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Economics of Air Connectivity in India during Post Regulation and Post Privatization Era

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Abstract

This paper identifies the initiatives taken by Government of India to develop the airports as greenfield/low cost airport to improve regional air connectivity. In this context an in depth exploratory interview of state and central officials of civil aviation, the expert of civil aviation consulting organizations and other related organization were carried out. The XII five year plan document of MOCA (Ministry of civil Aviation) and other reports of the consultants and committees set by MOCA were reviewed in detail to know such initiatives adopted so far. The suggested solutions and point of view of different organizations have been discussed and finally the region wise airports have been identified for development as Greenfield/Low cost airport to improve the regional connectivity.

Keywords: Air connectivity, Aviation, Low Cost Airport, Greenfield Airports

JEL Code: R41, R42, R48

1. Introduction

The economic regulation in airport infrastructure in India was implemented after privatization, which resulted into the adaptation of different regulatory approach for private and public airports. In the first cycle of revision of airport charges by Airport Economic Regulatory Authority (AERA) in 2009 the prices has been increased more than four-fold with the result that Indian airports has come in the category of costliest airports of the world i.e. consumer has not been benefited as has happened in case of competitive industry such as telecommunication (Singh, Dalei and Raju, 2015) ^[10]. However, it has recently been increasingly recognized that aviation is not only a mere mode of transportation for an elite group but is crucial for middle and low income group along with sustainable development of trade and tourism. Airports facilitate business tourism, medical tourism, educational tourism, ethnic tourism, leisure tourism etc. (MOCA, 2012) ^[8]. The International Civil Aviation Organization (ICAO) estimated that \$100 spent on air transport produce benefits worth \$325 for the economy and 100 additional jobs in air transport result in 610 new economy wide jobs. The ICAO study attributes over 4.5% of global GDP to the air transport component of civil aviation.¹ An efficient aviation sector is essential to support tourism, an industry with immense employment opportunity. As this is a capital intensive sector, there is an obvious need for perspective planning with a vision for the future and to muster the combined resources of the public and private sectors, both domestic and international.

Over the past two decades, there has been a trend towards the ownership and management of airports with emergence of regional patterns of ownership. Privatized airports are common in Australia and New Zealand, while partial privatization is more common in Europe. In many cases, an airport may be owned by one entity and operated by another. In the event that an airport is publicly owned and operated or publicly owned and operated by a not-for-profit organization, it is highly likely that the airport will pursue non-monetary objectives in addition to earning a return for shareholders.

The charges levied by Airports Authority of India (AAI) are under two broad heads viz., Air Navigation Services (ANS) and Airport Services. However, AAI (2013) ^[9] mentioned only the updated ANS charges for the AAI airports. ACRP (2013) ^[2] studies how to identify the

¹ Report on Airport Economics of ICAO Doc 9562

compliance requirements applicable to small hub and non-hub airports during the period from 2000 to 2010 (study period) and to quantify the costs, including initial costs and recurring costs, of federal requirements on small airports. Airports Economic Regulatory Authority of India has determined aeronautical tariffs in 2014 and proposed multiyear traffic of cargo handling services in 2013 for Bangalore international airport (AAI, 2013; AERA, 2014) [9]. Aeronautical Tariffs of Chatrapathi Shivaji International Airport has been determined by Airport Economic Regulatory Authority during 2014 (AAI, 2014). The current regulatory regime for airports in UK was established over 20 years ago under the Airports Act 1986. Since then, there have been a number of developments in the sector. (DoT, 2009).

In analyzing airport regulation there are several tasks. One of these is to observe the ownership and regulatory pattern in a city or country, and seek to explain it in terms of efficiency and other objectives. Another task is to outline which approaches to airport ownership and regulation are most likely to be conducive to efficient operation of airports- have some countries implemented promising models, and are the approaches taken by others flawed? Finally, there is the task of assessing what ownership and regulatory frameworks can best promote efficiency while recognizing the constraints imposed by the non-efficiency objectives imposed by governments- does a particular framework represent a good compromise between objectives and is it possible to meet the non-economic objectives at less cost in terms of efficiency (Gillen, 2007) [7].

Air connectivity is a major function of all airports which already been studied by many scholars. However, hardly there exist any studies pertaining to air connectivity in order to meet the lower and middle income group's aviation demand. This study is unique of its kind with the objective of purposing development of low cost regional airports in India which will help in bridging gaps in aviation literature.

