DEVELOPMENT OF AVIATION INFRASTRUCTURE: AN AIRWAY TO A BETTER ECONOMY

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Abstract

For a country to have a rapid economic growth, substantive human development and reduction in the poverty level, a robust social and physical infrastructure is essential in the blueprint of its development. Air transport has customarily experienced a higher growth rate than most other industries. Air transport is a leading force in the growth of the economy as the demand for air transport is closely linked with economic development. The development of infrastructure for the aviation industry thus plays a decisive role in helping the economy grow altogether. Both the civil aviation sector and the cargo sector have witnessed a major rise as everyone is looking out to update their lifestyle.

In the light of the importance of the role of infrastructure in the economic development of any country, the paper will seek to study and try to build on a comparative analysis in the development of infrastructural components in civil aviation and cargo aviation industry in India. These will be reflected upon as the paper will precede further drawing from the implemented laws and government policies, for civil and cargo aviation, in practice in the developed countries. Assessing the challenges in the infrastructure of transport industries with special emphasis on aviation sector, the author(s) will discuss the possible solutions that may be useful in addressing these challenges to further the cause of the exponential growth of economy in India.

Upon exploring these issues, the paper will conclude with specific suggestive measures that, if incorporated properly, can push India a step forward towards reaching the status of an emerging superpower.

Keywords: *Infrastructure Development, Aviation Industry, Economic Growth, Civil Aviation and Cargo Sector, Challenges and Solutions.*

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INTRODUCTION

Infrastructure development is a *sin – qua – non* for the development for the economy of the country. Infrastructure is the basic physical and organizational structures and facilities needed for the operation of a society or enterprise.[1] Infrastructure is needed to ensure that the country's operations continue to work and systems remain functional. A better infrastructure is crucial for the economic rapid growth, economic rapid development and poverty reduction.

Once standards are made mandatory and adopted, the next phase in reducing risk is ensuring that they are implemented properly. When developing infrastructure, there are four broad stages to conform with:

a. Planning - This comprises submission of an application to the authority where the application consists of details of who will do the work and how.

b. Design - This contains a review to check all requirements are met and the authority is satisfied. This is the first compliance check and it covers regular on – site inspections.

c. Construction - Inspection by external experts are crucial at every stage. A final certificate of compliance can be issued following a successful final inspection, to certify compliance of construction.

d. Installation and Commissioning - It involves installing the safety features as per the respective requirements, and only if these guidelines are met, shall the infrastructure be commissioned for use.

Transport is an essential factor in infrastructure development. It provides for the necessary services essential for promoting the same. The transport sector has shown immense growth and even promises to grow further. The government must prioritize transport planning and development while allocating the budget as it forms the backbone of the economy as a whole. The objective must circle around the progress of various transport modes in such a style which leads to the realization of an efficient, sustainable, safe and balanced transport system.

Aviation is crucial for quick and efficient development of trade and tourism and has a strong multiplier effect on various other sectors in the economy. As India moves forward to be the third largest civil aviation market by the end of 2030, it faces multiple challenges in terms of infrastructural constraints. There is a need to build more airports especially in smaller cities, including more in the North-Eastern and remote regions, for better connectivity and incentivising connectivity. The recent budget has addressed several of these problems, and new Civil Aviation Policy and related measures are designed to achieve it.[2]

Civil aviation includes air transport (commercial carriage by air), non-commercial flying (such as private flying), commercial non-transport, infrastructure and manufacturing. Air transport is the lead constituent of civil aviation. Air transport has traditionally experienced

[1] Available at: https://en.oxforddictionaries.com/definition/infrastructure

[2] Ministry of Civil Aviation (MoCA) Annual Report and Data

higher growth than most other industries. Demand for air transport is closely linked with economic development and at the same time air transport is a driver in an economy. The contribution of air transport and related civil aviation industries to local, regional or national economies includes the output and jobs directly attributable to civil aviation as well as the multiplier effect upon other industries throughout the economy.

