March 2022



India: Emergence of a global leader in aviation

Knowledge report on the Indian aviation industry

pwc

Asia's largest event on Civil Aviation (Commercial, General and Business Aviation)
WINGS INDIA 2022

Azadi Ka Amrit Mahotsav

FICCI



ज्योतिरादित्य मा. सिंधिया
JYOTIRADITYA M. SCINDIA

सत्यमेव जयते

नागर विमानन मंत्री
भारत सरकार
Minister of Civil Aviation
Government of India

MESSAGE – WINGS INDIA 2022

The Civil Aviation industry has continued to expand. It has weathered crisis and demonstrated long-term resilience, becoming an indispensable means of transport. Aviation is one of the most required "global" industries: connecting people, cultures, and businesses across continents.

India's aviation industry has huge potential with vast growth opportunities. With the right policies and relentless focus on quality, cost and passenger interest, India would be well placed to achieve its vision of becoming the third-largest aviation market. To witness the same, we must move towards the direction of making it possible that every district in the country should be connected to the air grid and the common man able to access and afford the same.

Thus, focusing beyond airplanes and airports, we strive on building an airline ecosystem that has strong roots across the value chain. Manufacturing is the core of the sector, and the country must move from products to services. The various policies of the government namely Helicopter Policy, Drone Policy, MRO Policy and Flying Training Organization Policy are focused on the spur of growth in the country.

I am sure, Wings India 2022 epitomizes the Government of India's commitment to transform India into the world's top civil aviation hub. This platform aims to open ample opportunities in building strong roots of the ecosystem that the civil aviation industry represents. I am confident that the Wings India forum will provide a congenial forum catering to the rapidly changing dynamics of the sector, focusing on new business acquisition, investments, policy formation and regional connectivity, thereby creating millions of jobs opportunities.

I look forward to seeing all the stakeholders at Wings India 2022, the expanding horizon of the Indian aviation sector, which can be the key driver towards economic growth.

Jai Hind

(Jyotiraditya M. Scindia)

जनरल (डा.) विजय कुमार सिंह
पीवीएसएम, एवीएसएम, वाईएसएम (से.नि.)
GEN. (DR.) VIJAY KUMAR SINGH
PVSM, AVSM, YSM (Retd)

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

राज्य मंत्री
सड़क परिवहन एवं राजमार्ग;
नागर विमानन,
भारत सरकार
Minister of State for
Road Transport and Highways;
Civil Aviation,
Government of India

Date: 17 March, 2022



MESSAGE

Indian Civil Aviation is one of the important sectors and key drivers of economic prosperity of the country. As passenger traffic nears pre-pandemic levels and an ambitious target has been set by the government, it appears that 2022 might prove to be a defining period for the sector.

I am sure that one of the key factors that will determine the pace of recovery will be the successful implementation of government initiatives, new private investment and opening up of regional airports. Certainly, this year holds a lot of promise in this regard.

Wings India 2022 is a joint initiative of Ministry of Civil Aviation (MoCA), Government of India and Airports Authority of India in association with Federation of Indian Chambers of Commerce and Industry (FICCI) to put the spotlight on the Indian Aviation industry and its close linkages to the global sector.

Wings India 2022, with the theme - "India@75 : New Horizon for Aviation Industry" will be the right platform for all the stakeholders of the industry across the globe to interact and showcase their potential. Through this platform, we all must come together to discuss and share valuable ideas to take this Industry a step ahead and create opportunities for the global players to see India as an investment destination.

This is in every way, the most timely initiative and I am sure the participants would benefit immensely from the endeavor. I wish the event all the success.

Jai Hind!

[Gen. (Dr.) V.K. Singh (Retd.)]

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सचिव
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SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF CIVIL AVIATION
NEW DELHI-110 003

March 10, 2022

Message - WINGS INDIA 2022

As India continues to play a dominant role globally, its aviation sector cannot be undermined. This sector acts as a growth multiplier by enhancing economic output, creation of jobs and trade enabled through better connectivity. Though the sector faced the maximum brunt of the COVID19 pandemic, but it has made a modest start to help the nation during such trying times. The support of the Civil Aviation industry in combating the impact of this COVID19 pandemic was huge by carrying enzymes, PPE, masks, medicines, and cargoes that States, and Union Territories required. Thus, proving and carrying the Indian flag high in serving the nation and contributing globally to achieve the 'Make in India' initiative.

The togetherness and zeal of all the stakeholders of the sector in raising the bar of Indian aviation industry, the government is always in the forefront. The various initiatives like Regional Connectivity Scheme of Government of India – 'UDAN', launched to facilitate regional air connectivity and make flying affordable for the masses, PM Gati Shakti (for airports), Maintenance, Repair and Overhaul (MRO), the tax structure for Aviation Turbine Fuel (ATF), the launch of first-ever Water Aerodrome, Nabh Nirman (for airport capacity augmentation), Digi Yatra (for paperless travel) and AirSewa (for online passenger grievance redressal) etc. are bringing in radical changes and are few steps towards this direction.

I appreciate the efforts being put forth in organising Wings India 2022, which aims to bring together the key stakeholders of the aviation market such as cities, states and moreover business associations as a group representing airline consumers to facilitate direct interaction with various airlines, airport operators, cargo operators and other players at a common platform.

With all measures taken, for Indian Aviation, "the sky is the limit". I wish Wings 2022 will be a huge success.

10.3.22

(Rajiv Bansal)

Federation of
Indian Chambers
of Commerce and Industry

Federation House
Tansen Marg

Mr Remi Maillard
Chairman, FICCI Civil Aviation Committee and
President and MD, Airbus India & South Asia



MESSAGE

I commend the Indian civil aviation ndustry for the remarkable resilience it has shown through a trying period in the sector's history. Despite the challenges posed by the Covid-19 pandemic, India is currently the third-largest domestic civil aviat on market in the world, which is a testament to not only the vibrancy and the potential of this market but also to the intrinsic strengths of the Indian aviation industry: Adaptability, agility and innovation. We now rightly aim to become the th rd-largest global aviation market.

The civil aviation sector's role as a catalyst for economic growth is well acknowledged. The historic Vande Bharat Mission as well as the various other repatriation and domestic evacuation flights have further highlighted the exemplary societal contribution of our noble industry. Even when the chips are down we continue to hold our chins high and deliver. In such tough times, to maintain the momentum, all aviation stakeholders rely on the Government of India for its continued support to the sector.

As evidenced recently, the Government of India has unveiled some ambitious policy visions that can have long-term impact on the aviation industry. A key highlight of the Union Budget 2022 was the announcement of the successful completion of the strategic transfer of the ownership of Air India as part of the implementation of the new Public Sector Enterprise policy. The smooth transfer reflects the efficiency and professionalism of the Ministry of Civil Aviation, setting a benchmark for other privatisation programmes in India. The inclusion of airports as one of the seven engines of the PM GatiShakti Masterplan demonstrates the pride of place our industry holds in driving the nation's economic growth.

I am confident the Knowledge Report of Wings India 2022 will present the readers with a clear view of the opportunities inherent in Indian aviation. I am also certain that Wings India 2022 will provide a much-desired fillip to the aviation sector and prove instrumental in attaining the objective of connecting the buyer, seller, investor and other stakeholders on a common vantage forum. The deliberations and the networking will benefit all the participants.

I wish Wings India 2022 great success.

REMI

(Remi Maillard)

Industry's Voice for Policy Change

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1. Executive Summary

India is one of the fastest growing major economies in the world in terms of gross domestic product (GDP). Despite the impact of the COVID-19 pandemic, the Indian economy has displayed a high degree of resilience and has rebounded to a path of significant growth. According to the International Monetary Fund (IMF), India's GDP is expected to grow by 8.5%[1] in 2022, which is almost double the expected global growth.[2] The civil aviation sector plays a vital role in this growth story, since it contributes to the economy through the multiplier effect on overall output and employment, as well as by means of logistical efficiency.

The Indian civil aviation sector has grown to become the 3rd largest in the world in terms of domestic traffic. It was also expected to eventually become the 3rd largest in terms of overall traffic before the pandemic hit. The Government of India has introduced several measures like the NCAP 2016, the RCS UDAN, The Drone Policy, NABH Nirman Aircraft Leasing under the IFSC, and the announcement of the recent helicopter policy for the sector to thrive. The Indian civil aviation sector has benefited from a number of factors that include the country's rising middle class, improved regional connectivity through the RCS UDAN, and the development of greenfield airports and brownfield airport transactions to improve infrastructure in the country's existing airports.

Currently, more than 60% of the traffic of more than 340 million passengers[3] is handled by the airports in the metropolitan cities. However, with greenfield airports in tier 2 and tier 3 towns and cities, and a large number of existing brown-field airports at these locations expected to become major airports, the future growth of the sector is expected to be driven by these airports. By 2033, the airports in metropolitan cities are expected to handle only about 57% of the projected traffic (they currently handle about 62%), which accounts for about 959 million people,[4] since the traffic at smaller towns/cities is forecasted to grow by almost three times over the next decade. In order to tap into the vast potential of these airports, properly structured Public Private Partnership (PPP) models and policy level interventions will be of significant importance. Some of the interventions to be explored include the provision of continued support to airports under the UDAN scheme and flexibility in regards to capital investments and regulatory measures.

1 https://www.imf.org/en/News/Articles/2021/11/02/na111121-indias-economy-to-rebound-as-pandemic-prompts-reforms
2 https://www.imf.org/en/Publications/WEO/Issues/2022/01/25/world-economic-outlook-update-january-2022
3 AAI traffic news
4 PwC Analysis

The air cargo industry in India has been rapidly growing and has displayed robustness throughout the COVID-19 pandemic. Though air cargo traffic dropped significantly during the initial phases of the pandemic, it recovered swiftly and reached more than 90% of the pre-pandemic traffic by January 2022. Once the sector's significance was identified, the government introduced various schemes and policies to re-vitalize the sector. In addition to monetary and tax incentives, the NCAP 2016 and the Krishi UDAN 2.0 have also introduced other institutional measures to boost the sector's performance. Since the interventions and measures envisaged by the Government can increase efficiency and remove redundancies in the air cargo supply chain, India has the potential to become a vital player in the global air freight market.

The rising demand for air travel in India sets the stage for the country to become an attractive destination for investment in two critical aspects of the aviation sector value chain – Manufacturing; and maintenance, repair and operation. (MRO). Aircraft fleet size of the country is expected to quadruple, therefore, reaching about 2500 in number by 2038[5]. The Aerospace manufacturing and Defense sector is also expected to grow by about 5 times to reach 5 lakh crores in 2047.[6] With a number of Indian enterprises like the state-run Hindustan Aeronautics Limited (HAL) and large private sector companies like Tata Advanced Systems and Mahindra Aerospace entering into strategic alliances with major global original equipment manufacturer (OEMs) like Boeing and Airbus (for major assemblies/sub-assemblies and even to manufacture critical components), India has secured an important position in the global aerospace manufacturing landscape.

The MRO industry in India has also gradually picked up the pace, with different companies providing various MRO related activities for critical hardware like airframes and engines. Due to various policy interventions and increased private participation, the MRO industry is expected to grow by more than 4 times to reach around USD 4 billion in the next 3 to 5 years. Considering India's potential to become a global aviation and MRO hub, leading OEMs like Boeing and Pratt & Whitney have partnered with Indian companies to set up MRO activities in the country and to develop the sector by training and upskilling its workforce. Despite the huge demand for MRO in India, there is still a dependency on other countries for these activities. As the Indian government has introduced several interventions to reduce the cost of setting up MRO and manufacturing activities compared to other countries, the country is expected to become a global hub for these activities in the coming decades.

Traditionally, Indian airlines have depended on foreign countries for aviation financing and leasing related activities. Understanding the potential of these activities and the lucrativeness of the business, the Government listed "aircraft leases" as a "financial product" under the IFSCA Act of 2019. The availability of operating and financial leases for aircraft/helicopters and engines of aircraft/ helicopters would help to create a comprehensive ecosystem within the Indian aviation industry.

India's diverse landscape, and the difficulty with which remote places within the country can be accessed, makes helicopters an important mobility related solution. With only about 250 helicopters and a low number of private operators, India's helicopter industry has huge untapped potential. For example, they can be used for a variety of purposes that include mobility in cities, religious and recreational tourism, and emergency medical services/medicine delivery, among other things. The helicopter policy announced by the Ministry of Civil Aviation in India expects to address some of the industry's key concerns and to build the foundation for the development of the industry. The inclusion of helicopters in the aircraft leasing regime of the IFSC is a step in the right direction to address the financing difficulties faced by investors.