At the outset we provided introduction and touched upon some relevant literature along with highlighting the objectives pertaining to the study. The remaining part of this study is as follows. The data and methodology are presented in section 2. Section 3 contains analysis and discussion followed by concluding remark in section 4.

2. Data and Methodology

This paper identifies the initiatives taken by Government of India to develop the airports as greenfield/low cost airport to improve regional air connectivity. In this context an in depth exploratory interview of state and central officials of civil aviation, the expert of civil aviation consulting organizations and other related organization were carried out. The XII five year plan document of MOCA (Ministry of civil Aviation) and other reports of the consultants and committees set by MOCA were reviewed in detail to know such initiatives adopted so far. The suggested solutions and point of view of different organizations have been discussed and finally the region wise airports have been identified for development as Greenfield/Low cost airport to improve the regional connectivity.

3. Analysis and Discussion

Followings are the analysis and discussion which highlights importance of developments of low cost regional airports in order to meet the growing aviation demand of middle and low income groups in India.

3.1 Indian Aviation Sector

During the last one decade the civil aviation sector has grown at a phenomenal pace and India has emerged as the 9th largest civil aviation market in the world. As regards to domestic market, India is the 4th largest market after US, China and Japan. During 2012-13, Indian airports handled about 159.40 million passengers as against 162.31 million passengers. Number of passengers handled at Indian airports was about 73.34 millions per annum during 2005-06. Passengers handling capacity has increased from 72 MPPA in 2005-06 to 197.77 MPPA in 2012-13. Scheduled air services are operating from 81 airports connecting 26 States and 4 Union Territories. 17 state capitals are connected to National Capital by direct flights. For these operations Indian Aviation has 437 scheduled aircraft and 500 General Aviation aircraft (Singh, Batra, Grover, Parate, & Chand, 2012-13). In the cargo front, 2.19 million metric tones of cargo had been handled at Indian airports during 2012-13 as against 1.40 million metric tones during 2005-06. Investment on Airport Infrastructure during XI five year plan was Rs. 36,371 Crores.

By the year 2020, India is expected to be 3rd largest aviation market by handling 384 million passengers (305 million domestic passengers and 79 million international passengers). India will be the fastest growing aviation market, expected to be within 4-5 big aviation markets by 2020, 3rd in terms of domestic market after US and China and expected to have 1030 scheduled aircraft and 2000 GA aircraft. (ACI, 2012) [1]. To support this growth, investment of Rs.71,000 Crores is envisaged on airport infrastructure during XII Five Year Plan.

3.2 Need for the development of airports in Tier-II & III Cities

Air Trips per capita per annum for India is 0.04 whereas for US & Australia is 2.0; Malaysia is 0.54; Brazil is 0.25 and China is 0.15 showing a very high potential for Indian Aviation Market (AIF, 2013) [3]. According to Air Bus Industries forecast, share of GDPs contribution to world's GDP by 2030 will be 40% by advanced economies (31 Countries), 39% by BRIC economies (4 Countries viz., Brazil, Russia, India & China) and 21% by other emerging & developing economies. Also Air Bus Industries forecasted that global middle class population is expected to rise by 2.5 times by 2030 with 66% in Asia Pacific. Increasing wealth is expected to move these countries (countries with low air trips per capita) along with the flight curve. With these inputs, aviation growth in India is pegged at CAGR of 10.3% up to 2020 as compared to 8% in South Asia (Singh, Batra, Grover, Parate, & Chand, 2012-13). To facilitate aviation growth, airports have to be come up in order to meet the market demand.

Air traffic in India at Tier-II & III cities are expected to grow faster than Tier-I cities because of shifting of IT, BPO, MNCs & other industries to Tier-II & III cities due to availability of cheaper land, manpower & other logistics. As the Head Offices of these companies still operate in Tier-I cities, requires frequent travel from Tier-II / III to Tier-I and vice versa with considerably stabilization in air travel cost. Also airports in Tier-I city has been bursting, as there is little scope for further expansion and train reservations in higher class i.e. 1st AC / 2nd AC / 3rd AC generally not available before two months.

