

AVIATION TODAY

A Magazine of Pawan Hans on General Civil Aviation



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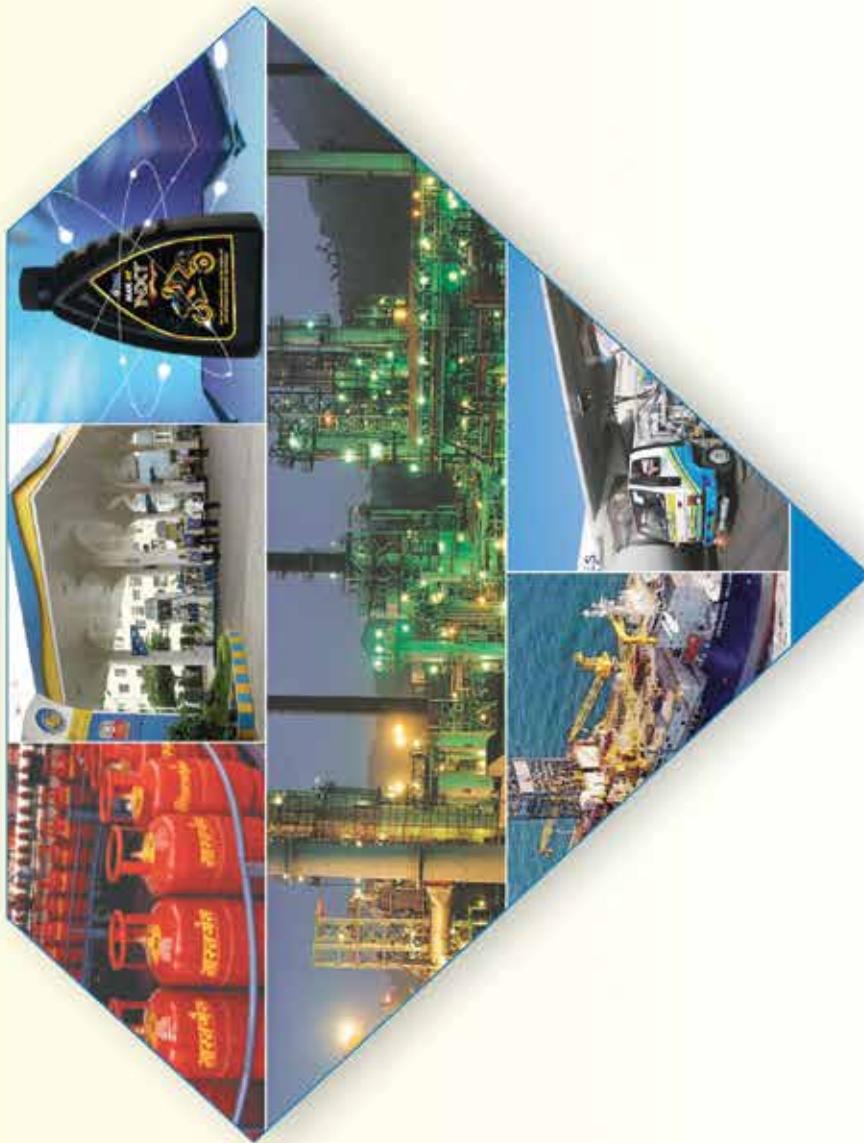
INDIAN GENERAL
**AVIATION
SECTOR**
GROWING NEW WINGS



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EDITORIAL

PAWAN HANS LAUNCHES AVIATION TODAY - A GENERAL AVIATION FOCUSED PUBLICATION

Dear Readers,

It gives me immense pleasure to inform you that Pawan Hans launched first of its kind general aviation sector focused publication – Aviation Today with an objective to lift up awareness about the helicopter segment in India and the state of General Aviation among all the stakeholders of helicopter industry in India.

“Aviation Today” publication will act as a consolidated source of information in the general aviation sector in India. The publication will be dedicated to understanding the performance, growth, skill development perspective and Research & Development in the helicopter segment and work closely with the Industry to mitigate opportunities and challenges.