5 https://www.investindia.gov.in/sector/aviation

6 https://economictimes.indiatimes.com/news/defence/size-of-indias-defence-aerospace-manufacturing-sector-will-increase-to-rs-1-lakh-crore-in-2022-rajnath-singh/articleshow/88356905.cms

With some major Indian cities facing difficulties like pollution and economic losses due to road-based congestion, mobility in the third dimension is envisaged as a sustainable alternative. Drones are already used for numerous applications including surveillance, land surveying, photography, and medicine/vaccine delivery. As a result, India's drone manufacturing industry is expected to grow to INR 900 crores by FY 2024 from INR 60 crores in FY 2021 in terms of annual sales turnover. In order to build the right regulatory foundation for drones and to expand their scope to include more advanced applications like passenger mobility, the Drone Rules 2021 was developed by the Government. Through this initiative, as well as others including the National UTM Policy framework, PLI schemes and certification scheme for drones, the government has addressed some of the key issues related to drone operations in India. However, in order to facilitate the development of passenger-carrying electronic vertical take-off and landings (eVTOLs) in the country, it is essential to build a comprehensive ecosystem considering technology, infrastructure, regulations and, most importantly, public acceptance.

In India's 75 years of independence, the country's aviation sector has reached several key milestones and has recently become one of the largest civil aviation markets in the world in terms of domestic traffic. Due to its growing significance in the world economy and the presence of varied resources, India's civil aviation sector is set to grow and become a global hub for aviation. The different measures taken by the government, together with greater engagement by private players, academics, and other relevant stakeholders would help India become a global leader in civil aviation.





2. Airports - Face of New India

Future of Airports' privatization in India

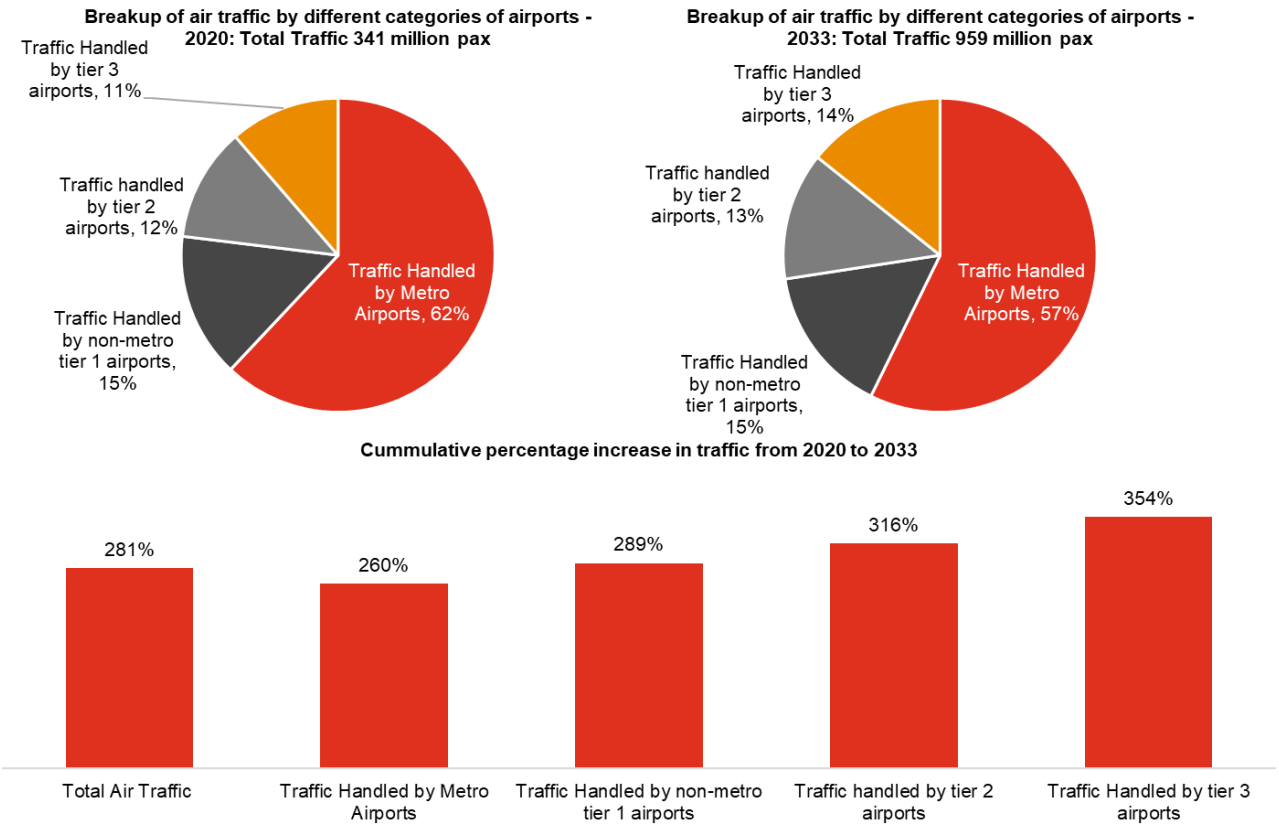
Tier 2 and Tier 3 airports as future engines of civil aviation market growth

Civil aviation has become one of the most prominent and fastest growing industries in India. While India already became the world's 3rd largest domestic aviation market, it was also on track to become the world's 3rd largest international market before the COVID-19 pandemic struck.

Despite this temporary setback, the Indian civil aviation industry's post-pandemic recovery has been a testament to its robustness. In fact, domestic air traffic is expected to surpass the pre-pandemic traffic levels in the first quarter of the next financial year. While increasing GDP per capita and improving the share of the middle class have been fundamental to this growth, the successful implementation of the regional connectivity scheme (UDAN) has been even more instrumental in connecting smaller tier 2 and tier 3 towns to the trunk aviation markets in India.

Historically the share of the aviation market has been dominated by metro airports like Delhi, Mumbai, Kolkata, Chennai, Hyderabad, and Bangalore, which accounted for 62% of the overall Indian aviation market. Due to enhanced connectivity with smaller towns, future growth is expected to be co-driven by other airports in smaller towns and cities.

Exhibit 1 – The contribution of air traffic is expected to increase in tier 1 (non-metro), tier 2 and tier 3 airports. Of them, the highest cumulative growth is expected in tier 2 and tier 3 airports



Source: Data from AAI and PwC Analysis

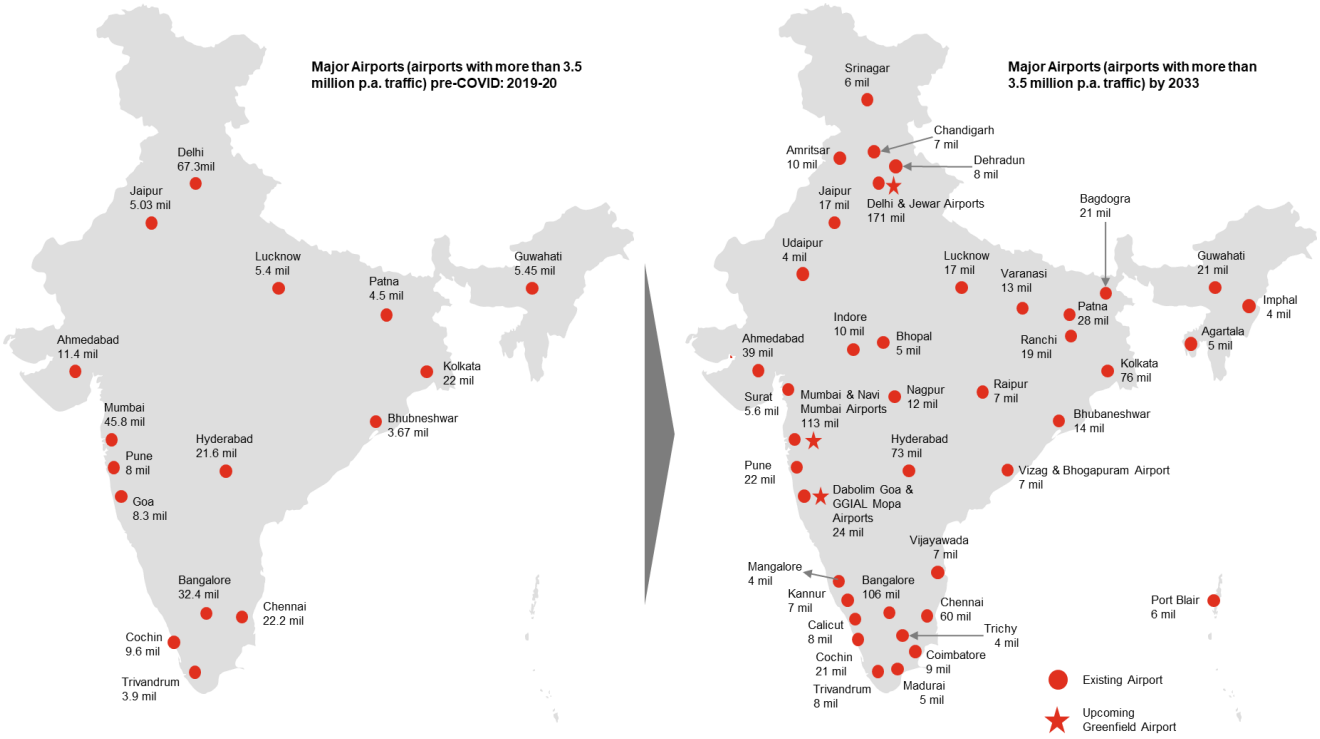
As highlighted in Exhibit 1 above, the total air traffic in 2033 is expected to increase to 959 million pax p.a., thereby constituting a cumulative increase of 281% between 2020 – 2033 (around 8% CAGR). However, in this growth, the overall share of traffic from metro airports is expected to fall from 62% in 2020 to around 57% in 2033. On the other hand, the traffic share from other categories of airports viz. non-metro tier 1, tier 2 and tier 3 airports are anticipated to increase from 48% to 53% in the same period (2020-2033). Of these, the most significant is the traffic at tier 2 and tier 3 airports, which is expected to almost triple in the next decade.

Major airports per category by 2033 (handling traffic of more than 3.5 million p.a.)



The future aviation growth story is expected to augment several tier 1 (non-metro) and tier 2 airports, and transform them into some of the country's most major airports.[7] At present, there are around sixteen major airports in the country, but by 2033, these are expected to increase to forty-five. Of these, four would be greenfield airports (Navi Mumbai Airport, Noida International Airport at Jewar, GMR Goa Airport and Bhogapuram Airport), whereas the remaining twenty six would be the existing brownfield airports in tier 2 towns, which would effectively graduate into major airports.

Exhibit 2 – The transformation of tier 2 airports into major airports, thereby fueling the industry's growth



Source: Data from AAI and PwC Analysis

It is clear from the above analysis that smaller airports are expected to play an important role in fueling India's traffic over the next decade. It is therefore pertinent to ponder ways to ensure that this development is self-sustainable.

Structuring the privatization model of smaller airports

One of the most frequent interventions (or routes) considered by the Government is involving the private sector to enhance the passenger experience by bringing in funding and making operations more efficient. It is, however, equally pertinent to note that the private sector comes with a profit motive, while the public sector has a national development mandate. On the face of it, although the motivation of the private and public sector may not align, appropriate PPPs can be used to structure a mutually symbiotic relationship, whereby the Airports Authority of India (AAI) can get more bottom line returns from the major airports (as compared to when it would have operated these airports itself); this money could then be reinvested into developing smaller airports till they are ripe for next wave of privatization.

As mentioned, twenty-six brownfield tier 2 airports are expected to graduate into major airports over the next decades, and these could be potential candidates for development on the basis of a PPP. However, the Government of India also wishes to rope in the private sector to develop smaller airports. From an economic point of view, involving the private sector in the development of smaller non-profitable airports may erode the overall value of AAI, as the cost of financing the smaller airports for the private sector is much higher than that of the public sector.