The Indian air cargo segment has been attracting more international cargo operators to country in terms of services, joint ventures, stake holdings etc. The growing cargo volumes, no Indian all cargo or freighter operator, conducive policy and lenient regulatory environment all put together makes it a profitable market for the international players.[3] In 2017, India launched the UDAN scheme under the Regional Connectivity Scheme (RCS). The cargo segment also had placed its bet on the RCS scheme expecting the cargo lifts through smaller airports to the larger ones. However, the cargo segment has not taken off as planned. The demand for air cargo transportation has increased significantly over the last few years, because product life cycles have shortened and demand for rapid delivery has increased. In such a changing business environment, where speed-to- market is a competitive imperative, movement of inventory is no longer viewed as a compartmentalized process.

The needs of infrastructure are humongous- over a trillion dollars over the next 5-7 years. Besides funding from the own budgetary resources, Government is tapping all other possible avenues including loans from World Bank, FDI, pension and insurance funds, private capital under PPP, etc. The Government has set up National Investment and Infrastructure Fund, as announced in the Union budget 2017-18, with a proposed corpus of INR 40,000 crore, which may be raised from time to time. The Government's share in the corpus will be 49 percent, the balance 51 percent raised from strategic anchor partners. This would help in leveraging resources from public as well as private sector and augmenting equity flow to infrastructure projects.[4]

LEGAL REGIMES

Law is the basic need of the society and in the absence of the contrary, the consequences amounts to disorganization in the society. In the aviation sector, the system of law and order is equally important as aviation sector is an aspiring sector enhancing the economy and playing the role of a catalyst for growth in upcoming years especially for a developing country like the Indian subcontinent.

Aviation law is the branch of laws that govern the legalities and business aspects of flight and air transport, such as air traffic rights, aviation safety and security, economic regulations of airlines, and the operation of flights. The primary role of aviation law is to provide an agenda that keeps the aviation industry safe, reliable, fair and efficient.

Two major statutes in the Indian Scenario which take care of the Indian Aviation Sector are ,

[3] The Strat Trade Times, *India, the new destination for air cargo*

[4] Dhanendra Kumar, *Development of Infrastructure in India – The Vehicle for Developing Indian Economy*, Vivekanand International Foundation.

The Air Corporation Act, 1953 and the Airport Authority of India Act, 1994.

The Air Corporation Act, 195[5], nationalised all air transports and provided for the establishment of the Air Corporations to facilitate the acquisition of existing airline companies and make better provisions for the operations of air transport services in the country. The Act provided for the establishment of two corporations, viz., *Indian Airlines* and *Air India International.*

Where the latter supervised the international routes of the country, the *Indian Airlines* was formed by merging eight domestic airlines which were operating in the country, at that time. They were *Air India*[6], *Deccan Airlines*[7], *Airways India*[8], *Bharat Airways*[9], *Himalayan Aviation*[10], *Kalinga Air Lines*[11], *Indian National Airways*[12], *and Air Services of India*[13]. The Air Corporation Act, 1953, gave monopoly power to the Indian Airlines to operate on domestic scheduled services ruling out any other operator. Accordingly, Air India International became the sole carrier to operate on International flights except flights to some neighbouring countries, which were given to Indian Airlines.[14]

The Airports Authority of India Act, 1994[15] is the Central legislation enacted with the intent to establish an airport authority as well as to transfer and vest the activities of International and National Airports Authority of India with the Indian Airports Authority so created for advanced management and consistent administration of airports along with civil enclaves in the manner of services rendered by air transport. It is an Act to provide for the constitution of the airports Authority of India and for the transfer and vesting of the undertakings of the International Airports Authority of India and the National Airports Authority to and in the Airports Authority of India so constituted for the better administration

[5] In March 1953, the Parliament passed the Air Corporations Act which was recorded in the statute book with the assent of the President of India on May 28, 1953. The newly created public undertaking took over and launched its actual aviation operations from August 1, 1953.

