a commercial enterprise along with the adoption of a more businesslike management philosophy has taken place.

A factor which has contributed largely to this transformation is 'Privatisation'. Privatisation is a world-wide phenomenon and countries are taking this forward on the strength of government will and by creating an enabling environment. Governments have recognised the contribution and importance of the image and standard of their airports to their overall economic well being. Over the years, several models of airport privatization have emerged from 100% private sector control to varying degrees of partial privatisation. One model which has gained momentum is the Public Private Partnership model or the PPP model.

The PPP model for airports, where the shareholding is between the Government and the Private sector, is based on high investments, building the facility to international standards, creating capacity for handling increasing number of passengers and cargo and recovering investments from concessions for operating the airport over a long period of time with levy of different types of fees on all its customers.

II. AIRPORT PRIVATISATION

According to Poole (2012), since 1987, when Margaret Thatcher's government privatized (via a 100% public share offering) the former British Airports Authority (now BAA), airport privatization has become a global phenomenon. Governments in Europe, Asia, Australia and New Zealand, Latin America and the Caribbean have privatized major airports. Some of these privatized entities have subsequently acquired full or partial ownership interests in other airports (in their own country and elsewhere), as have some government-owned airports. Today's global airport industry is often characterized by airport groups, rather than just individual airports.

As per an ADB report (2000) on PPPs in infrastructure, airport privatization will be encouraged by the existence of legislation in the form of a BOT law or similar, signalling a government's recognition of the need for PSP (Private Sector Participation) in infrastructure provision. It is also important to ensure that the government is able to demonstrate that any projects offered to the private sector are economically viable. Graham (2008) defines airport privatization by stating that it can have various meanings. In its broadest sense, it is usually associated with the transfer of the management of an airport, and in many cases the ownership as well to the private sector by a variety of methods. These methods include share floatation, the adoption of strategic partnerships or the introduction of private management contracts. De Neufville (1999) gives us a broad frame work of privatization – full public control, full privatization, shared control and regulated control. he defines 'privatized' as a long term private investment in terms of an equity stake (in excess of 75%) to qualify as fully privatized, a long term lease or concession agreement or a BOT franchise, as distinct from shorter term management contracts without equity commitment. Where 'partial privatization' is found, this requires a minimum private share of more than 20% or an adequate lease/concession agreement with regard to total equity, since without a substantial financial involvement and corresponding risk, investors will hardly be able to exercise effective management control. Vogel (2006) cautions us that a simple view of privatisation as the change of ownership of the property and facilities and specifically the transfer from a government agency to private investors, is misleading regarding airports. Other researchers too state that most privatizations of major commercial airports did not involve the actual sale of the property. Myers (2006) lists five types of privatisation observed in airport infrastructure development: Greenfield, long-term lease, government corporation buy out, partial share sale, and privatisation of services. According to Kapur (1995) airport privatisation, like other privatisation programs can occur in many different forms but three methods are most common for airport infrastructure privatisation taking place around the world: the sale of an existing government owned airport through divestiture; outsourcing through management contracts; and use of private financing and management rather than public funding for new infrastructure development through concession based contracts.

Across the globe, airports have been shifting from a public service that is to be provided by the government, to an enterprise that can benefit the government. For the developed countries, privatisation is seen as a way to reduce the government's financial responsibilities, while in developing countries the focus is on modernising and developing world class airports. Noticeably missing though from the fuller privatisation trend are the American airports. Nevertheless, most American airports do fall under the "privatisation of services" category. The reason most American airports are not more fully privatised is due to the fact that there are still many legal and economic obstacles in the heavily regulated US airport industry.

According to Advani (1999) privatised airports are substantially more passenger friendly than government run airports. This is because the profit motive drives an organisation's strategy to design services around the needs of customers.

A study by Tourism & Transport Forum Australia to assess the impact of airport privatisation (URS 2007) analysed the performance of Australia's eight airports in a comparison of performance pre and post privatisation across several parameters and it concluded that airport privatization and the related Airport Master Planning process are a success. These eight airports, excluding one, represented approximately 82% of the total number of air passengers in Australia.

TABLE – 1
Performance Analysis of Australia's Privatized Airports

	Performance Parameter	Pre privatization	Post privatization	Percentage (%) increase/decrease
1	Revenue per work load unit (WLU)	A$15.57	A$22.07	+42%
2	Operating Costs	37.6%	35%	(-) 7%
3	Revenue from non-aero streams	62.7%	65.4%	+ 4.3%
4	Yield – EBIT/Total Avg. Revenue	44.0%	44.9%	+ 0.9%
5	Capital Investment	A$ 2.0 billion	A$ 2.30 billion	+15%

Source: Tourism & Transport Forum, Australia

Although the study termed the privatization of Australia's airports a success across several parameters Table-1 shows that except for revenue per work load unit, the impact resulted in minimal marginal increase in performance. The positive impact was also seen in several non-measurable factors. For example, it could be argued the smaller passenger airports and the general aviation airports were presented with significant opportunities as a result of privatisation by being able to seek capital for development and to implement "best

practice" airport operational and commercial management. This success has since been replicated by larger airports in other countries. Further analysis of the business data revealed that significant capital expenditures by airports of any size significantly changed the diversity and mix of revenue streams, the growth of revenues, passenger capacity, freight and other opportunities in synergistic ways.