[7] A major airport is one with the minimum designed capacity to handle at least 3.5 million passengers, or has been designated a major airport by the Ministry of Civil Aviation

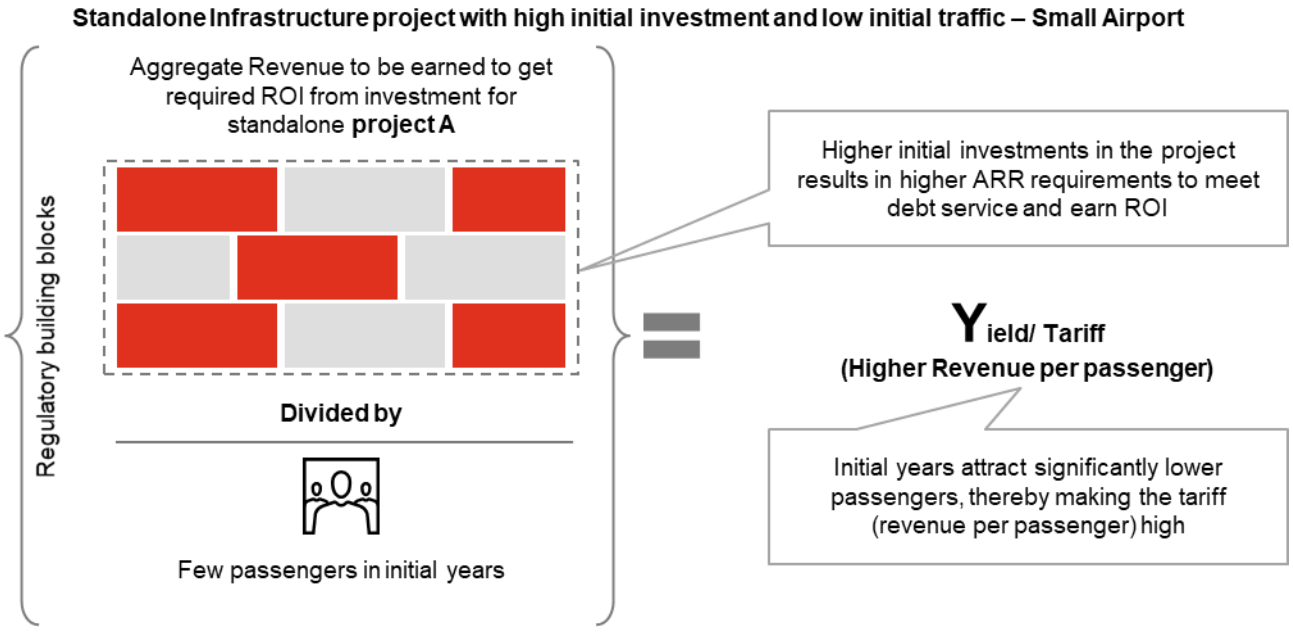
Nevertheless, in regards to the policy itself, many countries have adopted the privatization route to develop smaller airports. It is, however, important to keep in mind that given the loss-making nature of these smaller airports, handing over these airports on a stand-alone basis is out of the question. In global terms, governments have looked to bundle smaller airports with larger (relatively more attractive) airports as one of the options of development.

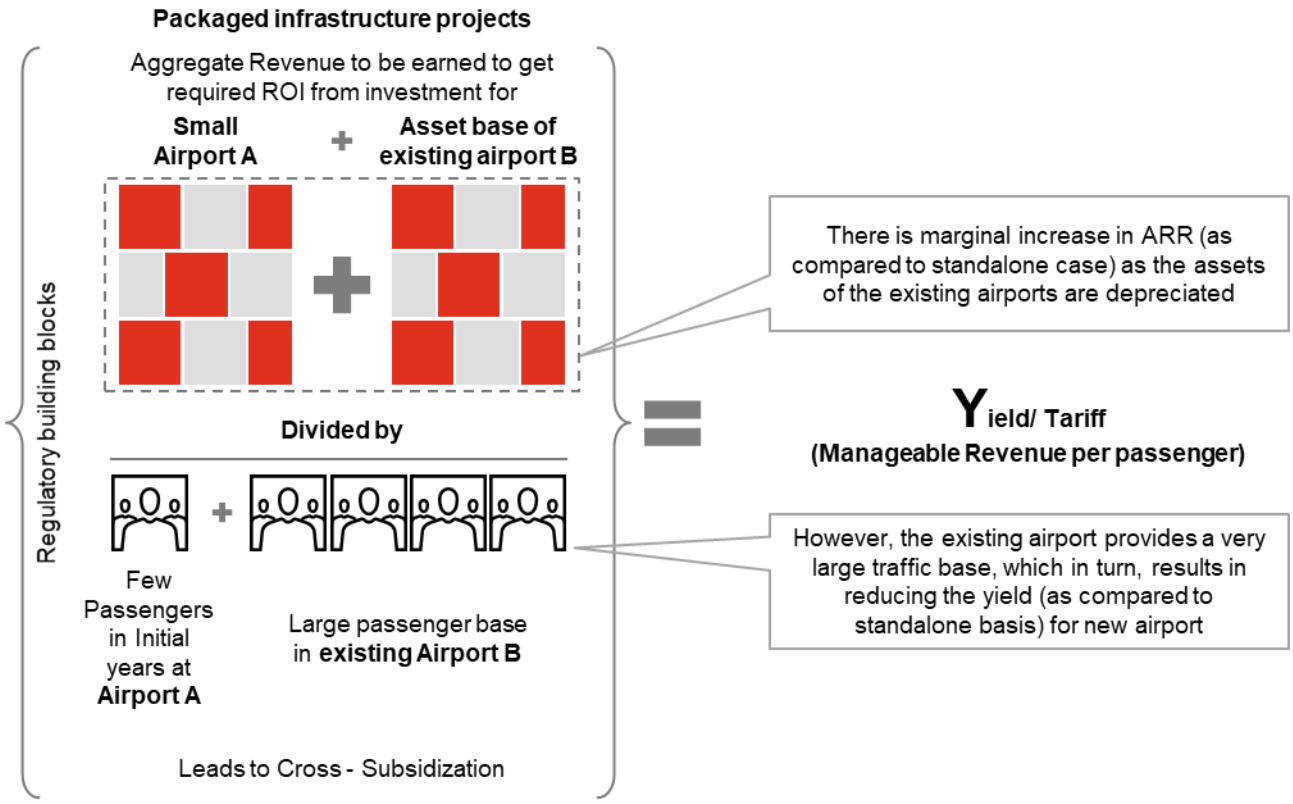
Exhibit 3- Governments have adopted the bundling strategy to develop smaller airports on the basis of PPPs. In each of these bundles, 1-2 major airports acted as the "anchor airport(s)" that contribute the majority of the air passenger traffic in the bundle

Bundling of 14 regional Airports in Greece	Bundling of 35 Airports 4 regional groups in Mexico	Bundling of 33 Airports in Argentina	Bundling of 7 Airports in Japan
To beef up air transport infrastructure at airports of popular tourist islands of Corfu, Mykonos, Santorini, Samos, Kos Along with the island airports, **Thessaloniki, Rhodes** were clubbed under the bundle as Anchor Airports, contributing more than 40% of the passenger traffic of the bundle	**Regional clustering approach to avoid competition among operators within one province** . For example- Concession of 9 Airports in Yucatan Peninsula was given to one single operator, ASUR, in 1998.  In the bundle of 9 Airports, Cancun Airport acted as **Anchor Airport** contributing **75% of traffic**	**To cross-subsidise 25 non-profitable airports with 8 major profitable airports**	**To revitalise economic activity and promote tourism in Hokkaido region and** **To modernise Sapporo Chitose Airport, positioning it as international gateway.** Chitose Airport acts as the Anchor Airport of the bundle, contributing ~82% of traffic of the group

Source: PwC Research

In the simplest terms, the basic idea behind "economic bundling" is to consider two airports (the major airport and the smaller unviable airport) as single economic assets for the purpose of arriving tariffs via the regulatory building block approach. This is explained in the schematics shown below:





Source: PwC Analysis

The government of India is also planning to develop not only medium, but also smaller (and at times unviable) airports using this PPP approach. It is in this context that the economic bundling may be considered an effective option. Nevertheless, given the current regulatory landscape of a cost-plus approach, any such bundling of smaller unviable airports with relatively larger tier 2 airports may have to be assessed from the following perspectives:

1. Whether the combined yield is within the customers' willingness to pay range?

2. What would the proportion of the yield be as a percentage of average ticket prices on the routes generally served by these airports?

3. Would the overall bundle financing be attractive and viable for equity holders and lenders?

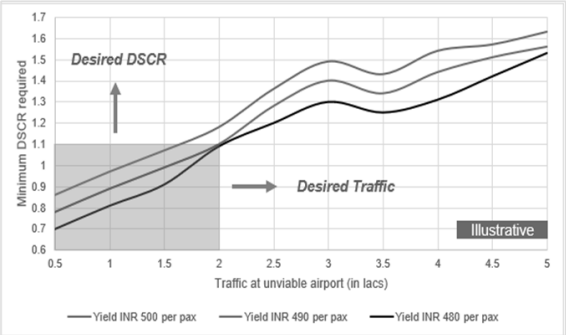
Accordingly, a framework must be developed to maintain the balance of factors including traffic, expected capital expenditure, time of such capital expenditure, potential for non-aeronautical revenue generation vs. the ultimate yield in terms of INR/pax, which may get generated as an outcome of such bundling. One such framework is reflected in the Exhibit below:

Exhibit 4 – The framework for selecting the ideal range of unviable airports for economic bundling with relatively large tier-2 airport

Desirable outputs for the bundle to be viable

Minimum DSCR – **1.1**	Yield per pax **- INR 500 (~INR 550)**	Equity IRR **~16%**

Traffic



The bundle would be viable if the traffic at the unviable airport is more than 2 lakhs per annum

Initial capex requirement				
	Traffic at the smaller airport – 02. Mn pa		Traffic at the smaller airport- 0.3 Mn pa	
Initial Capex* (INR Cr)	200-210	220	200-240	250
Equity IRR	15.5-16%	15.5-16%	16-16.5%	16-16.5%
Min DSCR	More than 1.1	Less than 1.1	More than 1.1	Less than 1.1
Average yield for first two control periods	~495	~500	~495	~500

Capacity expansion		
	If capex happens in first 5 years of operations	If capex happens after 5 years of operations
Equity IRR	16.5-17%	16.5-17%
Minimum DSCR	~ 1.1	1.1
Average yield for first two control periods	~ 500-550	~ 450-500

Source: PwC Analysis

As demonstrated in the above framework, for economic bundling to work in the Indian context, an unviable airport should meet the following criteria:

1. The starting traffic should be a minimum of 0.2 million per annum
2. Ideally, the capital expenditure should not be more than INR 200 cr.
3. The occurrence of this capital expenditure should ideally be beyond 5 years from the date of the private player's take over

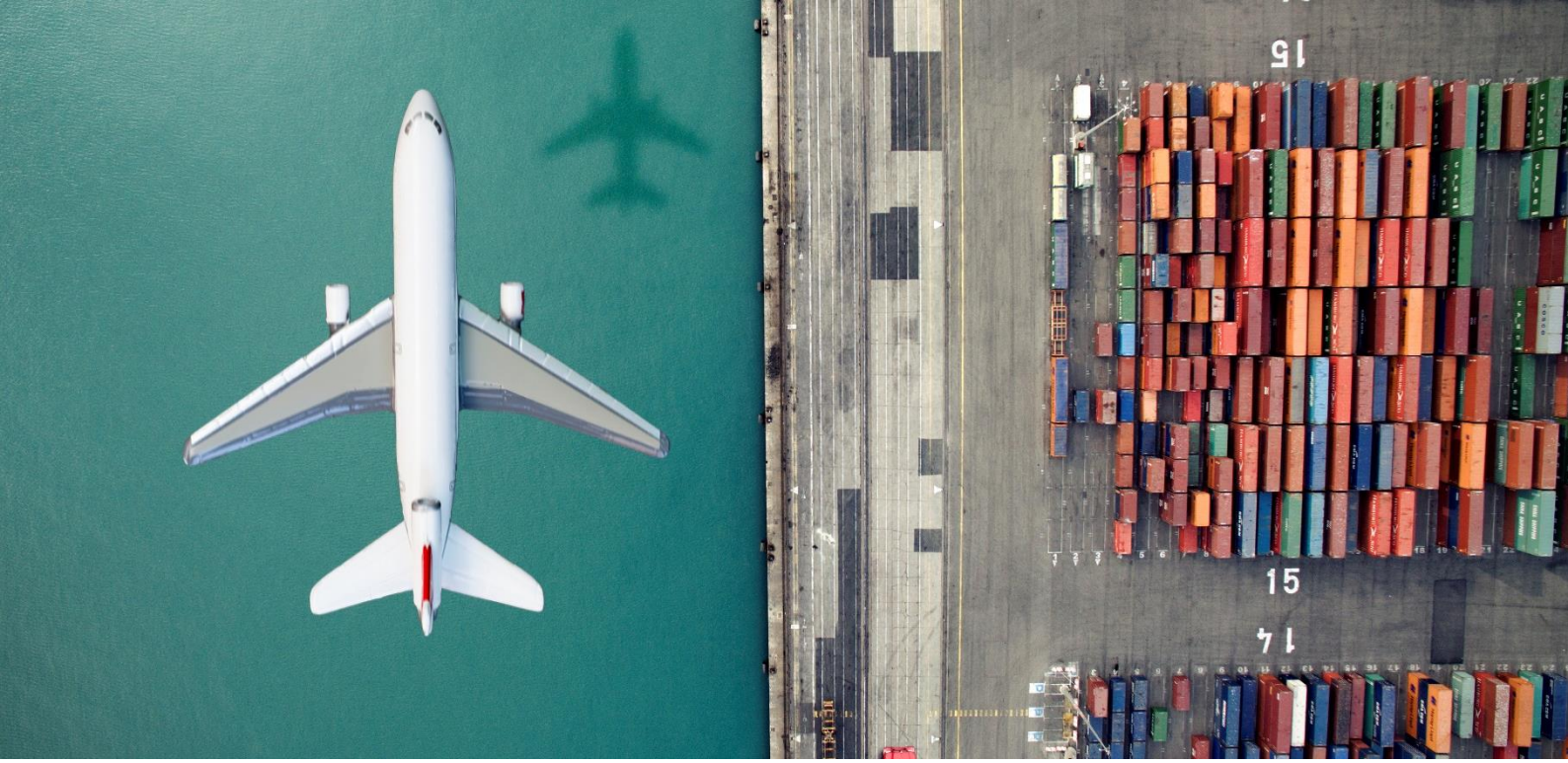
Although there can be other permutations of bundling, the fundamental principles of the economic viability of the bundle (i.e., the provision of self-sustainable debt service and appropriate long-term returns to the equity holders) reign supreme. To further augment the viability and attractiveness of any bundle, the following non-qualitative parameters may also be considered:

1. **Presence of tourism potential**: Proximity of a smaller/unviable airport to any tourism destination may not only augment the tourism potential of the location, but also help generate more non-aeronautical revenues at the smaller/unviable airport.
2. **Presence of industrial activity near the smaller airport**: If the location of the smaller/unviable airport can support industrial activity, the development of such an airport may act as a catalyst for the symbiotic development of such industrial and aviation activities. An even better option in such a case is to explore land at or near the airport, which can be offered as part of the bundle.
3. **Presence of land at the airport**: The presence of a large parcel of land may allow the private player to explore avenues for non-aeronautical (city side) revenue potential in the medium- to long-term. However, to fully exploit this option, policy interventions like changing the AAI Act on permissible activities would be required.

