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Aviation Growth, Airport Operational Safety Assurance and Responsibilities

By

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1. **General**
   1. Air transport system (and the total transportation system) of a country is considered to be an indicator of the economic well-being of the country and its development. Starting off with the essential road and where applicable, rail network, the infrastructure in terms of educational institutions, medical facilities, housing, water and power supply and air travel facilities form the main core activity in a country’s development. With the growth in economic activities, expanding business opportunities overseas and affordable travel, air transport system has come to the fore as the prime mode transportation that saves time and money for all.

1.2 Historically, after the Wright brothers flew the first ever heavier than air craft, the air travel industry developed by leaps and bounds to its present level. Just after the 2nd World War, the civil aviation took off in a planned manner thanks to the establishment of the International Civil Aviation Organisation (ICAO) with the signing of the Convention on International Civil Aviation in Chicago on 7 December 1944. The post 2nd World War period also saw economic progress all over thanks to a renewed focus on civic development and away from the battlefields. More educational opportunities became available, businesses expanded and overseas travel by air ascended to prime position.

**2 Traffic growth**

2.1 Let us take a look at the traffic growth since the first generation of long-haul jet aircraft came into commercial service.

* In 1970, by when the first generation of long-haul jet aircraft like the B707, DC-8, and Viscount were operating, 383 million passengers were transported. This translates to a total of 461 million passenger kilometres flown. Six million tonnes of air cargo were transported.
* At that point in time, the B747 entered the scene along with other wide body aircraft such as the DC-10, L-1011 and Airbus A300 joining a bit later for transporting greater number of passengers and cargo over longer distances cutting short the total time and permitting quicker access.
* In 1987, with the operation of these wide body aircraft, the corresponding figures were 1028 million passengers, 1589 million passenger-kms, and 16 million tonnes. The traffic growth kept pace with the larger capacity of these modern aeroplanes and has further led to the development of even larger aeroplanes with the advent of the A380 and of late, the B747-8 aircraft.
* The traffic statistics for the year 2005 are 2022 million passengers flown resulting in 3720 million passenger-kms and a much greater quantity of freight transported - 37.7 million tonnes.

The figure below shows the growth trend mentioned above.

2.2 ICAO statistics show that the year 2010 witnessed a global aviation growth of over 8 per cent over the corresponding figures for the year 2009. About 2.5 billion passengers travelled by air in the year 2010. While ICAO forecasts a global air traffic growth of about 5.3 per cent, for the Asia- Pacific region, the projected traffic growth in terms of passenger kilometres for the years 2011 to 2013 varies from 7.9 per cent to 8.8 per cent.

2.3 The ICAO air traffic forecast for 2025 are: 4500 million passengers, 9180 million passenger-kms., and 110 million tonnes of cargo. This projection translates to a 2-fold increase in the number of passengers flown, and a 3-fold increase in cargo transportation over the 2005 figures! In light of this traffic growth predicted by ICAO, it would interesting to see how will the airports around the world and in India, in particular, be prepared to accommodate the expected increased traffic and ensure safety will still be assured.

2.4 India has experienced significant growth in the last 10 years. From the air traffic statistics published by the DGCA, it can be seen that the international passenger traffic in the country has been increasing at an average of 9.88%. This takes into account the negative growth in the period 2001-02. Since 2002, the average growth has been over 13%.

Source: DGCA website -Statistics

2.6 Transportation in general and aviation in particular, is an indicator of economic well-being of a country and a sign of prosperity.The above-mentioned traffic growth places increasing demand on airports to provide better facilities, increased capacities and greater efficiencies. Air traffic growth around the world has necessitated better, harmonised and co-ordinated development globally in the interest of interoperability. We are facing new challenges again with the advent of new larger aeroplanes such as the Airbus A380 and the Boeing B747-8. Even the A340-500 and -600 aircraft, the B777-300 with their very long fuselages are already posing a problem at many existing airports. Further growth of traffic is expected. Demands for more efficient, cost effective and safe air travel will continue. Airports and airspace are getting congested, with some severe limitation on the availability of land for ground infrastructure expansion.

**3 Impact on Airport Infrastructure**

3.1 How well is the community prepared to face this growth? With the acquisition of more aircraft by the airlines to serve the growing demand, the ground infrastructure expansion is inevitable. Along with such growth is also the demand for associated support services like airport emergency preparedness, rescue and firefighting capabilities and efficiencies, and operational safety procedures. A similar effect will be felt on the landside facilities and even the access road and connectivity to the city. A proper planning process with appropriate studies to assess the cost effectiveness and technical feasibility is essential.

3.2 Airport development to meet the ever-increasing demand for fast, safe and secure air travel requires an efficient response from the airport operators. With the modern trend of corporatized or privatized airports, the airport operation and management has turned a corner in terms of improved efficiency, availability of non-governmental finances and modern technical know-how. This has resulted in the management and operation of airports being conducted as commercial entities with the possibility of safety taking a back seat. However, the need to ensure that the safety and security needs of the travelling public are always accorded top priority, cannot be overemphasized. Such a continuous demand for improved facilities to serve the growing numbers of travellers requires a systematic planning of the airport for which a Master Plan should be developed and kept current. While developing the master plan, the vision for the next 20 years must be clear to enable adequate safe guarding.