In the US, airport privatization ties the funds realized from operations of privatized airports to ploughing them back into the airports. Reason Foundation's report (Poole, 2012) cites that this acts as a disincentive. The federal Airport Improvement Program imposes economic regulation on U.S. airports in exchange for annual grant funding. Those regulations preclude airport privatization, because they require all "airport revenues"—including proceeds from a lease or sale—to be reinvested in the airport (or airport system) that generates them. Hence, a city, county or state that wishes to lease or sell its airport would receive zero financial benefits from doing so. The regulations also prohibit any airport operator (including an investor-owned airport company) from taking any profits off the airport, which means such a company would have no incentive to acquire a U.S. airport.

In contrast to the US, Europe's tryst with privatization has been different. The Airports Council International, Europe early in 2011 released a report called "The Ownership of Europe's Airports." It categorized 404 European airports into three categories: public-sector ownership, mixed ownership, and private (investor) ownership. While 78% of the 404 airports fell into the public-ownership group, with 13% as mixed and only 9% fully investor-owned, a potentially more relevant breakdown is by share of passengers handled. By that measure, 52% are handled by public-sector airports, which means that 48% of European air passengers are handled by partly or fully privatized airports as of 2011. After Greece and Spain complete their current privatization efforts, that 48% will likely become a majority of passengers. Unlike Europe, where the principal mode of airport privatization has been the sale of partial or 100% ownership stakes in airports, in Latin America the long-term concession model has prevailed. The biggest news in this region in 2011 was the launch of airport privatization in Brazil. A 2010 study by McKinsey estimated that the country's top 20 airports needed about $19 billion in investment to cope with projected passenger growth. Canada is often said to have "privatized" the country's main commercial airports, but what the federal government actually did more than a decade ago was to divest them to newly created local airport authorities. Other than that, there has been no real airport privatization in Canada, apart from a public-private partnership that developed the new Terminal 3 at Toronto's Pearson International Airport in the late 1980s and contract management of the Hamilton International Airport in the suburbs of metro Toronto. In January 2010, a Hamilton city council member suggested that the city study selling the airport and using the proceeds to upgrade aging city infrastructure.

III. AIRPORT INFRASTRUCTURE – ASEAN REGION

Dempsey (1999) observed that if the nineteenth century was Europe's and the twentieth America's, then the twenty-first century likely shall belong to Asia. Over the next several decades much of the world's new airport infrastructure investment will be in Asia. Asia has half the world's people, an undeveloped air transport system, and, throughout much of the last two decades, some of the most stunning economic growth rates on the planet. It was estimated that Asian governments spent US$150 billion on new airports and airport expansion programmes between 1997 and 2002. The Asia-Pacific and Middle East regions have the best track record for timely airport infrastructure development. Nanayakkara (2008) too stated that the airline industry in North America and Western Europe can be considered to be reaching the matured stage whereas the Asian region which includes India and China can be considered to be experiencing a rapid growth stage. IATA (2011) too shared a similar view by stating that "we must embrace the reality of an industry whose centre of gravity is shifting away from our traditional leaders in the US and Europe. Asia-Pacific is already our biggest market. The continued development of China and India will keep this region at the industry's forefront. We must engage the region to deliver leadership for change". Doganis (1992) too shares this view when he says that during the last decade air-transport growth in the Asia-Pacific region has been well above the world average and has outstripped growth in all other regions. East Asian airports have enjoyed particularly rapid growth as a result. Since all long-term air-traffic forecasts predict much higher growth for Asian markets than for North American markets, Asian airports will continue to improve their rankings among the world's top forty airports. This impetus in airport infrastructure development in this region compels us to have a closer look at some of the region-specific issues.

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States of the Association are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam. The ASEAN Secretariat is based in Jakarta, Indonesia. The member states recognise that air travel is driven by domestic and intra-regional activity. The open sky

agreement of ASEAN has helped further encourage airport development due to increased flights between ASEAN nations. The Economic Research Institute for ASEAN (ERIA) in its report on Asia India Connectivity commented on the state of airport development - while runways in some airports accommodate bigger airplanes, most of the Asian airports lack basic aviation infrastructure. For creation of a functional single market in Asia, it is necessary to overcome the missing links in transportation, the lack of inter-operability and infrastructure gaps which reduce the efficiency and weaken the global competitiveness of the Asian industry. As per the Master Plan on ASEAN Connectivity (MPAC 2011), in the area of air transport infrastructure, capital airports of ASEAN Member States are sufficient in terms of runway lengths to accommodate the existing operation of aircrafts. However, some of these airports still face problems in providing airport facilities, particularly runways and warehouses. Aside from the development of airports, attention to harmonising ASEAN air navigation system and procedures including air routes should be given to anticipate the growing air traffic in the region. Failure to improve these facilities could result in limited growth potential. Some ASEAN Member States (AMS) have recently implemented projects to improve airport facilities and services, including the construction of terminals for private low cost carriers (LCCs). However, lack of storage facilities at the airports of some ASEAN Member States remains an area of concern.

Further, the ASEAN Strategic Transport Plan 2011-2015 (ERIA 2010) published by Economic Research Institute for ASEAN and East Asia mentions that basically, airport infrastructure development is implemented under the governments concerned. However, airport as the infrastructure of air transport sector has only recently loosened restrictions on foreign investment. Furthermore, foreign companies enter into airport development projects in the world not only in the construction phase but also during operation. From the viewpoint of maintaining the integrity of public fund, AMSs are willing to use private financial schemes such as PFI, BOT and BTO which are applied for the development of airports.

3.1 Thailand

Thailand has 65 airports with paved runways and 44 airports with unpaved runways. In 1998 The Ministry of Transport and Communication of Thailand started considering the privatization of Airport Authority of Thailand (AAT) and in 2002 in order to promote efficiency of airport operations, improve services for airport users and obtain financing from the private sector the Airports of Thailand Public Company Limited (AOT) was corporatized as a public limited company from AAT. Currently AOT has six international airports under its responsibility; viz. Don Muang, Suvarnabhumi, Chiang Mai, Phuket, Hat Yai and Chiang Rai airports.