According to MOCA, development of airports in Tier-II & III cities are necessitated because large number of non-operational airports are situated in the Tier-II & III cities viz., Agra, Salem, Tanjavur, Vellore, Kishangarh, Warangal, Rae-Bareilly etc., which is either industrial hubs or tourist hubs or both. These airports can be made operational with relatively little investment. In remote, hilly and inaccessible areas of the country, air transport is the quickest and sometimes the only option of mode of transport. Thus development of regional airports in the Tier-II & III cities is essential to sustain the future aviation growth.

3.4 Regional Airports in India

In India, there are 457 Airports / Airstrips. Of these, AAI owns and manages 91 airports; 125 airports are managed by Ministry of Defence; 160 are managed by State Governments; 57 airports are managed by private parties and 6 airports are managed by Joint Venture companies. AAI has already taken up the development of 35 non-metro airports. While the development of 27 airports has already been completed; development of 4 airports at Ranchi, Raipur, Bhubaneswar and Khajuraho shall be completed soon.

Development of 27 other non-metro airports at Tier-III cities has been taken up by AAI. While the development of 15 airports has been already completed; development of 5 other airports at Kadappa, Puducherry, Bikaner, Jaisalmer & Bhatinda is expected to be completed soon. Airports have been developed in the Tier-III cities - Mysore, Pantnagar, Cooch Behar, Jalgaon, and Akola; but as of now no schedule flight operations have been undertaken. AAI has a plan to activate 13 non-operational airports at Behala, Jharsuguda, Deoghar, Malda, Along, Daparizo, Pasighat, Tura, Rae-Bareilly, Kishangarh, Warangal, Thanjavur and Vellore. Development of 3 Greenfield airports is also undertaken by AAI at Pakyong (Sikkim), Cheithu (Nagaland) & Itanagar (Arunachal Pradesh).

3.5 Low Cost Airports: Suggested Models

We know that the first generation of Indian aviation boom was due to low cost carriers. Low cost carriers made air traveling affordable to a vast majority of Indians and catalyzed passengers' growth unprecedentedly. Similarly the second generation of aviation boom is likely to take place due to low cost airports and regional airports.

Low cost, no-frills airport will focus on quality and efficiency of services. Airport Design is to permit 25-30 minutes of turnaround time. The net result is that the airlines operating at these airports often require around half the space per passengers as the legacy airlines. General feature of low-cost airports is also the absence of a large amount of expensive commercial space. These airports will be developed in a phased manner, initially to cater the needs of 20/40/80 seater aircrafts depending on traffic forecast. Smaller aircraft should be treated as the main demand driver for the future growth of low cost airports. Initially these airports may function on the basis of VOR only with or without Night Operations facilities. These airports can have a Runway Length of 1400m to 1700m with 2 parking bays. Perimeter may be provided with chain link fencing instead of permanent wall.

The development of Low-cost Regional Airports would also require a separate regulatory framework both for safety and security. For example Airports with less than 50 passengers in a day may be exempted from X-ray screening and it may

be replaced by physical checking. Wherever expensive sophisticated equipments can be replaced by manual or low cost systems without compromising on their original purpose, they may be acceptable. The DGCA and BCAS should examine regulatory regimes available in countries where low-cost airports have developed and adopt a similar minima based systems.

These airports will have shared hold rooms instead of individual gates and will not have PBBs, Escalators, Carousels, etc. These airports will use low-cost energy efficient sustainable technology for ventilation / air-conditioning, waste water management, water management, STP, etc. and software solutions to meet functional needs.

3.5.1 Commercial Viabilities of Low Cost Airports

Introduction of air connectivity or increased air connectivity enables manufacturing enterprises to exploit the speed and reliability of air transport to ship components across firms that are based in different and distant locations thereby minimizing the inventory cost. Therefore the low cost airports are likely to harvest the huge untapped industrial and commercial capacities in Tier-II and Tier-III cities and open up the opportunities for investments. The resultant economic growth of Tier-II and Tier III cities will increase in disposable income of middle class people living in such cities, which in turn will increase the propensity to travel by air to distant places for pilgrimage, tourism, business, education, training, etc. With the emergence of low cost carriers and with the purchase of small aircraft (20/40/ 80 seaters) augmented with the low cost of operations will result in the affordability in aviation sector. These factors are further strengthened by the interest shown by private promoters and developers to develop airports in Tier-II & III cities.