[6] Originally started as Tata Air Services, then later renamed to Tata Airlines and on 29th July, 1946, it was renamed as Air India.

[7] Deccan Airways was founded in 1945, jointly owned by the Nizams of Hyderabad and the Tatas and its first flight began in 1946.

[8] It was nationalised and merged into Indian Airlines in 1953.

[9] *Supra note 8*

[10] Himalayan Aviation was an airline based in India that operated in the northern parts of the Indian Subcontinent until its nationalization and merger into Indian Airlines in 1953.

[11] Kalinga Airlines was a private airline based in Calcutta, India. The airline was nationalised and merged into Indian Airlines in 1953. It restarted operations as a non-scheduled charter operator in 1957 and flew passengers and cargo until 1972.

[12] Indian National Airways was an airline based in Delhi. In 1953, the Indian National Airways was nationalised and merged into Indian Airlines.

[13] Air Services of India was a private airline based at Juhu Aerodrome in Mumbai, in India. The airline was merged into the Indian Airlines Corporation in 1953.

[14] Available at: https://www.indiatoday.in/education-today/gk-current-affairs/story/indian-airlines-nationalisation-day-air-india-august-1953-air-corporation-act-1302436-2018-08-01

[15] Airports Authority of India (AAI) was constituted by an Act of Parliament and came into being on 1st April 1995 by merging erstwhile National Airports Authority and International Airports Authority of India.

and cohesive management of airports and civil enclaves whereat air transport services are operated or are intended to be operated and of all aeronautical communication stations *for the purposes of establishing or assisting in the establishment of airports* and for matters connected therewith or incidental thereto.

The prima facie motto of both the statues are:

- ensuring the safe design of aircraft, engines, and components,
- establishing navigational aids,
- maintaining aircraft and equipment,
- licensing pilots and aircraft maintenance technicians,
- certifying airports,
- Issuing standards for air traffic control.

POLICIES

NCAP (National Civil Aviation Policy)

The cornerstones of the new policy are competition, consumers, connectivity and investment (both domestic and foreign). Its vision is to make flying affordable and convenient and pave for significant growth in the civil aviation sector. Further stated aims are as follows:

- To improve ease of doing business through simplified procedures, deregulation and e-governance
- To achieve 30 crore domestic ticketing by 2022 and 50 crore by 2027. Similarly, to increase the international ticketing to 20 crore by 2027 and cargo.
- To increase the domestic passenger traffic by four-fold to 300 million by 2022.

Safety and Security

There are no improvements made in the policy in improving regulatory and policy-making competence. The policy is silent on professionalizing the crucial entities that govern aviation safety and security in the country like the Directorate General of Civil Aviation (DGCA) and Bureau of Civil Aviation Security (BCAS). Though it aims to strengthen these entities, it has not laid down any framework to make these organizations capable of meeting modern-day challenges and to be process-driven to deliver world-class service. With ever increasing growth in the number of passengers, the country needs strong air safety and security regulators.

AAI and Infrastructure Plan

The new policy is also silent on the need for complete transformation of the Airports

Authority of India (AAI). India's ambitious airport infrastructure development plan requires a strong organization to carry out the implementation. But there is little clarity in the fate of AAI or about its listing in the stock exchanges. Experts opine that AAI focuses heavily on capital expenses. Adding to the woes, the expected rise in helicopter operations, private flying and regional airlines is likely to add to the pressure.

The Way Forward

Aviation experts want the government to separate Air Navigation Services from the AAI and establish it as an independent, professional body. They also feel the policy has lots of ifs and buts involved. They want the policy to be coherent, fair, equitable and implementable. In addition, the industry stakeholders have to actively engage with the policy makers to implement the rational decisions to boost the growth of civil aviation sector.