Webster & Theeratham (2004) report that in Thailand airports are viewed as high profile infrastructure - associated with much prestige and local economic development potential of communities. As such, allocation of resources for airport construction is highly politicized with local politicians and officials strongly lobbying for new airports, upgrades, etc. The result is gross oversupply with many excellent facilities having no commercial services. Existing legal and institutional framework for private involvement in infrastructure delivery (PPPs, concessions, BOT, BOO, sub-contracting, etc.) often does not lead to value for the Government and citizens of Thailand. In particular, officials express concern regarding open-ended Design and Build and turnkey contracts because of the lack of detailed enough specifications to hold private contractors accountable. It is also observed that in Thailand the right infrastructure systems are usually identified, and eventually delivered, but ten to twenty years later than originally proposed. In part this is due to very slow bureaucratic decision making (there are over 500 committees dealing with infrastructure in the Thai Government). To a considerable extent slow decision-making has been rectified under the current Government. A second problem is lack of involvement of key stakeholders and affected parties in design. A third problem is the failure to undertake more detailed design before commencing construction. Project proponents are beginning to see that changing the infrastructure provision process, including earlier collaborative public involvement could be in their own interests.

We examine issues linked with the development of Thailand's Suvarnabhumi International Airport, Bangkok more closely because of its vision statement "To become Asia's Leading Airport Business". (Thailand Transport portal 2012) Suvarnabhumi airport which occupies an 8,000-acre (32 km^2) plot of land commenced its operations in 2006. Currently it is the sixth busiest airport in Asia, and the busiest in Thailand. It was built at an estimated cost of Thai Baht 155 billion (US$ 5 billion). It handled 47.9 million passengers in 2011. It is also a major air cargo hub, with a total of 96 airlines operating from there. It was built for an initial capacity to handle 45 million passengers and 3 million tonnes of cargo per year and in 2012 passenger volumes are expected to touch 52.2 million. Its long term plans include capacity creation for handling more than 150 million passengers and 6.4 million tonnes of cargo a year. Expansion which was to commence soon after opening in 2006 has been delayed by six years. The airport's passenger terminal is the world's largest passenger terminal ever constructed

in one phase at 750,000 square metres (8,100,000 square feet), and is also currently the fourth biggest passenger terminal building in the world, after the Hong Kong International Airport (846,000 square metres / 9,110,000 square feet), Beijing Capital International Airport (1,200,000 square metres / 13,000,000 square feet), with the largest passenger terminal being at Dubai International Airport (Terminal 3 is over 1,980,000 square metres / 21,300,000 square feet). It also has the world's tallest free-standing control tower (132.2 metres / 434 feet).

To support the large investment in this airport the Government decreed a one airport policy for Bangkok and accordingly ceased operations of its existing 98 year old Don Muang airport which handled 36.5 million passengers a year prior to its closing. But heavy congestion at Suvarnabhumi airport has prompted the government to come out with a blue print to ease the traffic and it is decided that Don Muang will undergo major redevelopment to become Bangkok's second airport, specifically earmarked for the low cost carriers (LCCs) so that it can handle 66.5 million passengers by 2027. Bangkok's LCC traffic has been rising at an annual rate of 20% since the last eight years and it is felt that it thus deserves a dedicated facility. With this Suvarnabhumi will continue to welcome full-service international airlines. Further, to gain from knowledge sharing on airport operations, marketing cooperation, staff training, technological and business innovations AOT has signed Sister Airport Agreements with 4 world-class international airports. A perusal of the shareholding of Suvarnabhumi project given in Table – 2 shows that the majority of the shares (70%) are with the government and only 30% shares are with the private sector. This is in sharp contrast to the Government of India policy on privatization of airports where the major share (74%) is held by the private sector and only 26% is held by the government, as given in Table – 5.

TABLE – 2
Ten Largest Shareholders[a] of Suvarnabhumi International Airport, Bangkok

	Name	No. of Shares	%
1.	Ministry of Finance	1,000,000,000	70.000
2.	Nortrust Nominees Ltd.	69,185,900	4.843
3.	State Street Bank and Trust Company for Australia	27,736,955	1.942
4.	Thai NVDR Company Limited	27,265,584	1.909
5.	Bualuang Long-Term Equity Fund (B-LTF)	21,192,400	1.483
6.	Social Security Office	18,523,100	1.297
7.	Bualuang Long-Term Equity Fund 75/25 (BLTF75)	17,839,200	1.249
8.	HSBC (Singapore) Nominees Pte. Ltd.	15,758,605	1.103
9.	BNY Mellon Nominees Limited	11,160,200	0.781
10.	Nortrust Nominees Limited-NTO Sec Lending Thailand	10,062,900	0.704

Source: AOT website: http://aot.listedcompany.com/shareholdings.html
a: As of 30 December 2011

The primary barrier to low-cost entry is the lack of airport infrastructure to support LCC's requirements at many of America's and Europe's largest metropolitan airports (Sungkard 2004) and learning from that experience he states that Thailand needs to:
- Improve the airport infrastructure across the nation to encourage more new entry low-cost carriers
- Develop a higher standard online booking system and improve the call-centres for low-cost carriers
- Manage a reduction on ground service time for turnaround trips to save costs on airport services and slot management.
- Decrease the fee for airport parking, which is the highest fee in a Southeast country, to encourage more players in the industry.
- Set up new regulations on low-cost carriers to improve the customer service system.