Pawan Hans Limited a “Mini Ratna” CPSE of government of India under Ministry of Civil Aviation focusing on providing state of the art helicopter services to various segment of businesses and tourism in India. Pawan Hans has been instrumental in providing connectivity to remotest parts of the country to meet its corporate and social objectives. Continuing with the vision of “New Look, New Horizon”, Pawan Hans is committed to provide it best in class helicopter services and expanding its horizons towards harmonizing civil helicopter segment by focusing on infrastructure development such as heliports, Helipads, skill development, MRO, and consultancy services.

The inaugural issue of “AVIATION TODAY” magazine provides a detailed knowledge base and analysis on general aviation segment in India and special features on MRO and helicopter segments, which are an integral part of the overall general aviation segment.

I convey my best wishes to editorial team who have been instrumental in conceptualizing and presenting before you the first issue of Aviation Today and look forward for your valuable contribution in time to come with happy readings.

Happy reading!

Dr. BP Sharma

▼ Dr. BP Sharma
Chairman and MD, PHL



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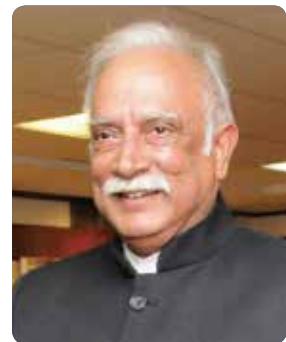
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Government of India



MESSAGES

Pusapati Ashok Gajapathi Raju, Union Cabinet Minister for Civil Aviation

Pawan Hans Helicopter has been a name to reckon with in Indian General Aviation space. With a humble beginning when the first commercial operations of Pawan Hans took place for ONGC on 6th October 1986, it is now poised to become a 100-helicopter company by 2027. From over 30 years, PHL has developed itself into the national helicopter carrier in India and has played an instrumental role in connecting the remotest part of the country be it North East, Andaman and Nicobar Islands, or Lakshadweep. Although the journey has been filled with challenges, it has been a remarkable flight for Pawan Hans.

Not only has Pawan Hans been a tremendous helicopter services provider, it has also been a great support to the government of India in skill development, regional connectivity, and other aviation services such as consultancy and MRO.

A publication from Pawan Hans focused on helicopter industry is a welcome step and will help in bridging the gap between demand and supply with well-crafted analysis and insights. I congratulate team Pawan Hans for this important initiative and hope they would be able to provide insightful information to the readers. I believe this initiative will help in further strengthening the understanding and requirements of the helicopter Industry. I also congratulate the editorial and design team of Aviation Today which came up with this remarkable opening issue.

Pusapati Ashok Gajapathi Raju,
Union Cabinet Minister for Civil Aviation



Government of India



MESSAGES

K J Alphons, Minister of State for Tourism (Independent Charge)

India has unimaginable tourism opportunities and is continuously striding to new heights. Heli tourism is one of the most attractive segments due to ease of access and a new experience it provides and Pawan Hans has been at the helm of Heli-adventure tourism, Heli-heritage and Heli-pilgrimage tourism. Helicopter tourism in India opens a world of new possibilities for travelers who wish to see faraway places like Himalayas and other inaccessible areas and opens the doors for visitors to explore remote areas which are relatively untraveled but which have potential to become new tourism destinations.

Pawan Hans offers destinations of great interest to religious tourists through heli-heritage or heli pilgrimage services. Hitherto difficult-to-access destinations like Badrinath, Kedarnath, Amarnath Yatra, Tirupathi and various regional events have now been brought within easy reach.

Ministry of tourism congratulate Pawan Hans on the launch of "Aviation Today" – a publication dedicated to helicopter industry. It will not only help the bigger general aviation segment but also will play a significant role in providing information and insights into Heli-tourism as well. There are ample opportunities in this arena and Pawan Hans has already been instrumental in supporting and promoting tourism by connecting the unconnected.

I am sure the rotors of development will keep moving with such initiatives and I give my best to team Pawan Hans for this endeavor.