3.5.2 Low Cost Airports – Concerns, Issues and Solutions

In spite of the progressive commercial viabilities of the low cost airports, the following concerns and issues need to be addressed.

- Limited aero & non-aero revenue sources over short to medium term due to limited traffic.
- Mandatory expensive safety and security requirements.
- High cost of mandatory infrastructure may make airports unsustainable thus there need flexible regulation in licensing norms for scheduled operations.
- ANS Charges
- There is risk of undermining the viability of the project due to delay in getting large number of clearances required from various authorities / agencies viz. DGCA, AAI, Defence, Environment Ministry, State Authorities & Local Municipalities.
- Difficulties and delays in land acquisition, no proactive policy on rehabilitation and resettlement of displaced inhabitants.
- Access to airports and connecting infrastructure generally has not been factored by City Urban Planning Departments.

Operating costs of low cost regional airports may be curtailed by outsourcing of non-core activities. Further it is suggested to enact enabling policies and create regulatory environment (including licensing criteria, security & safety norms) to encourage private sector investment and to induce management skills in regional airport infrastructure and regional airlines to ensure sustainability. Increased assistance

under Viability Gap Funding scheme or India Infrastructure Project Development Fund will ensure the success of low cost airports. In addition, some monetary interventions by Government viz., *Establishment of Regional Airport Connectivity Fund (RACF)* through collections made from passengers to provide subsidies to airlines and for establishment of regional low cost airports and heliports. This is in line with Regional Development of Airports Scheme (RDAS) and Remote Area Subsidy Scheme (RASS) both of which are in vogue in Australia and Essential Air Services (EAS) Programme which is in vogue in US. These measures will be supported by IT solutions by operators to focus on supporting processes and functionality, to facilitate Airport operations, baggage claims, flight check-ins and delivery of services. Removal of restriction of 150 km for revival of non-operational airfields / airstrips, as these are not greenfield airports will support and benefit the activation of existing non-operational airports. NSOPs may be permitted to announce schedules on category II and III routes and encouraged to operate to low cost regional airports.

3.6 Initiatives by various Stake Holders for Development of Low Cost Airports

Stake holders such as Central Government, State Governments, Airport Developer, Airline Operators, Commerce and Industry Bodies need to take the following initiatives to strengthen the commissioning and operation of low cost regional airports.

3.6.1 Initiatives by Central Government

It is necessary to enact enabling policy and regulatory framework to encourage private sector investment in the low cost regional airport. Enacting National Policy on Regional Airport Development will further strengthen the development of low cost regional airports. Re-categorization of Routes under Routes Dispersal Guidelines will facilitate operation of regional airlines to low cost regional airports. Essential Air Service Fund (EASF) / Regional Air Connectivity Fund (RACF) are to be created to support air access to Tier-II and III cities. Guidelines for development of no-frills airport model without compromising on safety and security is also suggested. Facilitating airport development fee for pre-funding of airports would help in keeping tariffs down. Faster, single window mandatory clearances – facilitation support; Fiscal incentives – infrastructure status & IT exemption be extended to brownfield airport expansion and notification of ATF under 'Declared Goods' category with uniform 4% sales tax are the other few initiatives suggested to facilitate the successful operation of low cost regional airports.

3.6.2 Initiatives by State Governments

Since aviation growth creates business and employment opportunities, promotes tourism and boosts economy of the region, state governments may be encouraged to develop State owned airstrips / airfields either by itself or through management contracts, JVs with private promoters and AAI. Lowering sales tax on ATF will go in the long way in promoting the aviation in the state and the region. State may try to subsidize land for airport construction and up gradation and also provide active assistance in land acquisition. State government may offer either tax free or lower tax on inputs for Airport construction & operations. State governments may offer direct subsidy to airlines to promote connectivity

by the way of underwriting of seats in sectors with low occupancy to till such time when sector stabilizes, say 3-5 years. State governments may also promote the tourism places by giving impetus to *Incredible India* movement. A classic example is a Kerala Tourism Development Corporation (KTDC). KTDC has promoted the state as "God's own Country" with a direct focus on tourism development. In addition, provision of utilities i.e. water supply, power at subsidized rates; promotion of flying schools, aviation colleges, etc. and real estate development funding in and around airport to private developers are the other few initiatives suggested to facilitate the successful operation of low cost regional airports.