Policy and other interventions required for fast tracking airport privatization in India

In any good implementation plan blueprint, policy interventions go hand in hand with other planning measures. India has witnessed one of the most successful waves of airport privatization, as the airports of Delhi, Mumbai, Hyderabad and Bangalore airports have become case studies that PPP scholars study. However, the relative size of airports is smaller (although their numbers are growing across the nation's geography), thereby making interventions like bundling airports imperative for future privatization projects. To make the next wave of privatization as successful as previous ones, the following interventions may also need to be considered:

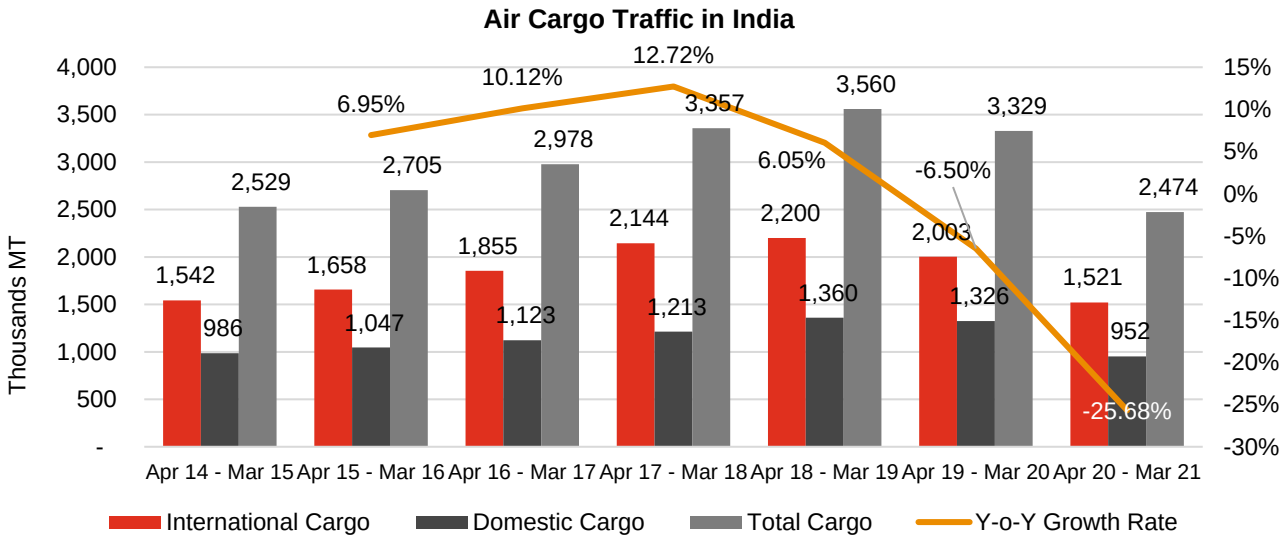
1. Moratorium in payment of a Concession Fee for the smaller airport:
    - The Concessionaire may be provided a moratorium of 10 years on the payment of concession fee for the traffic handled by smaller airport
    - This would improve the airport's cash-flow in the initial years of operation.
2. Flexibility on capital investments/ regulatory structure:
    - Considering the uncertainty of traffic recovery, the Concessionaire may be provided flexibility in taking up capital investments for a period of 5-10 years from the COD of the smaller airport. This would help to reduce the yield requirements
    - Defining the base tariff rates (i.e., the floor tariffs even when the actual tariffs could be lower) would allow the Concessionaire to reap long-term benefits
3. Continued government support under the UDAN Scheme:
    - It is likely that the Government will consider some of the RCS Airports for privatization
    - Benefits under the scheme (such as concessions on excise duty and value added tax(VAT) on aviation turbine fuel (ATF), free security and fire services, etc.) at RCS Airports have successfully provided impetus at RCS Airports.
    - Discontinuation of these benefits or transferring the load of such benefits to the Concessionaire may strongly impact the viability of such operations.
    - Hence, it is recommended that such RCS benefits continue to be provided by the government for the tenure of the RCS Scheme in the case of airport privatization.
4. Change in the AAI Act:
    - Extending the list of permissible non-aeronautical/city side activities at AAI airports
    - Making it permissible to "license" airport concessions to avoid heavy stamp duty implications at the time of registering concession agreements



3. Air Cargo - Resilient in Paradigm Shift

Air Cargo in India – A story of growth and resilience

Between 2009 and 2019, the Indian aviation market reported double digit passenger growth rates. With about 3.6 million tons of freight transported by air in FY 2019, the Indian air cargo industry had been on a growth trajectory, reporting an 8.9% CAGR between FY2015-2019. However, cargo had never been the airlines' focus, as they generally paid more attention to passenger services and sold some share of their belly space to freight forwarders.

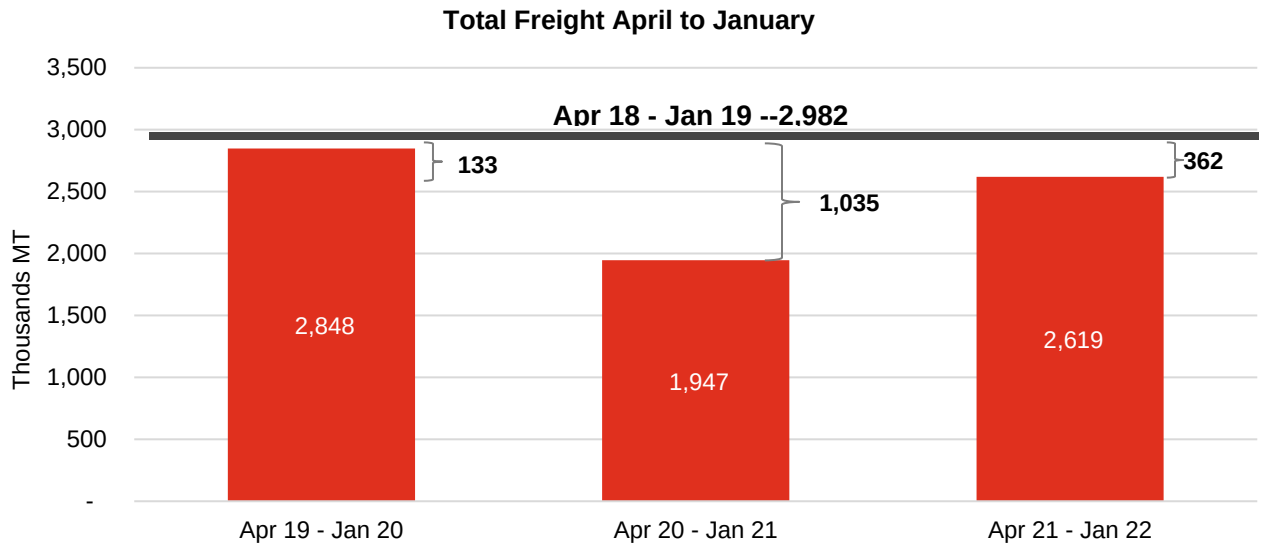


Source: AAI traffic news

However, the recent COVID-19 pandemic changed the dynamics in the market. Despite the difficulties and disruptions that the pandemic caused in the global supply chain, the air cargo industry remained resilient.

Whereas air passenger traffic fell by 67%, the air cargo traffic in India only fell by 26% during FY 2021[8]. Based on recent statistics, it is also clear that the industry is on the path of recovery: In January of FY22, the total air cargo traffic recovered to approximately 92% of the traffic level during the same period in FY20.

With the pandemic and associated nationwide lockdown, the air cargo sector gained prominence in transporting medical supplies, food, and other essential commodities both domestically and internationally. In addition, passenger airlines refocused their business model to remain viable. Airlines operated cargo on seat flights, whereby cargo is transported using passenger aircraft (in both the belly of the aircraft and the passenger cabin).



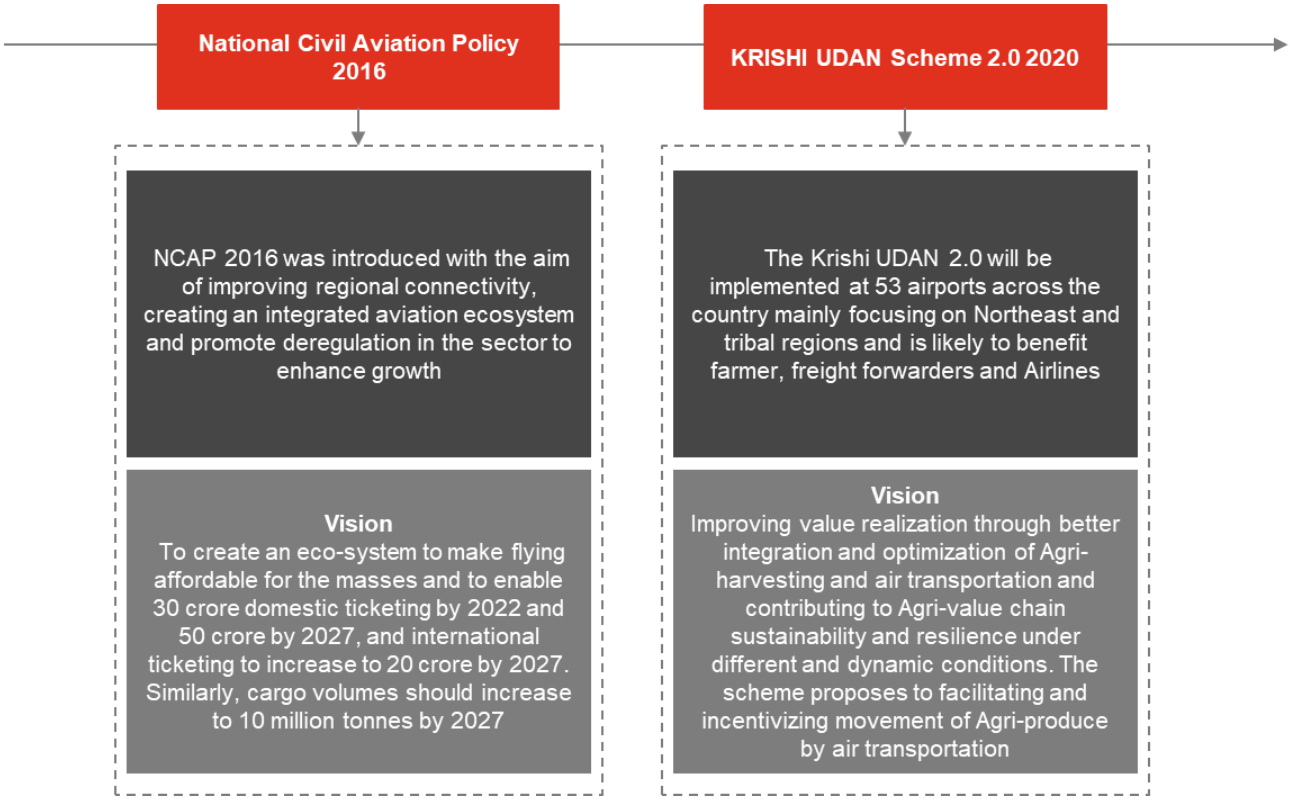
Source: AAI traffic news

Airlines such as SpiceJet reported a 518% jump in cargo revenue aggregating to INR 1420.5 crore for FY 2020-21, with a profit of INR 131 crore (against a loss of INR 134 crore in the previous year). Similar revenue of Rs. 1100 crore was also reported by Indigo's cargo operations. Given the suspension of commercial passenger flights for nearly two months (starting from March 2020), cargo became a key lifeline for airlines. Building on this success, airlines are now investing in freighters to further strengthen their product and services in the cargo business. For instance, SpiceJet had a fleet of 16 cargo aircrafts in FY21 and has plans to further grow its cargo carrying capacity. Similarly, Indigo is in the process of sourcing four A321 aircraft that will be used as full freighters. It remains to be seen whether air cargo can sustain its growth in this way in the post-pandemic world.