Only a few ASEAN countries have opted for the PPP route for airport infrastructure development. Apart from Thailand, we find that it is Malaysia which has been successful in this regard whereas Philippines became entangled with a lot of legal problems in Singapore and USA while developing its Ninoy Aquino International Airport 3 and in Singapore, Changi International Airport used to be operated by the Civil Aviation Authority of Singapore but a decision was taken to privatize it in stages commencing in 2009. The airport operations division has already been privatized. In Malaysia**,** Kuala Lumpur International Airport (KLIA) is operated by multiple companies under the Malaysia Airports Holdings Berhad (MAHB), an operating holding company. The holding company operates and maintains airports in Malaysia and undertakes their non-aeronautical projects. MAHB's subsidiary, Malaysia Airports (Sepang) Sdn Bhd, has been managing and operating the world-class KLIA under a 50-year concession and lease agreement with the Ministry of Transport since 5 May 1998 when KLIA was completed. The Government introduced a unique programme – 'HUBS' which stands for Holistic Unbundling and Benefit Sharing. It has helped in improving the handling of various

development and management aspects of the airport. 'Holistic Unbundling' refers to: unbundling of airport development and airport operations and management, unbundling of socio-economic activities from commercial responsibilities and unbundling of non-core businesses from MAHB; thus allowing MAHB to focus on airport operations. 'Benefit Sharing' refers to: sharing of the benefits between the MAHB and the government. One important fact emerges that the Malaysian Government has taken the responsibility for meeting development capital expenditure (developing new airports/upgrading existing airports) and has created policy which states that this will be borne by the Government while MAHB will bear operational (maintenance) capital expenditure for all Malaysian airports (except Senai Airport). However, it can allow MAHB to undertake airport developments if commercially viable. Further, MAHB will be given the flexibility to set its other aeronautical charges (landing, parking, etc.) according to market forces, but such charges would still be subject to Government's discretion. Any intervention in rates, which results in charges being lower than a pre-determined benchmark, will entitle MAHB to a restitution payment from the Government (Malaysia Airports web portal 2012).

Milne (1991) identified ethnicity as an important issue in privatization of airports in the ASEAN region. He identified obstacles created by political, social and cultural factors. For example, in a few countries selling to local Chinese projects of large scale is unpopular, consequently restricting the range of possible buyers. He further states that consumers may suffer, if, after privatization a monopoly situation is maintained or even strengthened. Paradoxically, privatization, which in one sense is a form of deregulation, should be accompanied by regulation; particularly of prices.

IV. AIRPORT INFRASTRUCTURE – INDIA

4.1 GOI Policy and Control

Government of India's Ministry of Civil Aviation (MoCA) is responsible for formulation of national policies and programmes for the development and regulation of the Civil Aviation sector in the country as per the various legislations. The Ministry exercises administrative control over attached and autonomous organizations like the Directorate General of Civil Aviation, Bureau of Civil Aviation Security and Airports Authority of India amongst others. Its vision is 'Enable the people to have access to safe, secure, sustainable and affordable air connectivity services with world-class civil aviation infrastructure.' A few of its mission statements which seek to translate this into achievable objectives and relevant to our treatise are: to create world-class civil aviation infrastructure facilities, to establish effective regulatory framework in harmony with international standards and to ensure maximum satisfaction of users / optimize consumer satisfaction.

With a view to accelerate the integrated development, expansion, and modernization of the operational, terminal and cargo facilities at the airports in the country conforming to international standards the Airports Authority of India (AAI) was formed on 1st April 1995 by merging the International Airports Authority of India and the National Airports Authority Design, Development, Operation and Maintenance of international and domestic airports and civil enclaves.

MoCA has recognised the contribution of airport infrastructure to the national economy by stating that the quality of airport infrastructure is a vital component of the overall transportation network and it contributes directly to a country's international competitiveness and the flow of foreign investment. In India, 97% of the country's foreign tourists arrive by air and tourism is the nation's second largest foreign exchange earner. 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. Airports also represent a country's window on 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. Airports need to be integrated with other modes of transport like Railways and Highways, enabling seamless transportation to all parts of the country.

There are 449 airports/airstrips in the country. Among these, the AAI owns and manages 92 airports and 28 civil enclaves at defence airfields and provides air traffic services over the entire Indian airspace and adjoining oceanic areas. Airports are presently classified as International Airports, Custom Airports, Model Airports, Civil Enclaves in Defence Airports and Other Domestic Airports. Plans are now afoot to follow international classification norms of International Hubs and Regional Hubs.

4.2 India - Airport Privatization

Ministry of Civil Aviation has announced plans for private sector participation for modernising and upgrading airport infrastructure under Brownfield and Greenfield categories through Airport Authority of India. An investment of about Rs. 40,000 crore (USD 9.75 billion, @Rs.41/$ in 2006-07) was projected for the development of airports during the period 2006-07 to 2013-14, of which approximately Rs. 31,000 crore was envisaged from PPPs. Modernisation of airport infrastructure impacts all the service providers at airports as well as the users of air services.

As per the Airport Infrastructure Policy, looking at the quantum of investment required, the answer to all the problems lies in the infusion of private (including foreign), investment in this sector. The truth of the matter is that public funds for development of airports are getting scarcer and private sector involvement has, therefore, got to grow. There is a definite worldwide movement from monopoly state ownership of airports to corporatization, in the first phase, with the final aim of privatization of ownership and management. India has to be a part of this global transition. For the reasons of bridging the yawning gap in resources as also to bring in greater efficiency in management of airports, the participation of private parties (including foreign ones) is a must. Government will take all possible steps to encourage such participation. Accordingly airports in Delhi, Mumbai, Bangalore and Hyderabad have been taken up for infrastructure development under the public private partnership route.