Even with 40% upwardly mobile middle class, India's aviation industry remains largely untapped with promising potential. Framing right policies with special focus on quality, cost and passenger interest can make India to achieve its vision of becoming the third largest civil aviation market by 2020 and largest by 2030.[16]

UDAN (Ude Desh ka Aam Nagrik) / (Let the common citizen of the country, fly)

UDAN (Ude Desh Ka Aam Nagrik) is the Government's initiative to make air travel to India's tier II and tier III cities affordable to the *aam aadmi*. The idea is to put smaller cities and remote regions on the aviation map, by getting domestic airlines to ply more regional routes. Under the scheme, the Government offers incentives to airlines to flag off new flights to neglected smaller cities and towns by providing Viability Gap Funding to make these operations profitable. Airlines are required to bid for exclusive rights to fly on the regional routes opened up under the scheme. They must sell a specific number of seats on each flight at a fixed fare of ₹2,500 for one hour of flying. In the case of helicopter operations, allowed for the first time now, fares are capped at ₹2,500 for a 30-minute flight.

Its importance

After the second round of bidding in UDAN, air travellers can now fly with known names such as Jet Airways, IndiGo and Pawan Hans to far-flung places. In all, 109 regional airports and heliports have been connected.

The second round saw several tier 2 and tier 3 cities such as Kargil in J&K join the network. Besides these airports, 14 helipads in Uttarakhand, eight in Arunachal Pradesh, six in Himachal Pradesh, five in Manipur and four in Assam have been pressed into service in UDAN 2, making it easier for people in these regions to fly to other cities.

This should happen within six months as operators have to start services within this time-frame after the award of contract, subject to the Airports Authority of India getting the

[16] Available at: https://www.gktoday.in/gk/national-civil-aviation-policy-2016

airport/heliport ready. The scheme gives India's aviation sector a boost by giving a chance to small and first-time operators to be a part of the rapid growth in passenger traffic. These two rounds of bidding have seen newer players such as Heritage Aviation, Maritime Energy Heli Air Services, Turbo Aviation, Zoom Air and Pinnacle winning bids to operate flights. Robust regional connectivity is also expected to deliver an economic boost to the remote locations that make it to the country's new aviation map.[17]

POLICIES AND ON-GOING PROJECTS ON AIRPORT INFRASTRUCTURE

Greenfield Airports

Government of India has granted site clearance to DMIDC (project proponent) for setting up of a Greenfield Airport for public use near Bhiwadi in Alwar district of Rajasthan. The government has granted *in-principle* approval to 13 projects: Mopa in Goa, Navi Mumbai, Sindhudurg and Shirdi in Maharashtra, Bijapur, Gulbarga, Hassan and Shimoga in Karnataka, Kannur in Kerala, Dabra in Gwalior, Pakyong in Sikkim, Kushinagar in Uttar Pradesh and Karaikal in Puducherry.

A view on setting up of Greenfield Airport at Jewar will be taken after receiving a complete updated proposal from the Government of Uttar Pradesh . Government of Uttar Pradesh is responsible for further progress in the project as necessary action for approval from various departments, project development, including financing of the airport project has to be obtained by the respective airport promoter.

This information was given by the Minister of Civil Aviation Shri Ashok Gajapathi Raju Pusapati in a written reply to a question in Rajya Sabha.[18]

Air Cargo Industry

With Indian aviation market going through a transformational phase, backed by the huge opportunities in the air cargo industry, government and industry stakeholders have realised the need for infrastructure development focusing on providing quick and sophisticated services to sustain increasing air cargo volumes.

As India is to become world's third largest aviation market by 2020, developing infrastructure along with addressing the needs of the air cargo industry has been the top priority for the aviation ministry. But is India's aviation infrastructure prepared to sustain air cargo industry's immense future growth? It is important for the government to scrutinize the areas of development and set up working groups to study new opportunities in this sector. The logistics industry has always been confronted with multitude of problems on account of inordinate dwell times, damaged or missing cargo, long processing times and queues at the cargo terminals, etc. This has led to huge transaction cost and operating expense for the air cargo industry players. Therefore, the government's main focus initially is to reduce dwell

[17] Available at: https://www.thehindubusinessline.com/opinion/columns/slate/all-you-want-to-know-about-indias-udan-scheme/article22563182.ece

[18] Available at: https://www.ibef.org/archives/detail

time to match with international standards through automation, e-governance, air freight stations (AFS) and simplified processes.