K J Alphons,
Minister of State for Tourism (Independent Charge)



Government of India



MESSAGES

Jayant Sinha, Minister of State for Civil Aviation

It has been a tremendous journey of 31 years for Pawan Hans and its rotors have been flying quite well. Pawan Hans has contributed immensely to the Indian general aviation and has been the undisputed leader in the Indian Helicopter industry. It has been contributing in Heli-tourism, business services, consultancy, MRO, and skill development in India in a big way.

In yet another contribution to the Industry, the first of its kind publication from Pawan Hans is a welcome step. I congratulate the team from Pawan Hans and their partners RJ Associates who brought to us "Aviation Today" a mirror to the Indian general aviation segment. This initiative will not only help in spreading knowledge and the latest happenings of the industry but also will act as a bridge between the demand and the supply side.

I convey my heartiest wishes to the team for this endeavor and I wish them best for the future.

Jayant Sinha,
Minister of State for Civil Aviation



Government of India



MESSAGES

Rajiv Nayan Choubey, Seceretary, Civil Aviation

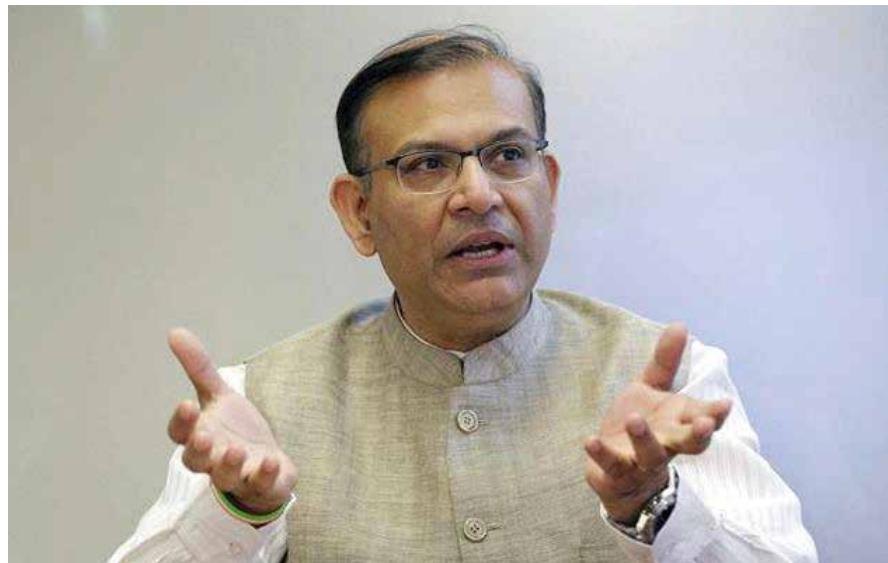
Pawan Hans Limited is often spoken as the national helicopter company and rightly so. Its contribution to Indian general aviation industry has been unprecedented. It works closely with both government and private parties to provide a host of services apart from helicopter services. Other services include MRO, training, consultancy, skill development, disaster management and what not. Indian general aviation segment is also growing at a steady pace and the future holds a lot of potential for helicopter services.

Initiative from Pawan Hans to start a dedicated publication – Aviation Today is a welcome step and I congratulate team Pawan Hans and their publication partners, RJ Associates for this. This publication will provide the much-needed platform to the general aviation industry through its synthesis and insights and by communicating to all stakeholders of the industry. It can act as a common platform to share thoughts, communicate with each other with challenges and offerings. It will also help the ministry civil aviation to understand the pain points of the industry in a better way and help take necessary steps.

I once again give my best wishes to the team and hope of a great future for Aviation Today.

Rajiv Nayan Choubey,
Seceretary, Civil Aviation

India expects to triple aviation market in next 15 years



India's minister of state for civil aviation Jayant Sinha

India has doubled the size of its aviation market in the last four years, and will look to triple it in the next 15 years. Speaking in a televised interview, India's minister of state for civil aviation Jayant Sinha, adds that by the end of the current 2018 financial year, the country will hit 200 million passenger trips.