Presently there are 17 international airports operating in India out of which 11 are functioning as AAI managed airports and 6 are privately managed airports. The privately managed airports are:

1. Indira Gandhi International Airport, Delhi operator Delhi International Airport Limimted (DIAL)
2. Chattrapati Shivaji International Airport, Mumbai operator Mumbai International Airport Limited (MIAL)
3. Rajiv Gandhi International Airport, Hyderabad operator GMR Hyderabad International Airport Limited (GHIAL)
4. Kempe Gowda International Airport, Bengaluru operator Bangalore International Airport Limited (BIAL)
5. Cochin International Airport, Kochi operator Cochin International Airport Limited (CIAL)
6. Bharat Ratna Babasaheb Dr. B.R. Ambedkar International Airport, Nagpur (MIPL - MIHAN)

These privately managed airports also referred to as Joint Venture Companies (JVCs), between them handled more than 50% of India's traffic and cargo during the fiscal 2011-12 as given in Tables – 3 & 4

TABLE – 3
Load Analysis of JVC Airports and All Indian Airports
Fiscal April 2011 – March 2012

	JVCs (PPP) airports International Traffic	JVCs Intl. (%) of Total	JVCs (PPP) Domestic Traffic	JVCs Total Traffic	All India Airports Total	JVCs to India Total (%)
Aircraft Movements nos.	199,665	24.35%	620,265	819,930	1,544,646	53.08%
Passengers nos.	27,362,850	29.14%	66,543,119	93,905,969	162,303,121	57.86%
Freight (tonnes)	1,054,893	66.91%	521,662	1,576,555	2,279,987	69.14%

Source: Developed by Author based on data from AAI & MoCA web sites

TABLE – 4
Passenger Traffic at JVC Airports, India, Fiscal April 2011 – March 2012

	JVC Airport	Airport Code	Passengers		Total (nos. million)
			International nos. million	Domestic nos. million	
1	DIAL, Delhi	DEL	10.75	25.13	35.88
2	MIAL, Mumbai	BOM	9.70	21.05	30.75
3	GHAIL, Hyderabad	HYD	1.92	6.52	8.44
4	BIAL, Bengaluru	BLR	2.35	10.35	12.70
5	CIAL, Kochi	COK	2.59	2.13	4.72

Source: Developed by Author based on data from AAI & MoCA web sites

For the purpose of our analysis we have not considered MIPL – MIHAN since it is not fully operational and also since it is primarily being developed as a multi-modal cargo hub. All the five privatized airports in our set are structured as Joint Venture Companies (JVCs) in which AAI has a minority share holding. Table – 5 lists out the share holding pattern

TABLE – 5
Share Holding Pattern of India's JVC Airports

	Airport, Place, BOT Type, Equity Break-up	Pvt. Sector	Public Sector
1	DIAL, Delhi – Brownfield, LDOT – Lease-Develop-Operate-Transfer, Equity: Pvt: GMR Group 50.1%, Fraport AG 10%, Malaysia Airports 10%, India Development Fund 3.9% Govt: Airport Authority of India 26%	74%	26%
2	MIAL, Mumbai – Brownfield, LDOT – Lease-Develop-Operate-Transfer, Equity: Pvt: GVK Group 50.5%, BSDM 13.5%, ACSA Global 10% Govt: Airport Authority of India 26%	74%	26%
3.	GHIAL, Hyderabad – Greenfield, BOOT – Build-Own-Operate-Transfer, Equity: Pvt:GMR Group 63%, MAHB 11%, Govt: Airport Authority of India 13%, Govt. of A.P. 13%	74%	26%
4.	BIAL, Bangalore – Greenfield, BOOT – Build-Own-Operate-Transfer, Equity: Pvt: GVK Group 43%, Siemens 26%, Unique Zurich 5% Govt: Airport Authority of India 13%, Govt. of Karnataka. 13%	74%	26%
5.	CIAL, Kochi – Greenfield, BOO – Build-Own-Operate, Equity: Pvt: NRIs & others + Airport Service providers 57.9% Govt: Govt. of Kerala + Public sector units 42.1%	57.9%	42.1%

Source: Developed by Author based on information from MoCA, AAI & AERA web-sites

Although AAI has a minority share holding, it has a say in major decisions of these airports through its representatives as Directors on the Boards of these companies. Besides this, AAI monitors the performance of the JVCs through a system of monthly reports submitted to it on various operational and financial parameters and updates to the business plan. Further AAI has also fixed service quality requirements and development standards which are required to be followed by JVCs.

Prior to privatization AAI identified several shortcomings and problems which needed to be addressed by the private sector. These were - congestion, limited terminal and apron capacity, bunching of flights, delay in passenger clearances, upgrading of passenger amenities, ground handling facilities, night landing systems and cargo handling.