HEADING TOWARDS REFORMS

Legal Regime in context of aviation infrastructure of developed countries: Australian aviation infrastructure regime.

The principal benefits according to the regime that the Australian aviation infrastructure sector exercises, are created for the customer, the passenger or shipper, using the air transport service. In addition, the connections created between cities and markets ,represent an important infrastructure asset that generates benefits through enabling foreign direct investment, business clusters, specialization and other spill-over impacts on an economy's productive capacity.

***Aviation's economic footprint**:*

Major Employer

- 149,000 jobs directly supported by the aviation sector,[19]
- 97,000 jobs indirectly supported through the aviation sector's supply chain,
- In addition there are a further 495,000 people employed through the catalytic (tourism) effects of aviation.

High Productivity Jobs

- The average air transport services employee generates AUD 205,212 in GVA annually, which is around 1.8 times more productive than the average in Australia**.**

Contribution to public finances

The aviation sector pays over AUD 3.2 billion in tax including income tax receipts from employees, social security contributions and corporation tax levied on profits, with a further AUD 1.7 billion of revenue coming from passenger departure taxes, including GST. It is estimated that an additional AUD 2.6 billion of government revenue is raised via the aviation sector's supply chain and another AUD 1.8 billion through taxation of the activities supported by the spending of employees of both the aviation sector and its supply chain.

Consumer benefits for consumers and shippers:

Air passengers resident in Australia comprise approximately 58 million of the passenger total. For the 78 million passenger flights in total, passengers pay AUD 80.7 billion (inclusive of tax), with Australian residents paying around AUD 60.0 billion. This expenditure is likely to significantly understate the value passengers actually attach to the flights they use. Air

[19] Available at: https://www.iata.org/policy/Documents/Benefits-of-Aviation-Australia-2017.pdf

transport is crucial for the distribution of high value to weight products. Air freight may only account for 0.5% of the tonnage of global trade with the rest of the world, but in value terms it makes up around 34.6% of the total.[20]

Enabling long term growth:

In 2010 there were 113 routes connecting Australia to urban agglomerations around the world. On average there were 6 outbound flights per day along these routes. A total of 32 of these routes were connecting Australia to cities of more than 10 million inhabitants, with 1 outbound flight per day available to passengers. Frequencies are higher to the most economically important destinations. For example, passengers benefited from 4.8 outbound flights per day from Sydney to Los Angeles International Airport, and from 68 flights per day from Sydney to Melbourne, providing high speed access for business and leisure purposes throughout the day. Many of these city-pair connections are only possible because of the traffic density provided by hub airports. Australia's integration into the global air transport network transforms the possibilities for the Australian economy by:

- Opening up foreign markets to Australian exports;
- Lowering transport costs, particularly over long distances, helping to increase competition because suppliers can service a wider area and potentially reduce average costs, through increased economies of scale;
- Increasing the flexibility of labour supply, which should enhance allocative efficiency and bring down the natural rate of unemployment;
- Encouraging Australian businesses to invest and specialize in areas that play to the economy's strengths.

ECONOMIC DEVELOPMENT

Infrastructure is fundamental to economic development as businesses need roads to have raw materials delivered and hence to deliver finished products and services to their customers. One of the recent initiatives of the government is the installation of the water ATMs[21], even in the most remote areas. With connectivity the economy will open to outside world, trade and commerce will flourish. With connectivity industries will be established as labour and capital will flow from surplus regions to connected and developing areas.