The figure is up from 160 million passenger trips made in the 2017 financial year, and double the size from four years ago. Sinha states that while India's growth in aviation is noteworthy, it still lags behind China with an annual figure of 500 million passenger trips, and the United States with 900 million passenger trips a year.

He acknowledges that India's airports and airspace still remain congested, and that New Delhi has to plan to accommodate future growth. "We have about 500 aircraft in the air, and over 650 aircraft on order. We have to work towards a safe and secure expansion of the aviation sector, because it is something that people are now finding very attractive as a transportation alternative," says Sinha.

"India is at a 'rail-parity'. Today the price of flying is equal to the price of upper-class air-conditioned rail travel. There has been a tremendous amount of traffic that has started to move into aviation."

Sinha explains that the number of airline trips has also exceeded the number of upper-class air-conditioned rail travel, which stood at 130 million for the 2017 financial year. In addition, total revenue for the Indian aviation sector stands at around 1.17 trillion rupees (\$17.5 billion) - similar to rail travel and telecommunications.

"As we move forward, like in the US or Europe or China, there will be two or three large airline groups flying different brands. You can have full-service international carriers, low-cost domestic carriers with different brands. Our airline groups are going to be the size of airline groups around the world like in the US or Europe with the [IAG Group] that owns British Airways and Iberia, or the [SIA Group] that owns Singapore Airlines, Scoot, and SilkAir. It's a very exciting future for our aviation sector going forward"

Vizag getting ready for Heli-Tourism

Pawan Hans has carried out trial runs to introduce its helicopter services to promote heli tourism in Vizag. Pawan Hans has shared a proposal to operate its choppers from the Visakhapatnam Urban Development Authority (VUDA) park on the beach road to Kailasagiri and Araku valley in the district.

Pending the approval of Indian Navy, Pawan Hans plans to start regular operations in 15-20 days. It will be a unique opportunity for tourists as they can travel in a helicopter for around ₹ 2,500.

"This is a seven-seater aircraft with provision for two pilots and five passengers. However, once the joy rides begin, it would be flown by a single pilot and six passengers. The VUDA and tourism officials are making efforts to get the service operationalized. At present, we have brought only one chopper," said Srinivasa Rao of Pawan Hans.

Earlier, Skychopper conducted feasibility studies for the operation of choppers and land was identified for development of the helipad near the VUDA park. AP Tourism Development Corporation (APTDC) invited Skychopper to conduct feasibility studies for operation of helicopters to Kailasagiri and Araku initially. However, the MoU with Skychopper was subsequently cancelled and Pawan Hans took this opportunity to provide its chopper services.



Regional UDAN flight path to land on water with amphibian planes



The government's scheme for enhancing regional air connectivity Ude Desh Ka Aam Nagrik (UDAN) may soon introduce new modes of transport—seaplanes and amphibian planes—as the civil aviation ministry has decided to conduct feasibility study to explore the possibility of having waterdromes for operating seaplanes. Currently, only regular aircrafts are flying under the Regional Connectivity Scheme (RCS) which aims at making air travel affordable as flight fares are capped at a maximum price of Rs 2,500 per hour for 50% seats.

A senior ministry official confirmed the development on Wednesday and said that the government decided to look into the idea of starting seaplanes operations under RCS after some entities approached the government expressing interest for the same. According to sources, two airlines which includes budget airline SpiceJet, sent the ministry a list of around 16 to 20 places that could be utilized as waterdromes. Sources said that the list includes certain locations on the Tehri dam in Uttarakhand, Ambi valley in Maharashtra, the coastal belt connecting Gujarat to Kerala and the union territories of Andaman and Nicobar Islands, Daman and Dui.

Regional connectivity set to gain a boost with aggregated aircraft charter services

As the Indian government strives to make flying affordable for the masses with its regional connectivity scheme, aircraft charter companies are charting a similar flight path as aggregators—much like Ola and Uber—and offering fares that are up to 50% cheaper.