Interventions to support sector growth

Understanding the air cargo sector's potential and its contribution to the national economy, the Government of India has taken various measures to vitalize the industry. Through NCAP 2016 and Krishi UDAN 2.0, monetary incentives, digitization measures and other operational enablers were introduced to support the sector's growth and to align with the larger objective of becoming a significant player in the global value chain.

[8] AAI traffic news



1. National Civil Aviation Policy (NCAP 2016)

The NCAP 2016 was developed to improve regional air connectivity in the country, creating an integrated aviation ecosystem, and enhancing the ease of doing business across key components of the aviation value chain. Due to its relevance in generating employment, achieving the "Make in India" initiative's objectives and supporting the growing potential of e-commerce in India, the NCAP 2016, listed the air cargo sector as one of its major focus areas; as part of this, it envisioned growing air cargo volumes to 10 million tons by 2027. To realize this vision, the document laid out several policies covering monetary incentives, and institutional and infrastructure development, among other things. Some of the key policies and schemes envisaged for the air cargo sector in NCAP 2016 are as follows.[9]

Policy Area	Schemes
Regional Connectivity	**Terminal Navigation Landing Charges(TNLC) and Route Navigation Facility Charges (RNFC)** - Waiver of TNLC and nominal charging of RNFC for operations under RCS **ATF –** Excise duty of 2% on ATF for cargo operators from RCS airports for a period of 3 years after receiving notification

[9] https://www.civilaviation.gov.in/sites/default/files/Final_NCAP_2016_15-06-2016-2_1.pdf

Policy Area	Schemes
Air Cargo	**Categorization** – categorization of cargo facilities at airports under the "Harmonized List of Infrastructure," thus providing the benefits of infrastructure **Institutional framework and efficiency:** • Constitution of Air Cargo Logistics Promotion Board (ACLPB) to promote growth in air cargo by introducing measures like reduction in dwell times and improving inter-ministerial coordination • Service Delivery Modules (SDMs) for all components of the cargo value chain and creation of an Air Cargo Community System to avoid delays **Ease of operations:** • Simplifying customs procedure by shifting to paperless air cargo processing through the use of digital signatures • Creation of an SWS at the cargo terminals to process clearances more quickly • An Advance Cargo Information (ACI) system is envisaged to be developed in order to help process more rapidly • Simplification of security procedures for air to enhance ease **Capacity Building and Space-Augmentation** • The creation of Free Trade and Warehousing Zones to promote trans-shipments at airports. • The creation of norms for space allocation for air-cargo, including express cargo for all greenfield airports
Bilateral Traffic rights	The policy envisages amending Air Service Agreements (ASA) with certain countries to tackle the restriction on Indian cargo airlines with 74% foreign direct investment (FDI) to undertake scheduled international Operation.

2. Krishi UDAN 2.0

Agriculture is another major source of income for Indian households and one of the largest contributors to the county's GDP, accounting for 20.2% of the gross value added (GVA) of the total economy.[10] To ensure the sustainability of the agriculture value chain and to incentivize the movement of Agri products through air, the Government of India developed the Krishi UDAN 2.0 in 2020. The key benefits of the scheme are detailed below.[11]

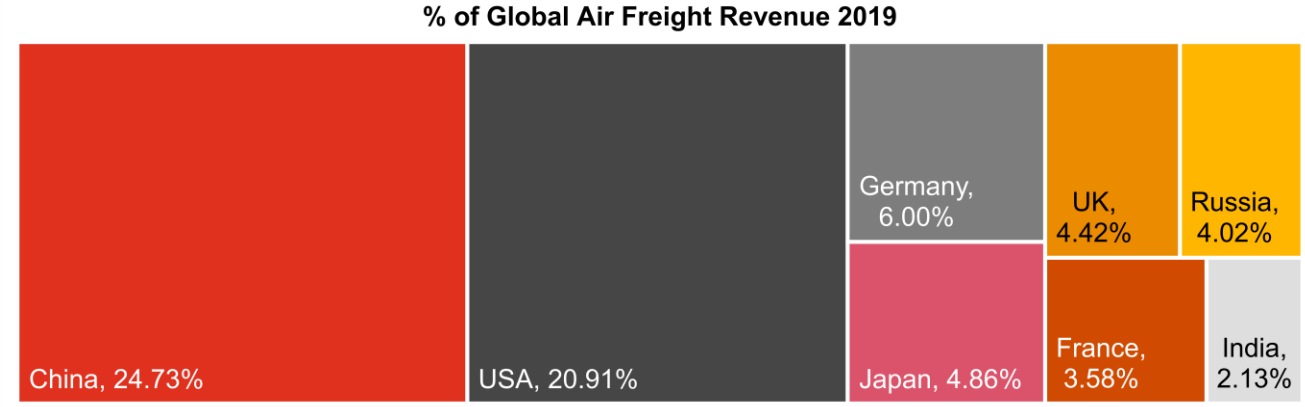
Category	Incentive/ Support
Monetary Incentive	Full waiver of Parking, Landing, TNLC and RNFC Charges for domestic freighters and passenger to cargo at selected AAI Airports. The primary focus will be on North-east region (NER), Hilly and tribal regions.
Hub – Spoke Model	Facilitating the development of a hub, spoke model, and a freight grid. This will be done across 4 phases, each spanning 1 year from 2021 till 2025. A total of 32 airports will be added to this grid and have been identified as airports for Cargo Terminals
Sales Tax on ATF	Seek support and encourage States to reduce Sales Tax to 1% on ATF for freighters/P2C aircraft as extended in UDAN flights.

[10] https://www.pib.gov.in/PressReleasePage.aspx?PRID=1741942
[11] https://pib.gov.in/PressReleasePage.aspx?PRID=1767005

Category	Incentive/ Support
E-KUSHAL	The development of E-KUSHAL (Krishi UDAN for Sustainable Holistic Agri-Logistics). The platform to be developed will facilitate the dissemination of information to all stakeholders. Furthermore, the integration of E-KUSHAL with the National Agriculture Market (e-NAM) is proposed.
Resource Pooling	Collaboration with regulatory agencies and government departments to provide incentives and concessions to airlines, freight forwarders, and other stakeholders to enhance transportation of Agri-produce by air

Air Cargo Sector - The way forward

The air cargo industry plays a prominent role in the supply chain of the country,and is a major source of employment for its population. Despite this, the modal share of air accounted for less than 5% of the country's total freight in 2021.[12] Road had the largest modal share at 71%, followed by rail, which accounted for 17.5% of the total freight volume. Out of the Global Air Freight Market, which was valued at USD Billion 270.20 in 2019, India contributed only USD Billion 5.75, thereby accounting for 2.13% of the global air freight market.[13]



Source: Allied Market Research

Due to various factors like the growing middle class, the burgeoning e-commerce industry, the growth in manufacturing due to Make in India initiatives and PLI schemes, the logistics sector in India is poised to undergo a major upheaval in the coming decades. The air cargo industry would have a major role to play in meeting the supply and demand requirements of the country. Though the Government has taken significant and pro-active measures in the form of policies and schemes to nurture the industry, the different stakeholders of the sector must work together to tap into this potential. Some of the key recommendations are as follows:

- **Reduce paperwork in cargo operations:** Most of the large airports have deployed web-based cargo community systems. Deployment of this community system has digitalized some of the key processes in the air cargo supply chain, including the generation of e-airway bill, carting order, vehicle slot management, TSP payment, CARR message, and issuance of delivery orders. However, there are still other avenues that can make the air cargo process more efficient.

  For instance, there are typically around 17-20 unique documents required for each air cargo movement. However, multiple submissions result in ~3X increase in the number of copies submitted throughout the entire supply chain.[14] Although this number may have been reduced as a result of the changes introduced during the pandemic, there should be a concerted effort to continue reducing the required paperwork and move towards a paperless ecosystem.

12 https://www.niti.gov.in/sites/default/files/2021-06/FreightReportNationalLevel.pdf
13 Allied Market Research, Air Freight Market- Global Opportunity Analysis and Industry Forecast, 2020 -2027, March 2021
14 Based on an independent study conducted at three major airports in India. The number is based on the study too, which was conducted in 2019.

- **Simplify the transshipment process**: In case of transshipment, upon arrival of aircraft, airlines are required to file an application for cargo transshipments (known as Cargo Transfer Manifest (CTM)). CTM is prepared on the letter head of the airline and it contains details like the IATA code of the airline, destination site code, IGM no. and date, as well as the list of cargo lines as specified in MAWB/HAWB under the IGM that are to be transshipped.

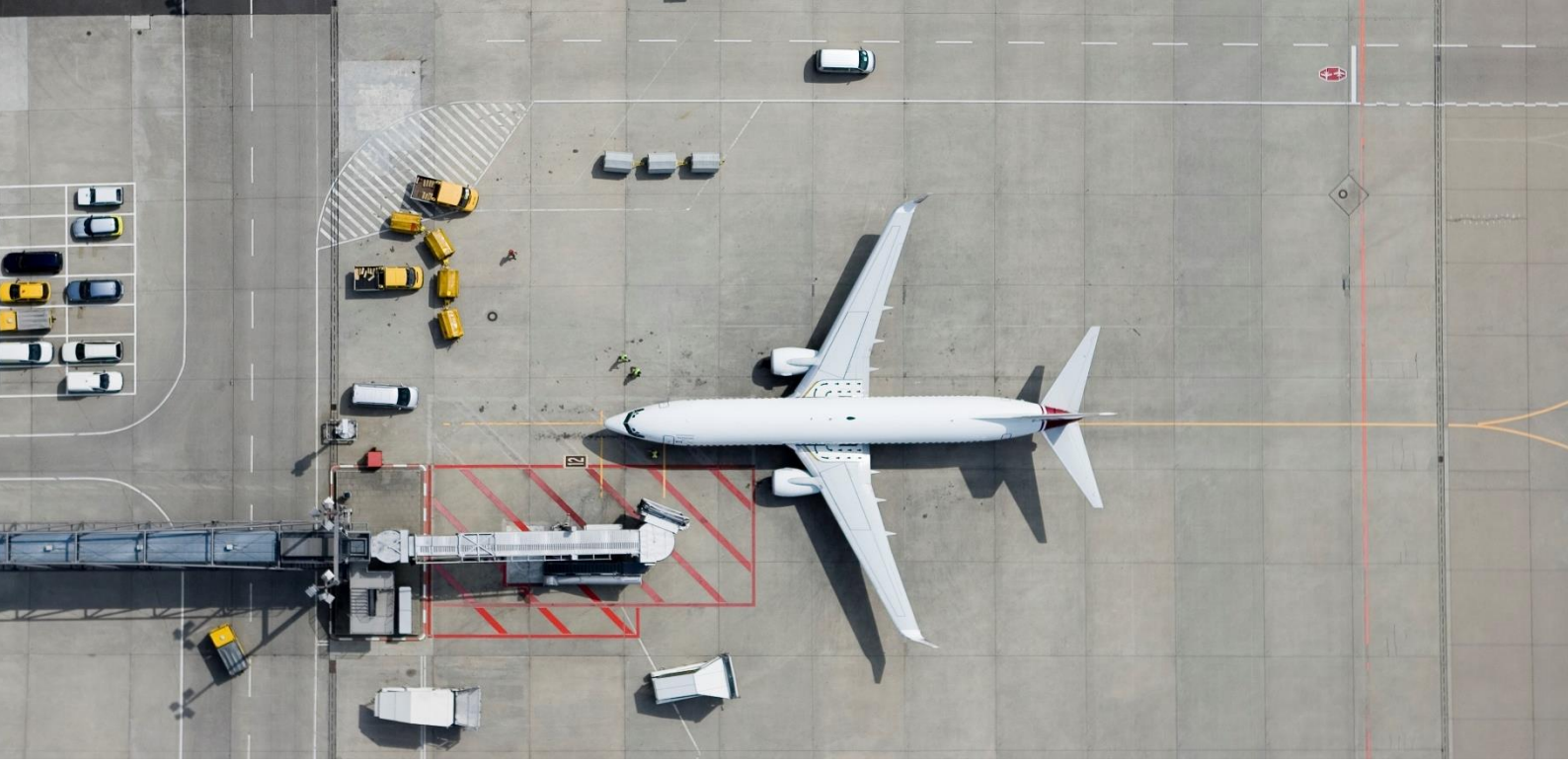
  There is no provision for the CTM amendment in a case where the aircraft mentioned in the transshipment permit departs before being approved by customs. As airlines are required to mention the details of the aircraft that will carry the transshipped cargo to the next destination in the permit, a new CTM needs to be filed in such cases, which is time consuming for the airlines. As such, it is necessary to simplify the transshipment process if India is to be established as a preferred transshipment hub.