Reaching out to the ultimate consumers

In a society where highway construction can't be automated (yet), one of the easiest ways to get a slowing economy going again is for the government to put people to work. You need someone to work on roads, and highways, and all of the tubes running under them (anything from subways/car/railroad tunnels to electrical and telecommunication cables and sewages),

[20] *Ibid*

[21] Available at: https://www.thehindu.com/society/swipe-for-water/article23987352.ece

and those people need to be paid to do those things. While examples of infrastructural development are many, their importance in pivotal is development.

Tourism: Role of Infrastructure Development Affecting a Better Economy

The development of tourism anywhere very much relies on the development of appropriate infrastructure, which services the needs of a tourist and encourages investment in the sector. Infrastructure such as accommodation, restaurants, built-up attractions, tours and transport are primarily developed by the private sector.

- Efficient transportation system - A transport system acts as a bridge between places of tourist origin and destination. In its absence, the resource potential for tourism i.e. attractions and amenities, can't be of any benefit. They further go to increase the tourist traffic, in turn ploughing in greater revenue. It is estimated that the tourists pass on their income to us by spending around 40% of their total expenditure on travel alone.

- Air transport - Aircrafts are known to carry tourists over long distances. About 97% of international tourists arrive in India today by air. Within the country, 82% of them travel by air as compared to 11 % by sea and water routes and 7% by land routes.[22] The Rajasthan Govt. has taken a step ahead by proposing to construct airstrips for smaller aircraft at new places having tourist attraction though yet untouched by tourism. Himachal Pradesh aspires to emerge as a tourist state in the right earnest in the year to come. It proposes to have an international airport at Sundernagar in its centrally placed Mandi district. The expansion of Kulu, Kangra and Shimla airports for bigger planes and the extension of privately managed helipad taxi services to connect its interior with already existing 55 helipads are its other suggestion.

- Accommodation facilities - The need for accommodation in different classes of hotels suiting the varying requirements of tourists is no less an important part of tourism infrastructure. Accommodation facilities in the host country have become such an important part of tourist industry that it is now known as hotel industry by itself.

Infrastructure Development and Economic Growth

Infrastructure development has a directly proportional relation with the economy of the nation. In the better part of the last decade, Indian airports have continued to rank amongst the best in the world's best. The government has seen this as an opportunity for economic growth, and has decided on developing more world class airports in the country to meet the growing demands for air travel and also to enable regional connectivity. India's two major airports, Mumbai's *Chhatrapati Shivaji International Airport* and New Delhi's *Indira Gandhi International Airport* became the world's best airports under various heads, beating many international airports of South Korea, China and Singapore etc. As per the government plans, the following upcoming projects promise infrastructure development and economic growth:

[22] Available at: https://www.nios.ac.in/media/documents/316courseE/E-JHA-31-10B.pdf

- *Jewar Airport*, Greater Noida, Uttar Pradesh.

This will be the second airport in the National Capital Region. The construction work will begin by the end of the year and it is expected to commence its operations in the next 5-6 years. This airport will provide a major boost to the tourism industry of Agra, Mathura and Vrindavan.

- *Dabolim Airport*, Goa, Maharashtra.

The International Airport of Goa is set for expansion. The Airport Authority of India is planning to put in an investment of 400 crores. It includes extension of existing passenger terminal building and development of more parking bays. Also, an additional International Airport is going to be set up at Mopa in North Goa at an estimated cost of 3000 crore.

- *Chaudhary Charan Singh Airport*, Lucknow, Uttar Pradesh.

A new integrated terminal is being built at Lucknow Airport which will have an area of 88,000 square meters along with the existing terminal building with 16292 square meters. It will be able to handle 2.6 million international and 11 million domestic passenger traffic annually and the new terminal will be able to serve the growing demand of passengers by 2030-2031.

- *Chennai Airport*, Chennai, Tamil Nadu.

A terminal building at the Chennai Airport, including the present proposal measuring 197000 square meter shall be 336000 square meter and it will be able to handle 35 million passengers per annum. In order to serve the growing demand of passengers, the building would be ready by 2026-27.