As an aggregator, a company would offer flyers all available aircraft on one platform and optimize the use of the planes. There are 129 general aviation operators in the country and about 60 of them have fixed-wing aircraft in their fleets, while the remainder have only helicopters.

Conventionally, most charter companies charge customers all the costs associated with hiring an aircraft—travel from the home base, the actual trip and the empty return leg. With the aggregator model, aircraft chartering charges can drop by as much as 50%.

By positioning aircraft strategically across the country and by matching demand and supply more efficiently, the overall flying time can be reduced,

significantly lowering costs for customers vis-a-vis the rate charged by a standalone charter company, according to Kanika Tekriwal, co-founder of Jet-SetGo, a New Delhi-based business charter company with cricketer Yuvraj Singh as one of its investors.

"The cost differential can, hence, even be as high as 50%," said Tekriwal. Hiring an aircraft with six to nine seats currently, ranges from Rs 150,000 to Rs 200,000 an hour. Air One Aviation Pvt, promoted by former president of Air Sahara Alok Sharma, is in the business charter business and has offered up to 500 planes through its subsidiary Ezee Charter Pvt. Sharma said the charter business segment in the country is set to grow and he plans to tap the leisure travel market.

"At a later stage, we want to launch holiday packages, which will have on offer flights according to passenger convenience and hotels to a group of people flying to a particular destination. Going ahead, I see a lot of charter flights being used for leisure travel and a big market is waiting to be tapped," said Sharma.



Kanika Tekriwal, co-founder of Jet-SetGo

Milestone Aviation Group strengthened lease partnership with Heligo, delivers fifth Helicopter

Milestone Aviation Group ("Milestone") announced the delivery of a Leonardo AW139 to Heligo Charters Private Limited (Heligo) in India. The delivery marks the fifth helicopter leased to Heligo in 2017, increasing the Mumbai-based operator's fleet and enabling expansion of both on and offshore services. Milestone, the global leader in helicopter leasing, began its lease partnership with Heligo in 2014 and has played a critical role in expanding the operator's fleet to 15 aircraft, eight of which are on lease from Milestone.

Of the five helicopters delivered in 2017, the Leonardo AW139 and two Airbus AS365 Dauphins will operate offshore for the oil and gas industry while one Bell 412EP and one Leonardo AW109SP will expand Heligo's onshore VIP charter services. The helicopters were sourced from Milestone's installed fleet and transitioned from prior operations in Europe, Asia, and the United States.

"We are excited to expand our partnership with Heligo at this important time in their company's growth," said Milestone Vice President Commercial Michael York. "Heligo has grown to become one of the largest helicopter operators in India by providing highly skilled service through stringent safety standards. We are pleased that they have entrusted Milestone to help them grow their fleet and diversify their client base."

"We highly value our relationship with Milestone. Their partnership approach gave Heligo access to a diverse fleet of helicopters and the flexibility to bid contracts without taking asset risk" said Chief Executive Officer, Captain K Padmanabhan. "Milestone has provided us with much more than a financial solution, their support has been a central element of our growth strategy, enabling us to grow aggressively but prudently."

SpiceJet set to procure over 100 amphibian planes



SpiceJet plans to purchase more than 100 amphibian planes, estimated to cost \$400 million, as the no-frills airline looks to boost regional operations, its chief Ajay Singh said.

With regard to purchase of the up to 14-seater amphibian aircraft, that can operate on land as well as on water bodies, SpiceJet has entered into a Memorandum of Understanding (MoU) with Japan's Setouchi Holdings.

Announcing its plans to enhance regional operations, Singh said the MoU is to explore whether the amphibian planes can be used by the airline in a cost-effective manner. "If it is done, it will be done in excess of 100 planes," he said in response to a query on how many amphibian aircraft would be ordered.

Noting that these aircraft are not expensive, he said one amphibian plane costs around USD 4 million. This would translate to a total amount of more than USD 400 million (about Rs 2,600 crore) for over 100 such planes.

"We are studying the commercial viability (of this project). SpiceJet will get involved whatever the structure might be... directly, separately or as part of travel vertical," the airline's Chairman and Managing Director said, adding that the interests of states have also to be assessed.