- **Integrated approach to promoting air cargo movement:** Some of the major special economic zones (SEZs) such as Incheon Free Zone, Shanghai FTZ, JAFZA are successful because of their proximity to gateways such as airports and ports (see the table below). India also needs to promote integrated industrial and infrastructure development. For example, the airport land bank may be utilized to establish SEZ/assembly units, etc. This development of SEZ at the existing gateway airports may require a revision of the Special Economic Zones Rules, which defines minimum land area requirements for the establishment of SEZs. Incentivizing industries to set up units on the airport land may support industrial growth as well as cargo movement.

Zone	Distance to Airport
Incheon Free Economic zone	On-site
Istanbul Ataturk Airport Free Zone-ISBI	On-site
Shanghai FTZ	On-site
Dubai Airport Free Zone	On-site
Abu Dhabi Airport Free Zone	On-site
Bahrain International Investment Park	11 kms

- **Extension of Krishi UDAN 2.0** – The Krishi UDAN reflects the Government's vision of utilizing the potential of air cargo in the Agriculture industry, and thus creating an avenue that supports the growth of the agriculture and air cargo sector in the country. The Government could also explore the creation of similar schemes for other high-growth sectors like e-commerce, pharmaceuticals/medical equipment, etc.

- **Availability of Participating Government Agencies at the airport & the requirement of a single window system**: Participating government agencies (PGAs) are the government agencies responsible for verifying cargo related documents, examining and testing the cargo, and giving clearance for import/export of cargo. Customs only issues final clearance for cargo once it receives clearance from the PGAs. Therefore, having PGAs present at the airports may reduce some of the air cargo processing time. Moreover, single window systems linking Customs and PGAs can improve the efficiency in the current supply chain. For instance, although Customs and PGAs are linked through a single window system in the case of imported cargo, this system is not operational in the case of exports. The integration of existing systems could further streamline the cargo clearance process.



4. Upheaval in Manufacturing and MRO

Manufacturing and MRO – Opportunities Ahead

Manufacturing and Maintenance, Repair and Overhaul (MRO) are two key elements in the aviation industry value chain. While a robust manufacturing ecosystem ensures that the demand for aircraft is being met, the presence of MRO facilities within the country ensures the airworthiness and safety of these aircraft. Despite being one of the largest civil aviation markets globally, India has limited full-scale aircraft manufacturers and MRO players to cater to its growing demand. This gap in terms of supply and demand coupled with the abundance of resources and policies, presents India with the opportunity to become a global hub for aircraft manufacturing and MRO activities.

The Indian aviation industry has been growing steadily, with the total number of passengers handled at Indian airports (reaching 341 million in 2020) growing by more than 79% (CAGR - 12%) in five years.[15] Despite the aviation industry being severely affected by the COVID-19 pandemic, India has become the 3rd largest civil aviation market in terms of domestic traffic. Due to various factors such as, rising middle class, and impetus through policy, the passenger traffic is expected to reach more than double the size by 2037.[16] To cater to this rising demand for air travel, the aircraft fleet size of the country is expected to quadruple to 2500 (605 as of January 2022) by that time. Indian MRO industry can also cater to aircraft of other south east (SE) Asian markets such as Bangladesh, Sri Lanka, Maldives, Thailand, Vietnam, and Philippines.

The Government of India has launched measures such as the Make in India initiative and relaxation in foreign direct investment (FDI) norms to boost manufacturing in the nation's aerospace sector. Many Indian companies have become major players in the value chain for large global OEMs, with a number of civilian and military aircraft relying on these components. Moreover, the MRO industry has attracted several local and a few prominent international players over the years, to cater to the expected increasing demand for MRO services in the country.

15 https://www.aai.aero/sites/default/files/traffic-news/Mar2k20Annex3.pdf
16 https://www.investindia.gov.in/sector/aviation

Manufacturing

The government's push for domestic production together with the availability of skilled manpower and other resources have attracted leading global OEMs like Boeing, Airbus and Lockheed Martin to India. These companies have entered into joint venture agreements with leading Indian enterprises like Tata and Mahindra for manufacturing and/or assembling of aircraft components. Moreover, few Indian companies like Dynamitic technologies and Aequs Aerospace are also tier-1 suppliers for Airbus.[17] The government-owned HAL has recently entered into civil aviation space with the introduction of the 19-seater Hindustan-228 (Dornier-228). Some of the key aircraft, subcomponents or subsystem manufacturers in India and their key capabilities are given below.

Company	Type	Area of expertise	Key Products	OEMs served
Hindustan Aeronautics Limited (HAL)	Public Sector Enterprise Military/Commercial	• Aircraft and helicopter Manufacture • Avionics, engines, and components manufacture	**Military Aircrafts** Hawk, SU-30 MKI, IJT, etc. **Military Helicopters:** Dhruv, Cheetah, Chetak, etc. **Civil Products** Dhruv helicopter, D0-228 **Aerospace components:** Power plants, castings etc.	Apart from being an OEM itself, HAL also serves the below OEMs: • Airbus • Boeing • Eurocopter
Tata Advanced Systems Limited	Private Sector Enterprise Military/Commercial	• Aerostructures and Aero engines assembly and sub-assembly • Unmanned Aerial Systems • Composites	**Aerostructures and Aero engines:** Helicopter cabins for Sikorsky S-92, Empennage for Lockheed Martin C-130 J, Fuselage for Boeing AH-64 **UAVs:** Sky-I RPA (fixed wing fully autonomous platform), Rakshak VTOL	• Sikorsky (JV) • Lockheed Martin (JV) • Boeing (JV)
Mahindra Aerospace	Private Sector Enterprise Military/Commercial	• Aerostructures and components assembly	Aerostructures for large OEMs like Airbus, Boeing etc. and other Tier suppliers	• Airbus • Boeing • Dassault Aviation • HAL • GE Aviation

[17] https://www.moneycontrol.com/news/business/made-in-india-flying-all-over-the-world-7398771.html

Company	Type	Area of expertise	Key Products	OEMs served
Taneja Aerospace and Aviation Limited	Private Sector Enterprise Military/Commercial	• Aerostructures sub-assembly and • Final assembly • Composites manufacturers • Aircraft sub-components manufacturer	**Aerostructures:** Airframe for Saras Aircraft of NAL, airframe for Nishant (Pilotless vehicle of ADE) **Other products:** Sheet metal parts and composites for HAL aircrafts,	• HAL • NAL
Dynamitic Technologies	Private Sector Enterprise Military/Commercial	• Airframe structures assembly • High-Precision aerospace components	**Aerostructures:** Flap-track beam assemblies to Airbus A-380, Aft Pylon assembly and cargo ramp assembly for Boeing CH-47 helicopters, major airframe assemblies for Bell-407 fuselage, airframe structures for HAL aircrafts	• Boeing • Airbus • Bell • HAL

Several other Indian companies such as Aequs, Quest Global, Wipro, HCL have gained a foothold in the global aerospace value chain. Besides supplying critical hardware and software services to global OEMs, they function as prominent contributors to a few leading commercial jets in operation across the globe.

In its endeavor to promote manufacturing and to make India an aerospace hub, the government of India has taken significant measures to build a self-contained ecosystem. Some of the key policies and initiatives to promote manufacturing in aerospace are given below:[18] [19]

- **FDI for aero parts and components**: The FDI policy allows for foreign investment up to 49% through automatic route and 100% through government route if it aids access to modern technology.
- **Strategic Partnership Model**: To allow for the transfer of technology and domestic manufacturing infrastructure and engage with global OMEs, Indian enterprises can tie up with them through a transparent and competitive process.
- **Skill Development:** Formation of the Aerospace and Aviation Skill Sector Council (AASC) and the Aviation Multi Skill Development centre at Chandigarh for building the skills necessary for critical job roles.
- **National Civil Aviation Development Programme:** The program envisages designing, developing and manufacturing a 90-seater Regional Transport Aircraft (RTA).

In addition to the initiatives mentioned above, revision of the Defence Procurement Procedure (DPP), liberalization of Industrial Licensing Regime, etc. have been introduced to increase aerospace manufacturing in India. The growing demand for air travel and aircraft fleet, absence of a large-scale local civil aircraft manufacturer, defense expenditure etc. would be the major drivers for the growth of aircraft and aerospace manufacturing in the country.

[18] https://www.makeinindiadefence.gov.in/admin/webroot/writereaddata/upload/recentactivity/Indian-Aerospace-Taking-Off.pdf
[19] https://pib.gov.in/newsite/PrintRelease.aspx?relid=169612

Maintenance, Repair and Overhaul (MRO)

The aviation industry in India is on a growth trajectory, with its fleet size expected to quadruple and reach more than 2500 by 2038. The MRO industry is also expected to grow at a faster rate and reach more than USD 4 billion from the current USD 900 million.[20] In order to capture this growth potential, several local and global OEMs have entered the country's MRO market. These companies undertake a range of activities including engines, airframes, components and line MRO services.

Line MRO	Base MRO	Component/ Avionics MRO	Engine MRO
• AI engineering services Limited (AIESL) • Air Works • GMR Aero Technic Limited • Indamer • Taj Air • Hindustan Aeronautics Limited (HAL) • Deccan Charters Engineering Services	• AI engineering services Limited (AIESL) • Air Works • GMR Aero Technic Limited • Indamer • Taj Air • Hindustan Aeronautics Limited (HAL) • Deccan Charters Engineering Services	• AI engineering services Limited (AIESL) • Max MRO • Indamer • Taj Air • Hindustan Aeronautics Limited (HAL) • Deccan Charters Engineering Services	• AI engineering services Limited (AIESL) • Hindustan Aeronautics Limited (HAL)

Major global OEMs like Boeing and Pratt & Whitney have entered into strategic partnerships with Indian companies for MRO activities. Boeing has collaborated with Air Works for the MRO activities of P-81 platform of Indian Navy and VIP transport fleet of the Indian Air Force.[21] Boeing also announced the Boeing India Repair Development and Sustainment (BIRDS) Hub, which intends to build a robust MRO ecosystem by developing the required skill sets and capabilities through training programs. Similarly, Pratt and Whitney, a leading aircraft engine manufacturer has entered into a partnership with AIESL for providing Maintenance services to its geared turbofan engines.[22]

Key Government Policies/initiatives in MRO

Realizing the potential of the MRO industry in India, the government (both central and state) has introduced/announced various policies and initiatives to develop the sector.

- **NCAP 2016:** Key policies under the NCAP include,
  - Exemption of customs duty for tools and tool-kits used by the MRO
  - Allowing foreign aircraft, brought to India for MRO activities, to stay for the entire period of maintenance or up to 6 months, whichever is lesser, providing it undertakes no commercial flights during the stay period.
  - Provision for adequate land for MRO service providers in future airport/heliport projects
  - Waiver of Airport royalty and additional charges for MRO service providers for a period of five years from the date of approval of the policy

[20] https://www.investindia.gov.in/sector/aviation
[21] https://www.boeing.co.in/news-and-media-room/news-releases/2021/february/boeing-and-air-works-announce-strategic-collaboration-for-maintenance-support-of-key-defence-platforms.page
[22] https://www.aerospace-technology.com/news/aiesl-to-provide-pratt-whitney-gtf-engines-mro-in-india/

- **Reduction of goods and service tax (GST):** In 2020**,** the GST for MRO activities was reduced from 18% to 5% [23]
- **Longer duration for land allotment:** The land allotment for setting up MRO facilities has been extended to a period of 30 years from the current 3-5 years and the land will be leased through open tenders.[24]
- **Reduction of land lease rental escalation:** The lease rentals for land would escalate only at 15% after 3 years instead of 7.5%-10% per annum. Moreover, the lease rates will be determined through bidding instead of fixed rates
- **Dedicated MRO facilities:** The government has identified 8 airports for setting up MRO for aircraft and helicopters by also attracting private investments

Despite having a large fleet of more than 600 aircraft, at present, more than 80% of the MRO activities are outsourced to other countries such as Sri Lanka, Malaysia, Singapore. Interventions from the Government to develop necessary MRO infrastructure would provide the impetus for industries and investors to establish their activities in the country. This coupled with upskilling of the workforce and drawing on its digital and information technology (IT) capabilities would help India position itself as a “Global MRO hub” in the coming years.



