CONSTRUCTION TIMES

FLY HIGH
REFORMS, TECH ADOPTIONS FOR FUTURE AIRPORTS!

FEATURE: Oil & Lubricants

FOCUS: Soft Solutions & Technology

REAL ESTATE: Focus - Pune • Special - Interior Paints

THEN & NOW: Elevators and Escalators

Crowded passenger flow management is the recent and crucial challenge in the execution of airport designs.

ANAND SHARMA
Founder & Partner, Design Forum International

How optimistic are you about the government initiatives & policies in the airport sector, especially the development of airports under the Public-Private Partnership (PPP) model?

Public-Private partnership has been the tried & tested model for projects and infrastructure developments worldwide, wherever capital intensive development is required. An association wherein the government brings in the nationally owned asset and the private sector brings in the expertise and funding to develop it. As aviation and transport infrastructure projects are extremely capital intensive and the government is usually in the paucity of funds for developing such developments. In India, Delhi and Mumbai Airports are successful examples of how private partnerships on publicly owned assets have been leveraged to create world-class aviation hubs and infrastructure projects.

The overall policy framework for the PPP models appeals to be very promising as every stakeholder from the agencies that commission and realise the development to the users who inhabit those spaces benefit from the proposed development.

The government intends to make India a global hub for Aircraft Maintenance, Repair & Overhaul (MRO) services. Also, the convergence between the Defence sector & the civil MROs will be established to bring down the maintenance cost of airlines. What is your take on this?

Maintenance or upkeep has to be close to the market, catering to the entire aviation industry. As the bulk of the traffic shifts to this part of the world- India and South Asia, it is intrinsic for the maintenance hub to follow the trend & locate itself in the proximity of domestic aviation industries where most of their customers are.

It also helps a lot that there is a substantial amount of trainable young workforce available in India, which gives a sufficient human resource much needed to create a facility like that. One way of capitalising on the demographic dividend of the youth that India has to offer & skill that dividend and use it for catering to one of the largest growing aviation markets.

As far as Defence & Civil Co-operations are concerned, the research and development that takes place are best utilised when leveraged to mass-produce. Using those research initiatives & development technologies not just limited to Defence but caters for the public domain for the larger good. So, the convergence of Defence & domestic or the passenger aviation segment has always been there in the realm of aviation hardware. Gradually & you know irreversibly, the same trend is going to continue in other aspects of the aviation industry like terminals, security technologies, health & epidemic control technology. The convergence is inevitable & welcomed!

There is a need to complete the ongoing projects under the UDAN initiative in a time-bound manner. In addition, the existing capacity of international airports needs to be augmented under the International UDAN initiative. What measures do you think can help the government reach this target?

UDAN initiative is essentially about a very well known method of transportation chain link, which is a hub and spoke policy adopted for every aspect of the transport segment, not just aviation. In a hub and spoke arrangement, you develop large hubs to cater to large catchment areas, mainly Metropolitan and large epicentres of business a commercial activity. Using these setups via spoke links to the hinterland, the regions which have been catered to by large hubs in a radius of 500-1000 kilometres. Internationally, the hubs that have catered to regional aviation requirements have been Heathrow, Dubai, Singapore and New York. But as they enter, traffic balance shifts towards Asia, specifically India, the hubs would also have to move accordingly. So, it is a step in the right direction, wherein hubs move, & the Indian metropolitans like Mumbai, Delhi, Bengaluru, & Calcutta become the regional hubs.

India will follow in the footsteps of large aviation markets like Europe & America. Every divisional headquarters within a state will have an airport that will cater to the regional hubs, & an entire network of aviation facilities will develop on these principles.

How do you see the adaptation of smart technologies for the digital transformation of airports for the future like the Internet of Things (IoT), Artificial Intelligence (AI), tracking systems, automation, big data & advanced analytics?

Airports have traditionally been the hardware side of the aviation industry, consisting of the aircraft & its maintenance segment, & the user segment has always been taken for granted. The focus on user experience has only become more assertive in recent years. There is now a conscious emphasis on a managed user experience. Soon, user flow management is no longer going to be left to human intervention. Technologies like crowd control software with smart algorithms will be introduced to ensure that no part of the airport is unduly crowded. This system is already being tested on a pilot basis at Delhi airport.

The operation segment also anticipates a generational change, wherein occupancy sensors will manage the number of people that are allowed in, vertical transportation, maintenance of toilets, etc. With the advent of BIM, the entire network of services & data communications & all other virtual modes currently programmed & accessed by operators will be embedded with automated artificial intelligence. IoT sensors regulating electricity & air conditioning flow, data transmission is one such example that has already been realised in this direction.

Buildings like Terminals with complex algorithms attached to them have started being visualised on an Intelligent Model & then

materialised on site. Taking the assistance of smart technologies throughout the design-build exercise helps address all the aspects of designing a complex structure.

What are the significant concerns/ challenges/potential in the airport sector in terms of designing & constructing terminals & airports?

Challenges are essentially regarding the changing requirements of all public-use buildings after incidences of mass contagion situations like the COVID-19 pandemic. In an airport, where people will unavoidably pass through the same common spaces, sanitisation, segregation, ventilation control, air quality monitoring & purification control, etc. will now be embedded into future designs. The circulations will have to be designed so that the crowding is controlled by design then by technology intervention.

Crowded passenger flow management is the most recent and crucial challenge in the execution of airport designs. A pandemic that has left an adverse impact globally demands a generational change in how building user flow will be designed. For aviation infrastructures that facilitate mass transitions, moving towards limited interactions, minimised crowd concentration, & user purchases reduced to a minimum seems to be the way forward.