3.6.3 Initiatives by Airline Operators

At the outset airlines must try to offer affordable airfares to cater to price conscious regional passengers. Airlines must try to use the regional airports as inter-region & intra-region Regional Hubs. Airlines must try to develop the concept of code sharing in order to provide better connectivity with less time & cost and to minimize leakage of passengers from the catchment areas. Regular 'on time' connectivity with Hub & Spoke approach will facilitate to reduce the operational cost with retention of passengers. Leveraging Technology (ICT, Software Solutions) to economies operational cost and deployment of smaller aircraft with outsource non-core activity are the other few initiatives suggested to facilitate the successful operation of low cost regional airports.

3.6.4 Initiatives by Airport Operators

Airport Operators must explore the possibility of JV with State Government / AAI to develop the low-cost no-frills airports. In co-ordination with state government, airport operators may try to develop the fast connectivity (rail, road) to the airport. Airport operators may try to keep airport charges, including night parking charges at the reasonable level to incentivize the airlines and the passengers. Airport operators may provide facilities for ancillary aviation, like MRO facilities, Flying Schools, etc., to enhance the commercial viability of the airport. Airport operators may adopt green sustainable, environment friendly technology, in order to reduce carbon foot print. They may also develop sustainable business model to offer aviation-related non-aero services –viz., General Aviation, HRD, Hangars facility for aircraft parking, Flying / Aviation training academy, aero sports, cargo etc. and provide services for warehousing, cold storage, food processing, agro tourism, retail outlets / chains, multiplexes, IT hubs, medical services, etc. Leveraging Technology (ICT, Software Solutions, etc.) to economies operational cost; Multi-tasking staff and outsource non-core activity are the other few initiatives suggested to facilitate the successful operation of low cost regional airports.

3.6.5 Initiatives by Commerce and Tourism Industry

India has lot of tourists' places in every state from Kashmir to Kanyakumari. Commerce & Tourism Industry may try to promote tourist places in co-ordination with the state governments to generate tourists' arrivals in their respective states. This may be done by developing tourist attraction avenues along with travel packages at budget rates, casinos, etc. Commerce ministry may attempt to develop industry clusters in airport catchment area; use of Air Cargo to the extent possible; encouraging employees to travel by air.

3.6.6 Initiatives by Airports Authority of India

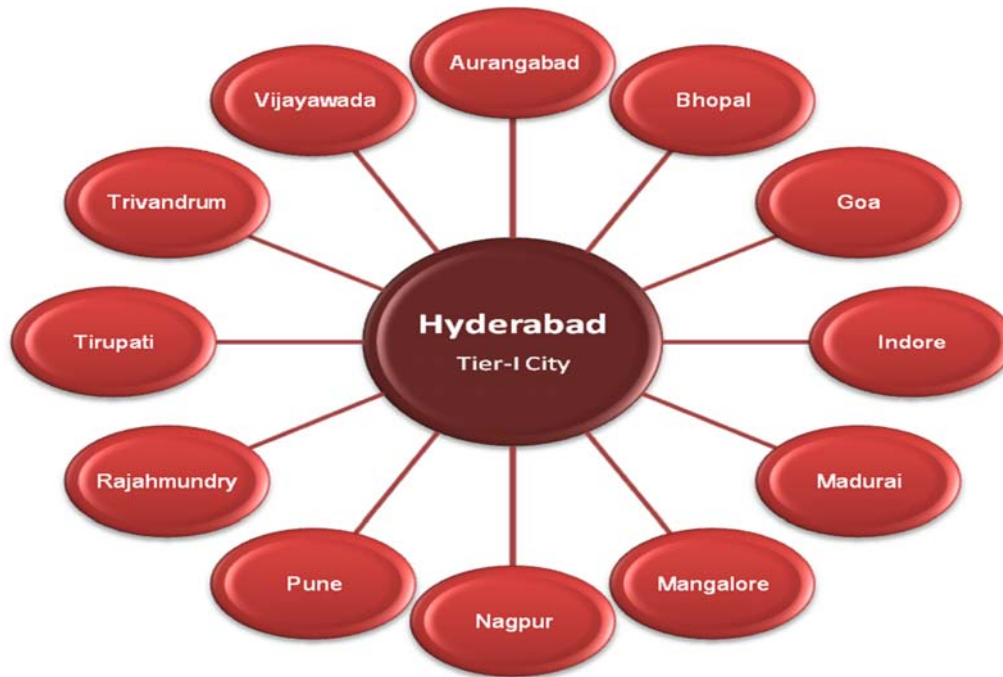
AAI may try to revive the non-operational airports in Tier-III cities by JV with the respective State Government or Private entities. AAI may try to rationalize aeronautical and airport charges. It is important to develop separate policy for regional airports. AAI may facilitate reduction in airlines' operating costs to incentivize airlines to serve regional airports, till traffic reaches break-even level. Free Night Parking Charges in initial years may also be considered. It is important that AAI must take a lead in building low-cost and no-frills airports.