4.3 Viability based on Multiple Revenue Streams

At major airports across the world, the trend is towards a very high percentage (60% to 70%) of the total revenue of airport operations being generated from non-aeronautical sources. In India, although these services are even now provided by private agencies, the comparable figure for AAI at international airports is just 22%. MoCA has in its policy decided that except for user developmental fees, there will be total freedom for airport operators in the matter of raising revenue through non-aeronautical charges and there will not be any Government control over the same. It is believed that a major thrust towards increasing the share of commercial revenue emerging from non-aeronautical sources will help in optimal exploitation of the full commercial potential of airports and make many airports not only viable but capable of generating surpluses for further expansion and development. These liberal norms come with some caveats: i) In order to maximize the revenue while at the same time maintain transparency, there will be a master plan for development of commercial activities and facilities, as part of the overall master plan approved by the management, for the airport as a whole. The space-use patterns will normally not be deviated from and ii) In the allocation of space among concessionaires, there will be a strict adherence to stipulated procedures, while maintaining sufficient flexibility in order to ensure quality products and services and attract the holders of reputed brand-names. For this purpose, innovative tendering procedures involving limited tenders, two-bid system, use of net present value of bids spread over several years, grant of management contracts, bunching of similar facilities etc. will be devised.

4.4 User Pays Principle

AAI's guidelines mention that it is expected to function on business principles and recover its costs by levying user charges, to be paid by passengers and airlines. It is, therefore, expected to develop airports to world-class standards but at the same time ensure that they are cost-effective so that user charges remain affordable and competitive as compared to other airports in the region (GOI, Planning Commission document, 2009). In pursuance of this policy directive MoCA's Strategic plan 2010-15 states that to bridge the viability gap AAI/ Operator (private sector) be permitted to utilize the land on city side, to earn revenue as well as to permit levy of Airport Development Fee / User Development Fee.

4.5 Airport Charges & Development Fees

These are fees levied on enplaning passengers like a pre-funding charge by several countries. Few of the international airports that levy this fee are (a) Newquay International Airport, UK (b) Blackpool International Airport, UK (c) Norwich International Airport, UK (d) Norman Manley International Airport, Jamaica (e) Hailfax Airport, Canada (f) Pearson International Airport, Toronto, Canada and (g) Winninpeg James Armstrong Richardson International Airport, Canada. In India this fee is used for funding or financing the cost of upgradation, modernization or development of the airport. The levy is in the nature of a "pre-funding" charge and is consistent with ICAO policies. Greenfield airports like Hyderabad and Bangalore are levying User Development Fee (UDF) from embarking passengers to fund viability gap of these airports. DIAL and MIAL have also been authorised by the Government to levy UDF from embarking passengers at Delhi and Mumbai airports to fund modernization of Delhi and Mumbai airports. In addition to the UDF the government of India also levies a Passenger Service Fee. PSF is levied to meet the expenditure on airport security and passenger facilities at the airports and it is not utilised to fund new development or up-gradation of airports. The fee varies amongst the airports and for domestic and international passengers. The fees are collected by the airlines in the ticket as part of passenger fare and remitted to concerned airport operators. There is an outcry from several sections of the customers – both the airlines and the passengers about the high charges being levied by the PPP airports and that unless the government lessens the cost burden on flyers, India's great aviation growth story may become history (Times of India 2012).

In the Unites States of America, Federal Aviation Administration, an operating mode of the U.S. Department of Transportation permits (FAA/OST Task Force Study 1999) levy of various charges by airports as a major source of airport funding. These include airport user charges, airport revenue bonds, Passenger Facility Charges (PFCs), the Airport Improvement Program (AIP), and state and local programs. Airport user charges are generally used to recover an airport's operating costs and its debt-service costs for bonds. In 1990, the US Congress reversed a prior federal prohibition and authorized airports to charge a per-passenger enplanement fee to finance airport capital improvements and the expansion and repair of airport infrastructure. The three objectives for which PFCs can be applied are (1) to preserve or enhance safety, security, or capacity of the national air transportation system; (2) to reduce noise or mitigate noise impacts resulting from an airport; and (3) to furnish opportunities for enhanced air carrier competition. In America Passenger Facility Charges (PFCs) have played an important role in financing airport capital development projects. Between 1992 and 1998, FAA approved 3,900 projects and authorized collection of PFCs totalling almost $19 billion. (By January 1999, approved funding reached $23 billion.) Several projects allowed airport operators to build or refurbish terminals and gates, and thus accommodate new entrant air carriers or incumbent carriers that wanted to expand their operations. In India, fees for various airside operations levied on the airlines is fixed by the AAI on the higher side for the Private sector JVs and this resulted in a LCC withdrawing its operations and several others objecting to the high charges. In January 2011, Air Asia Berhad, a low cost airline, cancelled its operations from RGIA, Hyderabad citing levy of high service charges by the airport as the reason for withdrawal.

Most Governments, airports and the travelling public readily accept that low frills carriers with lower ticket prices stimulate and grow the total market where-ever they operate. However, most Governments and airports have not grasped or accepted the reverse responsibility for the results of the increases in charges that will decrease the size of the market.

4.6 Affordability of Services and Economic Regulation

As we have seen, financial feasibility of airport investments by the private sector dictates that funding is recovered by the User Pays Principle. However, the challenge before the government, the regulator (Airports Economic Regulatory Authority – AERA) and the private sector developer is about keeping the services affordable. India's Ministry of Civil Aviation in its strategic plan 2010-15 states the most important stake holder in the sector is the common passenger whose aspiration and need to travel will deepen with time. He needs affordable, comfortable and safe travel with a decent quality of customer services. This prompts us to examine the premise of Willingness to Pay – which is based on the principle that the user finds the quality of service

much superior and thus is Willing to Accept (WTA) it as it is and having accepted the superior service is willing to pay a higher price for the same (WTP). Several researchers (Hanemann, W.M., 1994, Kohlin, G., 2001, Jesdapipat, 2009) have used cogent valuation method to assess WTA. Contingent valuation is a method, often employing questionnaires, to help discover a person's willingness to pay for a particular good or service. Assessment of willingness to pay for improvements in airport comfort is based on a study by Jorge and de Rus, (2003). This study emphasises the importance of passenger comfort, airport congestion and the quality of access facilities to aircrafts. However, evidence of willingness to pay is limited, as suggested by the authors. In India the government in order to encourage the airport development in the private sector has made a policy that except for user developmental fees, there will be total freedom for airport operators in the matter of raising revenue through non-aeronautical charges and there will not be any Government control over the same.