- *Lokpriya Gopinath Bordoloi International Airport*, Guwahati, Assam.

A new terminal building at Guwahati Airport will have an area of 102500 square meters in order to handle the combined annual capacity (old and new terminals) of 9 million passengers per annum. The building at Guwahati Airport will be ready to serve the growing demand of passengers by 2026-27 and it will encourage investment and tourism across the North - Eastern region with thrust on 'Act East' Policy.

- *Pune International Airport*, Pune, Maharashtra.

To meet the growing rush of air traffic in Pune, the city's Airport is likely to undergo expansion. Earlier this year, the Director of Pune International Airport said that the airport will undergo expansion at a cost of Rs 650 crore. Also, the expansion is likely to include a new terminal building, new check-in counters and boarding gates.

- *Pakyong Airport*, Gangtok, Sikkim.

The airport, which got approved by the Central government in 2008, has been developed at

an estimated cost of Rs 350 crore. Interestingly, the airport is the country's 100th operational airport. The Pakyong Airport has been built at a height of 4,500 feet in an inhospitable terrain.

The link between growth in aviation and its impact on economic and social development is well organized. Development of infrastructure in aviation industry means generation of employment for building of infrastructure, generation of employment for the smooth and proper functioning of the industry. This employment generation is directly proportional to the economic growth of a country. Economic benefits of air transport include global increase as over 3.7 billion passengers are expected to fly in the financial year 2018-19 so it will act as a great enabler for the global economy and also air transport is an indispensable form of tourism which is a major growth engine for a developing country like ours. Airport Authority of India (AAI) plans to invest 15000 crore in 2018-19 for expand the existing terminals and making new ones.[23]

CONCLUSION

Today, India is brimming with new hope, energy and excitement of a new future. To meet the hopes of our people for a better and quality life, and aspirations of our youth for employment and brighter future, a fast-tracked infrastructure development is the critical need of the hour. The results must also reach all sections of people, in every corner of the country.

As rightly stated by the noted Economist Dr. VKRV Rao, "*The link between infrastructure and economic development is not a once and for all affair. It is a continuous process; and progress in development has to be preceded, accompanied, and followed by progress in infrastructure, if we are to fulfil our declared objectives of generating a self-accelerating process of economic development*."

This is even truer today. Infrastructure is the backbone of economic development and key to the efficiency of all investments, domestic and foreign. It is also crucial for country's security, disaster preparedness, strategy for poverty reduction and employment generation. Obviously, it cannot be a "business as usual" any more. It is necessary to inject a warlike urgency, overhaul our policies and priorities, introduce world class practices, modern technologies in material and project management, and build in accountability and responsiveness.

SUGGESTIONS

- Manage infrastructure like a business. It should be run like a service industry, responsive to the needs of customers.

- Introduce *'competition'* - competition gives choices to users and brings in efficiency and accountability. Any monopoly breeds inefficiency and lethargy.

[23] Dr. N. Vijayakumar, Dr. C. Vijai, *Indian Civil Aviation Industry*, International Journal of Multidisciplinary Research and Development.

- Introduce technology - new technology innovations in management, implementation, materials and machinery, etc. can reduce costs and modernise usage. There could also be new evolving global standards, which may also facilitate global investments.

- Upgrade capacity - it would be important to build and upgrade capacity, of management, implementation, contractors, skilled technicians, enabling them to undertake desired projects.

- Ensuring that the infrastructure development which is capital intensive, with long gestation period, does not suffer from dearth of financing, provide adequate set of incentives to attract funding through various modern instruments.

- Introduce a system of recognition for early or timely completion (Delhi Metro was a classic example of timely implementation) and penalties for delays and thereby cost over-runs.

To conclude, our path in the quest to reach the top may be difficult but we are set on the right track, with speed, confidence and determination. Now, as Swami Vivekanand had thundered:

"Rise, awake and stop not until the goal is reached"