Private Jets are being leased out to earn additional revenues

India's private jet segment is going through a turbulent time and the owners have found a great way to deal with it. They are leasing out their private jets to aggregators — who operate, maintain and rent them out — to earn money from these assets. GMR Group, Punj Lloyd, Jaypee Group and Bhaskar Group are among companies that have rented out aircraft to aggregators over the past six to nine months, while Delhi NCR-based real estate companies DLF and Supertech have sold as well as returned the aircraft to the lessor.

The decline in flights by corporate honchos is corroborated by data from the Airports Authority of India (AAI), which show that general aviation charter movements during April and August this year have declined by about 6.1% over the same period last year. Notably, charter movements during the same period in 2016 had registered a growth of 8.4% over 2015 numbers.



Adani group forays into airport business with mega Rs. 1,500 cr international airport plan in Mundra



Adani Group is set to enter the airport business with an international airport at Mundra, Gujarat. The group has firmed up plans to upgrade the existing airstrip at Mundra to a full-fledged commercial airport with integrated cargo and aerospace operations.

The conglomerate, which has received environmental clearance for the project, plans to invest around Rs 1,500 crore in it. In 2008, the government allowed fully owned private airports without any equity participation from the Airports Authority of India (AAI). However, central agencies will oversee functions like navigation, security, customs, and immigration in such airports. The Adani Group, through its subsidiary Mundra International Airport Private Ltd (MIAPL), will operate the airport to cash in on the corporate traffic in Mundra, which is fast developing into a business hub. Besides that, with Ahmedabad being the only airport in Gujarat with prime international connectivity, the group believes there is potential for the

airport to provide direct connectivity to a large expat Gujarati population.

According to documents filed with the environment ministry, the group plans to upgrade the airstrip to a runway capable of handling large passenger aircraft like Boeing 747 and Airbus A350. A passenger terminal building with a capacity of 300 passengers, to be increased in the future, will also be constructed.

There are also plans to develop the airport as a hub for cargo operations and maintenance and night-landing facility for aircraft. A separate cargo terminal will be developed to capitalize on the requirement of business houses in the Mundra special economic zone (SEZ) to export their goods.

"The airport has potential to develop into a modern state-of-the-art international airport capable of serving the requirements of cargo hub centre, MRO facilities, and assembly-line facilities for various aircraft," says the feasibility report of the project.



Dr. B.P. Sharma, CMD, Pawan Hans Ltd. (PHL)

PAWAN HANS: THE FLYING CHARIOT OF INDIA

One of South Asia's largest helicopter company, maintains its growth story through impeccable Safety and Customer Satisfaction. An august body whose paramount concern is service with safety to the nation and its people by offering a wide range of helicopter services to its stakeholders. Ministry of Civil Aviation "New Civil Aviation Policy", Regional & Remote Area Air Connectivity Scheme has provided new impetus to the aviation industry and helicopter industry anticipates a faster growth in coming years. Dr. B.P. Sharma, CMD, Pawan Hans Ltd. (PHL) in an excerpt delineates Organizational Transformation Initiatives of PHL.

Pawan Hans, a Mini Ratna CPSE of Government of India under Ministry of Civil Aviation has been playing a pivotal role for the growth of General Civil Aviation particularly in helicopter services in areas of national importance by connecting remote and inaccessible areas of North East, Islands of Andaman and Nicobar, Jammu and Kashmir, and Lakshadweep providing strategic off-shore transport services to Oil & Gas Sector since 1985.

Pawan Hans under its transformational vision "New Look New Horizon" is expanding its business umbrella towards development of infrastructure, Skill development, MRO and Consultancy services besides its core business of helicopter services. Recently, Pawan Hans has developed its New Business Plan- 2027 to grow its business portfolio to 100 Helicopters & Seaplanes and triple its operational revenue in next 7 to 10 years by transforming its business strategy, fleet modernization and organizational restructuring. PHL has a team of 800 professionals comprising of pi-lots, AME's, executives and support staff.