A liberal policy regime with respect to the private sector necessitated the setting-up of the Airport Economic Regulatory Authority (AERA) in 2008. The AERA is required to perform the following functions in respect of major airports: to determine the tariff for the aeronautical services taking into consideration the capital expenditure incurred and timely investment in improvement of airport facilities; the service provided, its quality and other relevant factors; the cost for improving efficiency; economic and viable operation of major airports; revenue received from services other than the aeronautical services; and the concession offered by the Central Government. Based on these, the AERA is setting about to determine and finalise the amount of the development fees in respect of major airports; and the amount of the passenger service fee where a major airport is deemed to be one having annual passenger throughput in excess of one and half million or any airport notified by the government.

In October 2010, Airport Economic Regulatory Authority (AERA) permitted hiking of the user development fee levied on passengers flying out of RGIA by 26% and 87.5% for domestic and international passengers respectively after following the due process of inviting objections / views of all concerned stakeholders but the response from passengers was negligible. However, in February 2014 AERA scrapped levy of UDF by RGIA for the period April1st 2014 till March 2016, being part of the first five year control period of 2011 -16 which was up for review.

AERA also fixes the rates for aeronautical services at major airports including charges for navigation, surveillance and supportive communication thereto for air traffic management; for the landing, housing or parking of an aircraft or any other ground facility offered in connection with aircraft operations at an airport; for ground safety services at an airport; for ground handling services relating to aircraft, passengers and cargo at an airport; for the cargo facility at an airport and for supplying fuel to the aircraft at an airport.

4.7 Specific Issues related to the Joint Venture Airports in India:

1) AERA, the regulator has identified huge financing gaps (Delhi Rs. 3523 crore (27.4%). and Mumbai Rs. 3001 crore (28.7%). As per the concession agreements these amounts were permitted to be recovered through the levy of Airport Development Fee on passengers (AERA 2012 a, 2012 b)
2) There were cost overruns due to time delays and change of scope in these airports by as much as 113.4% in the case of Mumbai airport and 49.5% in the case of Delhi airport.
3) The concession agreements permitted the private sector developers to exploit the real estate element of the lands under their jurisdiction which created a positive cash flow of Rs.1471.51 crore from leasing out just part of the permissible land at Delhi airport and Rs.1000 crore for Mumbai airport. The lands were given by the government without any financial burden to the project or the developer. The developers claimed these amounts to be outside the regulatory till, hence not to be used to subsidize determination of tariffs for aeronautical services.
4) In the case of Bangalore airport there was a change of lead shareholder when original promoters off loaded their share in favour of GVK group for share value more than 10 times the face value in a matter of five years; thus raising the airport valuation to Rs.4630 crore or US $ 1 billion in a short span of time after commencing operations.
5) The JV operators were able to achieve higher service standard ratings than the stipulated target set for them. In Feb2011, RGIA, Hyderabad was adjudged as the best airport among the 5 to 15 million passenger capacity by the Airports Council International (ACI) in the Airport Service Quality (ASQ) survey. Similarly, in the 25 to 40 million passenger capacity Delhi's Indira Gandhi International Airport was ranked fourth.
6) GMR group Chief Financial Officer (airports), at a recent infrastructure conclave spoke against bringing the PPP projects under the purview of the Comptroller and Auditor General of India and under the Right to Information Law. He opined that this would increase the risk of the private sector investors. (Economic Times 2.10.2012)

7) The Airports Economic Regulatory Authority (AERA 2011) has mandated that airport operators should form airport users' consultative committees (AUCC) at major airports for the purpose of consultation with users at three different stages. While this supports our research stand which seeks to establish customer centric airport infrastructure development at the same time it derails the entire process of customer centricity since the user involvement starts after the airport operator is finalised. This implies that the project terms of reference and project scope is already defined and the user views at this stage would hardly matter.

Based on the issues discerned we need to examine in detail the size and scope of the airport infrastructure being developed under PPP. Table – 6 reveals a mismatch between capacities, areas constructed and investments.

TABLE – 6
Key Development Indicators of JVC Airports, India

	Airport	Land area	Current passenger capacity	Passenger Traffic 2011-12	Terminal area	Estimated project cost (INR)*	Estimated project cost (USD)	Final Project Cost INR/USD
1	DIAL, Delhi	5436 acres	34 million	35.88 million	5.8 msf	Rs.8600 crore	USD 1911 million	Rs.12857 crore ($2857M)
2	MIAL, Mumbai	4800 acres	40 million	30.75 million	4.84 msf	Rs.5800 crore	USD 1288 million	Rs.12380 crore ($2751M)
3	GHAIL, Hyderabad	5500 acres	12 million	8.44 million	1.17 msf	Rs.2478 crore	USD 560 million	Rs.2920 crore ($660M)
4	BIAL, Bengaluru	5130 acres	12 million	12.70 million	1.00 msf	Rs.1930 crore	USD 429 million	Rs.2300 core ($511M)
5	CIAL, Kochi	1300 acres	4 million	4.72 million	0.57 msf	Rs.283 crore	USD 105 million	Rs.320 crore ($ 119M)

Note: msf - million square feet, * source www.pppindiadatabase.com, Department of Economic Affairs, Ministry of Finance, Government of India

V. CONCLUSION

At this juncture we are forced us to ask ourselves whether we are over-building our airports? Is this what the customer wants? As seen, there is a demand for no frills airports for LCCs which is a growing segment. This has prompted Government of Thailand to reopen its Don Muang airport with LCCs in focus. What is the minimum level of service that a customer accepts and is willing to pay for? Quest for answers to these questions paves the path for further research.