3.7 Business Models in developing Low Cost Regional Airports

The business models such as Hub-spoke Model, Tier-II & III Model, Low-Cost No-Frill Airport Model, and Helipad Development are suggested in developing low cost regional airports. These models are described below.

3.7.1 Hub-Spoke Model

In Hub-Spoke model, Tier-I city may be connected with Tier-II & III cities. However it is very early to conclude on the viability of this model.



Source: Adapted from GMR (2014)

Fig 1: Hub Development

3.7.2 Tier-II & III Model

In this model there is no hub and no tier-I city is involved. Under this model Tier-II cities are connected with Tier-II cities and Tier-III cities are connected with Tier-III cities. Advantages of this model are

- No Cost Load viz., Airport Development Fees; Airport Charges etc.
- No Congestion
- No Restriction of Slots

3.7.3 Helipad Development

Helicopter operations for short distance could be considered by developing Helipad where aircraft operation may not justify the cost and concept. Emerging corporate travelers who value time as a precious asset could be the target travelers. Less land requirement makes helicopter operation a successful model, where land is a constraint, for an airport. Minimum investment advantage makes helipads financially viable. For sight-seeing, adventure tourism and medical emergencies helicopter operations could be capitalized. Helicopter operations could be for Remote Area Accessibility. Remote, hilly and inaccessible areas of the country could be connected by helicopter operations.

3.8 Achievement of Development of Low-Cost Regional Airports

Table 1 presents the development of Low-Cost Regional Airport projects in anvil through PPP Model.

Table 1: Development of Low-Cost Regional Airport projects in anvil through PPP

Developers	Region	Airports
M/s. Reliance	Maharashtra	Nanded, Latur, Baramati, Yavatmal and Osmanabad
M/s. Rahi Developers	Karnataka	Gulbarga & Shimoga (Expected to roll-out in the current year)
M/s. Bengal Aerotropolis Projects Ltd.(BAPL)	West Bengal	Durgapur Aerotropolis (Stake of Changi-Singapore)
M/s.MARG Group	Karnataka	Bijapur & Bellary
M/s. Super Airports	Puducherry	Karaikal

Source: Compiled by authors in consultation with various developers

In addition task force on development airports has recommended 32 airports to be developed under PPP model at the cost of Rs.6000 Crores (see annex I). There are also 9

Tier-III Brownfield Airports proposed to be developed in any region of the country (see annex II). There are 15 Greenfield Airports proposed to be developed for which in-principle approval has been granted (see annex III). Site clearance for 4 Greenfield Airports has been granted (see annex IV) and 12 Greenfield Airports is under process (see annex V).

4. Conclusion

During the last one decade the civil aviation sector has grown at a phenomenal pace and India has emerged as the 9th largest civil aviation market in the world. As regards to domestic market, India is the 4th largest market after US, China and Japan. By the year 2020, India is expected to be 3rd largest aviation market by handling 384 million passengers (305 million domestic passengers and 79 million international passengers). To support this growth, investment of Rs.71, 000 Crores is envisaged on airport infrastructure during XII Five Year Plan.

Air traffic in India at Tier-II & III cities are expected to grow faster than Tier-I cities because of shifting of IT, BPO, MNCs & other industries to Tier-II & III cities due to availability of cheaper land, manpower & other logistics. Also airports in Tier-I city has been bursting, as there is little scope for further expansion and train reservations in higher class i.e. 1st AC / 2nd AC / 3rd AC generally not available before two months. In remote, hilly and inaccessible areas of the country, air transport is the quickest and sometimes the only option of mode of transport. Thus development of regional airports in the Tier-II & III cities is essential to sustain the future aviation growth.