3.3 Airport operational safety is a very important component of airport operations and management, more so in the face of increasing traffic. The main elements of this are the airport emergency plan, rescue and firefighting, rubber deposit removal, runway surface friction measurement, provision of correct visual aids and associated maintenance, prevention of foreign object damage to aircraft and prevention of wild life hazards to aircraft. Additionally, the regular maintenance of the visual aids so essential for aircraft operational safety & efficiency should also be included in the elements of airport operational safety programmes.

3.4 The capability of the airports to meet an emergency is dependent on the attitude of the airport management, the seriousness with which emergency planning and testing the plan are conducted and the level of training of personnel involved. There are many instances of airport management not assigning the right priority and appropriate resources to airport emergency response services. And there are also instances of airport personnel not being aware of the need to look into the details of an emergency plan – the what, why and how – for effective intervention when necessary. Where an airport is surrounded by difficult terrain or water or swampy land, specialist rescue services and firefighting capability are needed. This could even be with assistance, cooperation and close co-ordination with specialist agencies like local fire brigades/coast guard/navy etc. Since a multitude of agencies could be involved, the airport operator must plan the emergency strategies very thoroughly so that should a need arise, the response would be very swift and efficient meeting the predetermined emergency response objectives. All these issues should be detailed in the airport emergency plan document which should be kept current with all agencies participating in the emergency exercises.

3.5 Appropriate agreements need to be entered into with the outside agencies detailing the required responses, the response time needed for the intervention to be timely and effective and the contact person in case of an emergency. All participating agencies must actively demonstrate their diligence in responding to an aircraft emergency as detailed in the airport emergency plan document. And the responses of each agency must be tested during the emergency exercise required to be conducted regularly. In this context, there have been instances of an outside agency requiring advance notice to be able to respond to an emergency. Another outside agency responding after a fairly large amount of time had elapsed rendering such participation almost useless.

3.6 In all of the above observations, the main shortcoming has been the lack of a professional approach at all levels and by key individuals not being aware of the gravity of the situation. Where emergency exercises have not been conducted objectively or not conducted at the minimum prescribed frequency, it has proven to be expensive in terms of loss of innocent lives. The RFF personnel of each agency should be trained adequately (initial as well as recurrent) to be able understand the rationale behind an efficient emergency response that every passenger expects from the aviation community. The airport management should be headed by a person who has airport operations or engineering or planning background/experience to be able to manage well.

3.7 The maintenance of paved areas (runways, taxiways and aprons) is another important airport operational safety issue. Timely removal of rubber deposits on a runway and measuring the runway surface friction value for maintenance purposes (thus preclude loss of braking action an aircraft may encounter otherwise) are vital safety issues to prevent runway excursions. The provision of adequate safety areas around a runway – runway strip, runway end safety area (RESA) – is also a high safety-priority item that must be provided for. Again, while providing the safety margins, it would not be wise to just pay lip service by providing the basic minimum (“we comply with the standard!”) and not examine it thoroughly from a safety perspective. Where, adequate safety areas are not available despite the best efforts of the airport operator, all airlines must be advised of such limitations so that they can develop their own Standard Operating Procedures (SOPs) of not operating if the visibility and/or meteorological conditions are not within acceptable values. Such operational procedures and restrictions would not be needed if adequate safety margins were available. This is critical at airports located with severe land constraints such as table-top airports. Risk assessment must be conducted at the planning stage itself in order to ensure full, smooth operations that are safe and secure.

3.8 It is in this context that the programme of airport certification/licensing and implementation of an active safety management system gains importance. By certifying/licensing an airport the safety regulator is assuring the travelling public and the airlines that, at the time of inspection and grant of the certificate/license, the airport met all the safety specifications prescribed and that the airport will continue to offer the same level of safe and efficient air transport facility. And the airport operator, on his part being present at the airport at all times, promises to adhere to the prescribed safety rules and regulations and maintain and operate the airport accordingly. This is a huge responsibility on both the safety regulator and the airport operator. They cannot relax and let down their guards and see safety becoming a casualty. The travelling public expects high levels of safety and efficiency.

**4 Conclusions**

4.1 Air traffic growth has always been increasing at different rates depending on the region, economic activity and availability of a good air transportation system. Equally inevitable is the need for airports to expand/modify their infrastructure to cater to this growth and arrival of bigger and heavier aircraft. More aircraft means greater pressure on air space management and airport capacity and operations.

4.2 It is not just enough to build new gleaming terminals and new airports if the airport operational safety assurance programme is not effectively implemented. To this end, every airport must have a proactive and live safety management system to be aware of all potential risks to aircraft operational safety at their airports. All key individuals should be adequately trained and qualified for the job. They should be aware of their responsibilities and be accountable for their actions. A lackadaisical approach to managing airport operations and safety should not be tolerated.

4.3 Diligent and sincere efforts are needed from all levels of the airport operator to assure the travelling public and other airport users that the airport and its management are dedicated to providing safe, secure and comfortable facilities and services. Only then would the airport attract and retain passengers interest (& thus airline operations) and claim to be a successful airport. Success has its demands of responsibility and accountability on the part of the airport operator (& other stake holders as well) so that the public trust in our ability to provide safe, secure and efficient airport facilities and services will continue.