[23] https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1778440#:~:text=Goods%20and%20Services%20Tax%20(GST,financing%20environment%20has%20been%20enabled.

[24] https://economictimes.indiatimes.com/industry/transportation/airlines-/-aviation/government-announces-new-mro-policy/articleshow/86064968.cms?from=mdr



5. Aviation Financing and Leasing

Given the untapped potential of the aviation financing and leasing industry, the Ministry of Civil Aviation constituted a working group to undertake a 360-degree review of the prevailing regulatory environment. In early 2019, the efforts culminated into “Project Rupee Raftaar – Development of Aircraft Financing and Leasing in India,” wherein the working group identified the roadblocks from regulatory as well as a tax perspective to develop aviation financing and leasing in India.

The COVID- 19 pandemic severely disrupted the global economy, including the aviation industry. Despite having a good growth trajectory pre COVID-19, strict travel restrictions imposed by the Governments in various countries and declining demand for travel impacted the Indian aviation industry as well.

As the growth is now picking up, the Indian aviation industry is on its way to recovery and expects an increase in demand for leased aircraft in comparison to the rest of the world. As per the Oliver Wyman report,[25] released in January 2021, India’s air fleet expects the growth to double or more by 2031. The need for attractive financing arrangements, to combat financial fragility, gain optimum operational advantage while providing tickets at affordable prices to its customers is driving the firms to lease rather than own the aircrafts.

IFSCA and GIFT City

India has become the third largest domestic aviation market globally and is expected to overtake the United Kingdom to become the third largest air passenger market by 2024.[26] Taking a cue from its Asian peers, the Indian Government recognized the need to develop a self-reliant aviation industry. This is envisioned to create employment opportunities in aviation finance, and leverage on the business opportunities available in India’s financial Special Economic Zones, namely, International Financial Services Centre (IFSC).

The Indian Government designed a road map for developing India as a hub for aircraft leasing and financing activities. The IFSC, set up under the SEZ route, aims to help India unlock its potential in the international financial services space. It predominantly caters to customers outside the domestic economy and deals with the flow of finance, financial products and services across borders. It extends across the entire financial services spectrum including Banking, Capital Markets, Insurance, Asset Management & other ancillary services.

[25] Global Fleet and MRO Market Forecast – 2021-2031

[26] https://www.ibef.org/industry/indian-aviation.aspx#:~:text=India%20has%20become%20the%20third,passenger*%20market%20by%202024%5E.

The International Financial Services Centres Authority Act (IFSCA Act), 2019, authorized the IFSCA as a unified regulator, with representation from India's key regulators – the Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Insurance and Regulatory Development Authority (IRDA), Pension Fund and Regulatory and Development Authority (PFRDA) – and the Government on its critical decision-making bodies.

Currently, Gujarat International Finance Tec-City (GIFT City) is the only approved IFSC in India. It is a globally benchmarked IFSC developed by the Government of Gujarat through a joint venture.

Aircraft leasing and financing regulations in the IFSC:

In 2020, the Central Government notified "aircraft leases" as "financial product" under the IFSCA Act, 2019. This aircraft lease includes operating and financial leases and any hybrid of operating and financial leases of aircraft or helicopters and engines of aircraft or helicopters, or any other part thereof. The development of the aircraft financing and leasing industry in the IFSC would help create a comprehensive ecosystem for the Indian aviation industry.

Pursuant to the notification, the IFSCA introduced the IFSCA (Finance Company) Regulations, 2021 (IFSCA FC Regulations), outlining the framework applicable for the Finance Company/Finance Unit set up in IFSC. Under the IFSCA FC Regulations, the financial lease arrangement for aircraft lease is considered as "permitted core activity," whereas the operating lease arrangement for aircraft lease is considered as "permitted non-core activity."

Under IFSCA FC Regulations, an entity would be required to obtain certificate of registration as "Finance Company" from the IFSCA for carrying out the prescribed permitted activities. To qualify for registration as a Finance Company with IFSCA, the entity should satisfy the following criteria:

- Set-up operations in IFSC by way of a subsidiary/joint venture/a newly incorporated company under Indian corporate laws (Finance Company) or a branch (Finance Unit) of investing entity or in any other form as may be specified by the IFSCA.
- Investing entity to obtain No-objection certificate from its home country regulator for setting up a Finance Company/Unit in IFSC if it carries out a regulated financial activity in its home jurisdiction.
- Maintaining minimum owned funds,[27] depending on the activity proposed to be undertaken, or such other higher amount as may be specified by the IFSCA.
- The entity and/or its promoters shall be from a Financial Action Task Force (FATF) compliant jurisdiction and comply with international standards set by the FATF.
- Only permitted to transact in a foreign currency, however, may defray its administrative expenses in INR by maintaining a separate INR account.

An aircraft lessor undertaking an aircraft financial lease arrangement is required to maintain the prescribed prudential regulatory ratios. However, the aircraft lessor undertaking aircraft operating lease arrangement is exempted from maintaining these ratios given the framework for aircraft operating lease has been outlined separately by the IFSCA. Further, IFSCA (Banking) Regulations 2020 has also permitted IFSC banking units to undertake equipment leasing, including aircraft leasing.

[27] This has been noted as "minimum capital" requirement in the Framework for Aircraft Operating Lease

Tax framework of aircraft lessors in the IFSC

The tax treatment for the aircraft lessors that choose to set up aircraft financing and leasing operations in the IFSC are tabulated below:

Particulars	Finance Company/ Finance Unit in IFSC
Corporate tax rate	• 100% profit linked deduction for any 10 consecutive years out of the first 15 years of operations, at the option of the entity • Depreciation on aircraft and aircraft engines allowed at 40% on a written down value (WDV) basis • Unabsorbed depreciation can be carried forward to the subsequent years to be set off against future profits, without any time limit • Post tax holiday, 22% (plus applicable surcharge and cess) for domestic companies that opted to forego certain deductions (with an exception of deductions available to IFSC)
Minimum alternate tax (MAT)	• MAT at 9% (plus applicable surcharge and cess) of book profits applies to a Company setup as an IFSC unit- Not applicable to companies in IFSC opting for a new tax regime of 22%
Withholding tax (WHT) on interest payment	• No WHT on interest paid to non-residents by the IFSC unit i.e., interest income exempted from tax in the hands of non-residents
WHT on lease rentals	• No WHT on aircraft lease payments, in the nature of royalty, paid to non-residents by the IFSC unit (provided operations commence before 31 March 2024) i.e., operating lease rentals exempted from tax
Capital gains on disposal of aircraft	• 100% profit linked deduction available on capital gains arising on transfer of aircraft or aircraft engine leased by the IFSC unit to the domestic company (provided operations commences before 31 March 2024)
Import of goods/ services into the IFSC: **Procurement on outright purchase basis / operating lease basis**	• Import of aircraft/aircraft engine into the IFSC is not subject to basic custom duty (BCD). However, aircraft/aircraft engine required to be landing in SEZ for such exemption to apply.[28] Leasing of aircraft/aircraft engine into the IFSC is not subject to Integrated Goods and Services Tax (IGST), provided services are procured for authorized operations in an SEZ
Leasing (operating lease) of aircraft/ aircraft engine to an airline company in India by a unit in the IFSC	• Import of aircraft/aircraft engine by an airline company in India (operator) from an Indian lessor located in the IFSC is not subject to BCD, provided the aircraft is imported by the operator (or on behalf of the operator) for scheduled air operations • Leasing of aircraft/aircraft engine by a unit in the IFSC to an airline company in India is subject to IGST under forward charge at the rate of 5% on lease rental payments
Stamp duty	• Exemption on all activities related to setting up of units in the IFSC and acquisition of any movable property (including aircraft) or immovable property for a period of 10 years commencing from 4 August 2020, may not be available for the sale of an aircraft

[28] Currently, Multi-Model International Passenger and Cargo Hub Airport at Nagpur (MIHAN, Nagpur) is a designated SEZ

Furthermore, certain state level subsidies are granted by the Government of Gujarat to the eligible IFSC entities.

Currently, no Indian aircraft leasing companies deal in commercial aircraft, which compels domestic airlines to look for overseas aircraft lessors. The presence of aircraft lessors in the IFSC would help airlines companies in India in terms of creating greater opportunities for better leasing terms and conditions, and aid them to navigate currency depreciation risks better, thus removing uncertainties from their operational framework. The central Government along with the state government has undertaken significant regulatory and tax reforms to incentivize the growth of the Indian aviation industry. These reforms reflect strong commitment of the Indian Government to make India “Aatmanirbhar” in the aviation industry.





6. Helicopter industry

The ability of helicopters to take-off and land vertically with minimal infrastructure requirements, compared to fixed-wing aircraft, and their ability to hover in the air, makes them one of the most versatile vehicles for air transport. These capabilities of a helicopter help in accessing difficult terrains and areas that are affected by natural disasters. In India, the armed forces use helicopters to navigate through the Himalayas and other remote areas, otherwise inaccessible. They also serve a variety of purposes including air ambulance services/medicine delivery, airlifting people from disaster affected areas, carrying people to religious pilgrimage destinations, and most recently for transporting COVID-19 vaccines. They are also used by enterprises and individuals for mobility purposes in metro cities and by large oil companies like ONGC, Indian Oil Corporation for travelling to their offshore facilities.

Presently, there are approximately 250 helicopters in the country with about 72% of the fleet belonging to Non-Scheduled Operators (NSOP), while the rest belongs to Governments/PSUs and private parties.[29] Pawan Hans Limited, a mini-Ratna, under the administrative control of the Ministry of civil aviation is the leading helicopter service company, with a fleet size of more than 40. Though there is an inherent demand for helicopters owing to road mobility related issues in Indian cities and also due to the huge potential for religious and recreational tourism, their supply is highly limited. Many countries with a lower population in comparison to India have a larger fleet. Brazil for instance, has about five times the number of helicopters in India while the United States has a 50 times larger fleet.[30]

HAL, TASL, and Mahindra Aerospace are a few prominent players in the helicopter manufacturing industry in the country. The state-run HAL is the only company in the country that designs and manufactures indigenous helicopters. It has developed platforms used by Defense forces in India and abroad. In order to cater to civilian requirements, the company upgraded its Dhruv platform to develop a version that finds its application in ferrying people and goods. TASL and Mahindra Aerospace have entered into strategic partnerships with Boeing and Airbus to develop some of their marquee products.

[29] https://www.civilaviation.gov.in/sites/default/files/GM-CIVIL-HELICOPTER-E-Book.pdf
[30] https://theprint.in/economy/with-less-than-300-choppers-indias-helicopter-market-dwindles-industry-wants-better-rules/629474/

A new wind of change

Taking into account the potential of the helicopter industry and the benefits it might bring to various sectors, the government of India announced the new helicopter policy in October 2021. It is a key step to reduce the gap in the supply and demand for helicopters in the country and develop an ecosystem to support the growth of the sector.

Some key policy related announcements which will usher the helicopter industry to a trajectory of growth are as follows:[31] [32]

- Establishment of a dedicated Helicopter Acceleration Cell to provide regulatory and policy direction to aid ease of doing business for the helicopter industry.
- Helicopter companies or heliports to be exempted from paying parking deposits and landing charges.
- Engagement between Airports Authority of India, Air Traffic Control, and other helicopter industry stakeholders to train individuals regarding helicopter issues.
- To create awareness about helicopter operations among the district administrations and ensure ease of operations at all levels, the district collectors will be given Heli-Disha, a booklet containing regulations and issues related to helicopter operations.
- To integrate various departments and ensure ease of operations, the centralized Heli-Sewa portal will be suitably upgraded. The portal will act as a single-window platform to facilitate all permissions for helicopter operations.
- Establishment of one Heli-Hub and training institute each in Juhu, Guwahati, Delhi, and Bangalore (HAL Airport).
- Establishment of helicopter corridors covering 10 cities and 82 routes in the country. The first three corridors are envisaged to be developed across Juhu-Pune-Juhu; Mahalakshmi Racecourse-Pune-Mahalakshmi Racecourse; Gandhinagar-Ahmedabad-Gandhinagar.
- To provide the necessary impetus to develop Helicopter Emergency Medical Services in India, heliports will be developed alongside three expressways viz. Delhi-Bombay Expressway, Ambala-Kotputli, and Ambala-Bhatinda-Jamnagar. These would ensure timely evacuation and medical treatment for accident victims

The establishment of aircraft/helicopter leasing under IFSC has also opened the opportunity for Indian Enterprises to tap into a lucrative business and acts as a vital component of the aviation value chain. Vman Aviation Services IFSC Limited recently announced its first helicopter lease transaction by leasing out an Airbus H-125 helicopter to Thumby Aviation Private Limited.[33]

Path Ahead

Currently, helicopters are treated similar to fixed-wing aircraft, and there are no separate set of rules for their operation. Despite their ease of operations, they are constrained by the infrastructural and operational regulations applicable to fixed wing aircraft. Since most of the helicopters are imported from other countries, their acquisition is capital intensive. High capex and higher cost of operations makes it an expensive mode of transport, thus leading to less number of passengers and an unviable investment for the operators. Given these circumstances, India's helicopter industry largely remains untapped with huge growth potential.