REFERENCES

[1] ADB Report. 2000. Developing Best Practices for Promoting Private Sector Investment in Infrastructure – Airports and Air Traffic Control. Asian Development Bank, Manila, Philippines.
[2] Advani Asheesh. 1999. Passenger Friendly airports: another reason for airport privatization. Policy study 254, Los Angeles, Reason Foundation.
[3] AERA. 2011. Terms & Conditions for Determination of Tariff for Airport Operators, Guidelines, 2011, issued by Airports Economic Regulatory Authority, India.
[4] AERA.2012 a. Determination of Aeronautical Tariff – IGI Airport, New Delhi. Consultation Paper No. 32/2011-12. Airports Economic Regulatory Authority, India.
[5] AERA. 2012 b. Determination of Development Fee in Respect of CSIA, Mumbai. Consultation Paper No. 33/2011-12. Airports Economic Regulatory Authority, India.
[6] De Neufville .R. 1999. Airport Privatization Issues for the United States, MIT Technology and Policy Program**.** Working Papers (draft), Cambridge Mass, MIT.
[7] Dempsey, Paul Stephen. 1999. Airport Planning and Development Handbook, A Global Survey. McGraw Hill, Washington D.C. USA.
[8] Doganis Rigas. 1992. The Airport Business. Routledge, New York, USA.
[9] Economic Times. 2012. Don't bring public-private partnership projects under CAG, RTI: GMR. News Report Published by the Economic Times, Hyderabad edition.
[10] ERIA . 2010. ASEAN Strategic Transport Plan 2011-2015, Final Report. Economic Research Institute for ASEAN and East Asia.
[11] FAA/OST Task Force Study. 1999. Airport Business Practices and Their Impact on Airline Competition. Federal Aviation Administration. Office of the Secretary (OST), USA.
[12] GOI, Planning Commission Document.2009. Norms & Standards for Capacity of Airport Terminals. The Secretariat for the Committee on Infrastructure, Planning Commission, Government of India.
[13] Graham Anne. 2008. Managing Airports, (3rd ed.) Burlington, MA, Elsevier: Butterworth Heinemann.
[14] Hanemann, W.M., 1994.Valuing the environment through contingent valuation. Journal of Economic Perspectives, Vol. 8, No. 4, pp. 19-43.
[15] IATA. 2011. Vision 2050 Report. International Air Transport Association, Singapore February 2011.
[16] Jesdapipat Sitanon. 2009. Willingness to Pay. Asian Climate Training (ACT) Material. Centre for Ecological Economics, Chulalongkorn University, Bangkok, Thailand.

[17] José-Doramas Jorge and de Rus, Giné s (2003), Cost-Benefit Analysis of Investments in Airport Infrastructure. Journal of Air Transport Management 10 (2004) 311–326.
[18] Kapur Anil. 1995. Airport Infrastructure the Emerging Role of the Private Sector. World Bank Technical Paper Number 313. The International Bank for Reconstruction. The World Bank Washington, D.C. USA.
[19] Kohlin, G., 2001.Contingent valuation in project planning: the case of social forestry in Orissa, India. Environment and Development Economics, Vol. 6, No. 2, pp. 237- 258.
[20] Malaysia Airports. 2012. http://www.malaysiaairports.com.my/index.php/news- archieve/53.html.
[21] Milne, R.S. 1991. The Politics of Privatization in the ASEAN States. ASEAN Economic Bulletin, Vol.7, No.3, 322-334.
[22] MPAC. 2011. Master Plan on ASEAN Connectivity. ASEAN Secretariat, Jakarta, Indonesia.
[23] Myers Angelina. 2006. Airports Privatisation the Effects of Take Off. CCS Working Paper No. 152, Centre for Civil Society, http://www.ccs.in.
[24] Nanayakkara, A.G.A.N., 2008. Planned Evolution of Airport Airside Configurations. A Doctoral thesis submitted to the University of Calgary, Alberta, Canada.
[25] Poole Robert.W Jr. 2012. Annual Privatization Report 2011: Air Transportation. Edited by Leonard Gilroy and Harris Kenny, Reason Foundation.
[26] Sungkard Karivate. 2004. Low-Cost Carriers and Low Fares, www.bu.ac.th/knowledgecentre/epaper/july_dec2004/sungkard.pdf Thailand Transport Portal. 2012. http://vigportal.mot.go.th/portal/site/PortalMOTEN/about/aot-en/
[27] Times of India. 2012. Aviation Ministry to Review Charges. News report published by the Times of India dated 22.10.2012, Hyderabad edition.
[28] URS.2007. Assessing the Impact of Airport Privatisation – Final Report. A Study by URS Australia Pty. Commissioned by Tourism and Transport Forum, Australia.
[29] Vogel, H.A. 2006. Does Privatisation Improve the Efficiency of Airports? Working Paper, University of Westminster, London, UK.
[30] Webster, D., & Theeratham,P. 2004. Policy Coordination, Planning and Infrastructure Provision: A Case Study of Thailand. Study was based in the Infrastructure Bureau of the National Economic and Social Development Board (NESDB). Paper commissioned for the ADB-JBIC-World Bank East Asia and Pacific Infrastructure Flagship Study.