AAI has already taken up the development of 35 non-metro airports. While the development of 27 airports has already been completed; development of 4 airports at Ranchi, Raipur, Bhubaneswar and Khajuraho shall be completed soon. Development of 27 other non-metro airports at Tier-III cities has been taken up by AAI. While the development of 15 airports has been already completed; development of 5 other airports at Kadappa, Puducherry, Bikaner, Jaisalmer & Bhatinda is expected to be completed soon.

The development of Low-cost Regional Airports would require a separate regulatory framework both for safety and security. The low cost airports are likely to harvest huge untapped industrial and commercial capacities in Tier-II and Tier-III cities and open up the opportunities for investments. The resultant economic growth of Tier-II and Tier III cities will increase in disposable income of middle class people living in such cities, which in turn will increase the propensity to travel by air to distant places for pilgrimage, tourism, business, education, training, etc.

Stake holders such as Central Government, State Governments, Airport Developer, Airline Operators, Commerce and Industry Bodies need to take the initiatives to strengthen the commissioning and operation of low cost regional airports. The business models such as Hub-spoke Model, Tier-II & III Model, Low-Cost No-Frill Airport Model, and Helipad Development are suggested in developing low cost regional airports.

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Annexures

Annexure I

In Task Force has recommended the following 32 airports to be developed under PPP model at the cost of Rs.6000 Crores.

1. Jharsuguda (Odisha)
2. Warangal (AP)
3. Chakulia (Jharkhand)
4. Raxaul (Bihar)
5. Rupsi (Assam)
6. Kishtwar
7. Lahual Spiti (Jammu & Kashmir)
8. Hissar
9. Karnal
10. Ludhiana
11. Adampur (Punjab)
12. Radhanpur (Gujarat)
13. Parsoli (Gujarat)
14. Chandrapur
15. Karwar
16. Donakonda (AP)
17. Durgapur
18. Malda
19. Bhagalpur
20. Muzaffarpur
21. Jogbani
22. Madhubani
23. Jagdalpur
24. Ambikapur
25. Daltonganj (Jharkhand)
26. Jaypore (Odisha)
27. Utkela (odisha)
28. Gopalpur (Odisha)
29. Lenglec (Mizoram)
30. Agartala
31. Kamalpur (Tripura)
32. Juhu (Mumbai)

Annexure II

The following Tier-III Brownfield Airports proposed to be developed in any region.

1. Tezu

2. Daparazo, Arunchal Pradesh
3. Along, Arunchal Pradesh
4. Ziro, Arunachal Pradesh
5. Pasighat, Arunchal Pradesh
6. Rupsi, Asam
7. Lengpui, Mizoram
8. Kamalpur
9. Tura (Meghalaya)

Annexure III

The following are the Greenfield Airports for which in-principle approval has been granted.

1. Kannur, Kerala
2. MOPA, Goa
3. Peking, Sikkim
4. Sindhudurg, Maharashtra
5. Gulbarga, Karnataka
6. Bijapur, Karnataka
7. Hassan, Karnataka
8. Shimoga, Karnataka
9. Andal-Faridpur, West Bengal
10. Navi Mumbai, Maharashtra
11. Kushinagar, Uttar Pradesh
12. Dabra, Madhya Pradesh
13. Shirdi, Maharashtra
14. Karaikal, Puducherry
15. Aranmula, Kerala

Annexure IV

The following are the Greenfield Airports for which site clearance has been granted

1. Itanagar, Arunachal Pradesh
2. Machiwara, Ludhiana, Punjab
3. Dholera (Ahmedabad), Gujarat
4. Ongale (Prakasham Distt.), Andhra Pradesh

Annexure V

The following are the Greenfield Airports for which site clearance is under process

1. Sholapur, Maharashtra
2. Bhaini Bhairon (Meham Div. Rohtak Distt.), Haryana
3. Chakan (Pune), Maharashtra
4. Belora, Amravati, Maharashtra
5. Shirur (Pune), Maharashtra
6. Kotkasim (Alwar Distt.), Rajasthan
7. Bellari, Karnataka
8. Ankkara (Idukki Distt.), Kerala
9. Dwarka, Gujarat
10. Jamshedpur, Jharkhand
11. Velankarani, Nagapattinam, Tamilnadu Rumari, Assam