The announcement of a policy for helicopters reflects the view of the government to revitalize the helicopter industry and to realize its true potential. However, a greater degree of engagement between the policy makers and the industry would be required for the industry to prosper. This would help in identifying the key challenges faced by the industry and in developing adequate measures to address the same.

With the renewed impetus to the civil helicopter industry by means of the new helicopter policy along with the ongoing Regional Connectivity Scheme like UDAN (Ude Desh ka Aam Nagrik), the environment is conducive for the helicopter industry to take-off.

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31 https://www.thehindu.com/news/national/dedicated-corridors-hubs-scindia-announces-new-helicopter-policy/article36901576.ece

32 https://www.theweek.in/news/biz-tech/2021/11/23/new-helicopter-policy-to-propel-growth-of-civil-aviation-sector-.html#:~:text=Under%20the%20new%20policy%2C%20the,for%20heliports%20or%20helicopter%20companies.

33 https://vman.aero/vman-indias-first-leasing-company-in-gift-city-starts-its-lease-transaction-lease-airbus-h125-helicopter-to-thumby-aviation/



7. Drones and Urban Air Mobility

Urban Air Mobility in India - An overview

The concept of Urban Air Mobility (UAM) involves the transportation of passengers and goods in urban areas through air. Since the beginning of the 20th century, when the first helicopter that carried humans was invented, UAM has rapidly evolved to include technologies like drones and e-VTOLs. Various endeavors worldwide aim to create fully automated passenger carrying drones. Due to its reliance on electric/hybrid propulsion, governments and enterprises consider UAM as a solution to growing problems such as, pollution and long travel time associated with road traffic congestion.

For several years now, Indian cities have been grappling with issues related to road congestion. According to TomTom Traffic Index Ranking 2021, Mumbai was ranked 5th in terms of congestion level, while Bengaluru was ranked 10th and Delhi 11th.[34] Traffic congestion has several negative impacts like increased travel time, high fuel consumption and pollution. Delhi, for instance, was among the top 10 most polluted cities in the world in 2020, with the other 8 cities in the top 10 were also from India.[35]

UAM is considered to be a sustainable alternative for road modal transport as it primarily utilizes electrically propelled aircraft for transportation of goods and passengers. There have been a number of developments in recent years in terms of technology and regulations in UAM in India, which encourages its adoption in the country. However, building enabling infrastructure, creation of sturdy policies, focus on improving public acceptance and commercial viability would be of importance for the rapid development of UAM in India.

Assessment of UAM ecosystem in India

In India, several start-ups have developed advanced drones that find applications in delivery and military applications. Few companies have designed, developed and tested their passenger e-VTOL prototypes. The Drone Rules and the National UTM Policy framework, both of which were introduced in 2021, pave the way for the development of UAM and exploration of its different usage in India. Through the liberalization of a number of earlier rules and procedures to improve the ease of operations and through the introduction of a few new rules to improve safety, these policies have taken the interests of the public, industry and other stakeholders into account.

[34] https://www.tomtom.com/en_gb/traffic-index/ranking/
[35] https://www.iqair.com/in-en/world-most-polluted-cities

The current situation of UAM across factors like technology, regulation, infrastructure, and public acceptance is addressed below in order to evaluate the developments in the area and to provide recommendations for the future.

A. Technology:

Technologies utilized in the area of UAM include aircraft viz. drones and e-VTOLs, propulsion systems, batteries and communication and navigation systems. Though commercial drone operations in India are restricted in the Vertical Line of Sight (i.e., VLOS< 500 meters) region, few indigenous drones have even flown in the range of 20-50 kms[36] during their test flights. Such longer range would support the application of drones in food, grocery, and medicine delivery in the future.

Indian companies have also recently designed, developed and tested prototypes for VTOLs/e-VTOLs with several proprietary technologies. Companies like ePlane.ai, and VTOL aviation India have tied up with premium institutions like the IITs in order to build the technology for their VTOL aircraft. Some of the key technological features of the aircraft designed in India are given below.

	Key Features
Range and speed	• ePlane's e-200 - designed for a range of 200 km • Vinata's hybrid VTOL - designed for a range of 100 km and a maximum speed of 100 kmph • VTOL Aviation India Pvt Ltd.'s ABHIYAAN_ENM800 - intended to have a radius of operation of 600 km for its hybrid variant and 250 kms for its all electric variant
Propulsion System	• e-200 - All-electric propulsion system • Vinata's VTOL - Hybrid-electric propulsion system • Abhiyaan_ENM 800 - Hybrid and all electric propulsion variants
Capacity	• e-200 – 2-seater capacity and 200 kg • Vinata – 2-passenger capacity and a maximum take-off weight of 1300 kilograms • Abhiyaan ENM_800 – 2-seater capacity and a maximum take-off weight of 800 kg
Development stage	• e-200- Subscale prototype (e-50) completed test flight in 2021 • Vinata- Currently at concept stage and likely to complete trial by 2023 • Abhiyaan_ENM800- Launched design in 2021

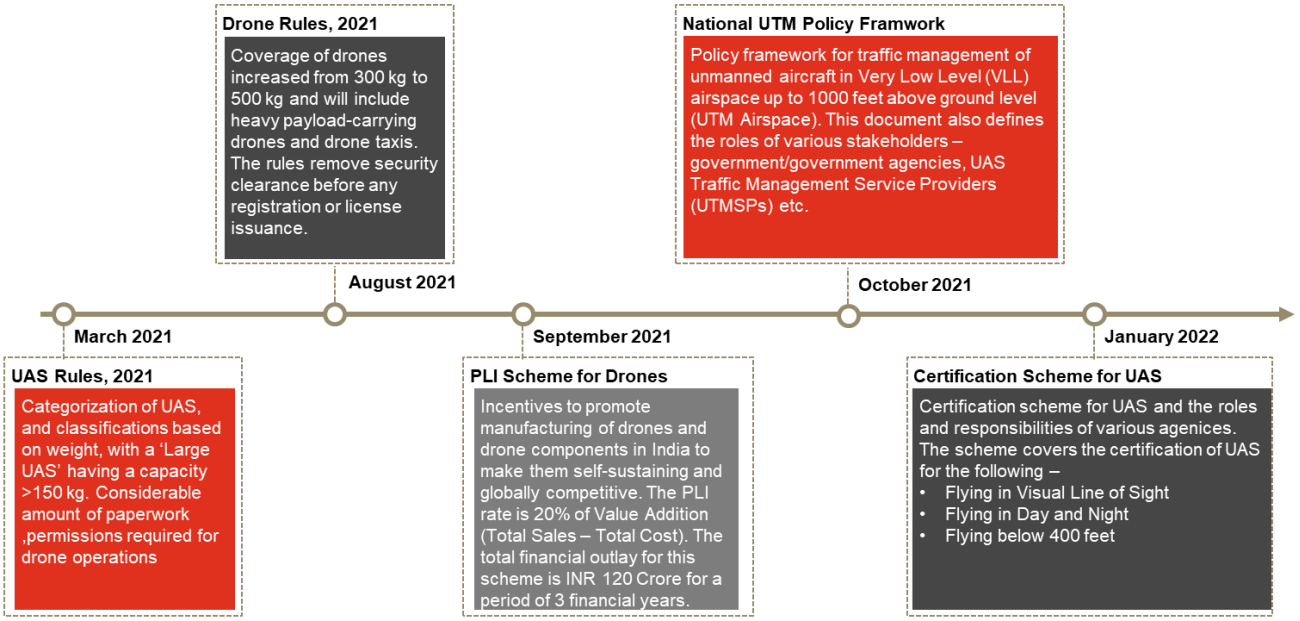
*source – websites of respective companies

However, most of these aircraft, are at the early stages of their development and would require extensive testing before large-scale commercialization to carry passengers. Extensive support from the government in terms of development of type certification guidelines, testing infrastructure, etc. are a few key measures required for accelerated development of the UAM technology in India.

[36] https://www.hindustantimes.com/cities/gurugram-news/indias-longest-drone-flight-conducted-in-haryana-for-hpcl-claims-robotics-firm-101636287161593.html

B. Regulation/Policy:

With varying measures like the development of Digital Sky Platform-as a single-window platform, reducing the number of forms, guidelines for training and certification, etc., the Drone Rules 2021 emphasize the ease of drone operations and public safety.[37] Whereas, the National UTM Policy framework, lays the foundation for a digitally integrated UTM system and increased public-private participation in unmanned traffic management. The government has also introduced Production linked incentive (PLI) scheme to incentivize manufacturing drones in India.





[37] https://pib.gov.in/PressReleseDetailm.aspx?PRID=1749154

Though the rules and monetary incentives discussed above address the concerns of the industry and the public alike, large scale adoption of the UAM requires building policies to catalyze the development of aircraft, addressing public concerns and the creation of charging and other enabling infrastructure. The latest drone rules have envisioned the inclusion of flying taxis; commercialization of the technology would also require creation of certification scheme/guidelines.

C. Infrastructure

With an increasing fleet of drones and e-VTOLs envisaged in India in the current and the next decade, various infrastructure like charging stations and Droneports/Vertiports need to be developed. In India, policies like FAME II, which include monetary incentives for developing charging stations and producing charging infrastructure components[38] had led to a 250% increase in the number of EV chargers in 9 Indian cities in a span of 3-4 months.[39] The current chargers for EVs may be utilized for smaller e-VTOLs; however, for aircraft with higher seating capacity, mega-charging infrastructure (more than 1 MW) would need to be built in the future. Such large power systems would require the upgradation of the current utility infrastructure.

In the case of Indian cities, due to high population density, a larger number of vertiports needs to be constructed to cater to the demand. In order to build such vertiports effectively and efficiently with the requisite safety mechanisms, strong regulations need to be developed. In countries like the United States, e-VTOL developers tie up with infrastructure players to develop vertiports. A higher level of participation from the private players, encouraged through suitable policies and incentives would support the development of vertiports/drones and charging infrastructure in the country.

D. Public Acceptance

For large-scale operationalization of UAM technologies and commercial viability for the e-VTOL developers, public awareness and acceptance of the concept is necessary. In a recent survey conducted, more than 45% of the respondents in India expressed their willingness to adopt Advanced Air Mobility (AAM) for commutation as against less than 15% in countries such as Germany and the USA.[40] The drone rules and National UTM policy framework emphasize the safety of operations through the establishment of guidelines for type certification, pilot training and other in-flight safety mechanisms. However, for wider adoption of the technology, a national roadmap needs to be prepared by engaging all the key stakeholders. Pilot operations like medicine and food delivery would help in building public confidence.

Although India has taken significant steps in terms of regulations and policies for adopting the UAM, several novel concepts like e-VTOLs capability of carrying passengers are still at a nascent stage. Whereas, in countries like Europe and the United States, few companies are at much advanced stages in terms of technology and are looking forward to commercialization of passenger carrying e-VTOLs in the near future. For e.g., Lilium, a German e-VTOL manufacturer and Joby Aviation, a United States based company, are both in the process of receiving type certification from European Union Aviation Safety Agency and Federal Aviation Administration, respectively and plan to commercialize operations in 2024.

[38] https://pib.gov.in/newsite/PrintRelease.aspx?relid=191377
[39] https://economictimes.indiatimes.com/industry/renewables/electric-vehicle-charging-stations-expand-2-5-times-in-9-mega-cities-in-india-power-ministry/articleshow/89680137.cms
[40] https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/up-in-the-air-how-do-consumers-view-advanced-air-mobility

The development and wider adoption of UAM in India would require an integrated approach across all aspects of the ecosystem viz. technology, regulations, infrastructure, and public acceptance. Some of the key interventions that might help in developing the industry include:

- Pilot Projects and large-scale demonstrations to improve public confidence - Large scale demonstration of pilot use cases like medicine deliveries and transportation of commodities would help in building public confidence.
- Monetary incentives like grants to universities for research and development – Most of the drones used in India are assembled using imported components. Though PLI's would incentivize large-scale production of drones in the country, support needs to be provided to encourage the invention of drone components in the country.
- Standardization of charging technology - Standardization of charging connectors similar to that followed by many manufacturers in the automobile industry would increase the adoption of e-VTOLs in the country.
- PPP in infrastructure development – Public private participation would accelerate the development of vertiports and charging infrastructure required for the large fleet size envisioned in the future.



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