What is your vision for the growth of Helicopter industry in India as well as increase in requirement of manpower to fulfill this growth?

As of now there are ~270-280 civil helicopters in India and estimates projects growth in helicopter numbers up to 600 in next 10 years. Pawan Hans has developed a Corporate Plan-Vision document 2020 & a Business Plan-2027. The Business Plan envisages Pawan Hans to grow to a helicopter company of 100 helicopters & Seaplanes by 2025 from its existing fleet of 43 helicopters and its revenue business by three folds. I strongly believe other operators who must have their own growth plans shall surely add



THE BUSINESS PLAN ENVISAGES PAWAN HANS TO GROW TO A HELICOPTER COMPANY OF 100 HELICOPTERS & SEAPLANES BY 2025 FROM ITS EXISTING FLEET OF 43 HELICOPTERS AND ITS REVENUE BUSINESS BY THREE FOLDS.

to these numbers. This is big leap and the next decade is very promising for meeting all what is projected. So, it is evident that with fleet growth demand, more manpower in all verticals of pilots & AMEs will certainly grow in helicopter industry. PHL has taken initiatives to meet growing skill requirement and has established PHL Aviation Academy to train AME's & Pilots.

What is the blueprint for Pawan Hans ahead in terms of intake of new machines as well as towards UDAN?

Regional Air Connectivity Scheme (RCS) of MoCA is a visionary initiative and going to be a game changer in promoting regional Connectivity under UDAN programme. Helicopters are part of the scheme and are going to play a significant role to provide connectivity particularly in Hilly States, Remote & Inaccessible areas. We have our plans to add around 20 more choppers in our fleet in next 4 to 5 years under 1st phase of Business Plan making the total number up to 63. As far as UDAN is concerned, there is provision where helicopter can be used under regional and remote connectivity and PHL have plans to participate in those sectors

under next phase of UDAN.

How is the response of Heliport & how going to make it more user friendly & future expansion plans?

Rohini Heliport is India's 1st integrated heliport and more are in planning to come up in other regions of the country. Rohini Heliport has been developed on a concept of 'Heli-Hub' like the concept of Hub-Airports. Rohini Heliport consists state-of-art terminal to handle 150 pax, 16 helicopter bays, 4 large hangers for MRO, Air traffic, Fire station, Fueling facility etc. and a forthcoming Skill Development center. To make the heliport more popular we have recently started the helicopter joy ride and Delhi Darshan and it's getting good response. We are also in talks with Uttar Pradesh Civil Aviation Dept. and Govt. of Haryana to develop similar types of heliport in Greater Noida and Gurugram. Pawan Hans in association with PHL Chamber of Commerce & Industry is organizing "Heli- Expo - & International Civil Helicopter Conclave" in November 2017 to promote Helicopters and requirement of Infrastructure such as Heliports and Helipads for inclusive growth of helicopter Industry in India at Rohini, New Delhi.

BINDING UTTAR PRADESH WITH REGIONAL CONNECTIVITY: IMPETUS ON AVIATION INFRASTRUCTURE DEVELOPMENT



Surya Pal Gangwar, IAS, Special Secretary and Director, Civil Aviation, Uttar Pradesh

Aviation Today talks to Surya Pal Gangwar, Special Secretary and Director, Civil Aviation, Uttar Pradesh about the status of aviation infrastructure development and participation in the regional connectivity scheme (RCS). He explained in detail the key actions taken by the state government and the focus areas in aviation sector. The aviation sector in Uttar Pradesh is being developed as per the vision of honorable chief minister, Yogi Aditya Nath and honorable minister of civil aviation Shri Nand Gopal Gupta Nand ji under the able guidance of SP Goyal, IAS, Principle Secretary, Civil Aviation.

Please provide a brief on the aviation and aviation support infrastructure in the state.

The passenger air traffic in Uttar Pradesh has grown in the year 2016-17 by 30% to 6.1 million¹ passengers on a year on year basis whereas air cargo has witnessed a slight negative growth from 5.91MMT (million metric tons) during year 2015-16 to 5.89 MMT during 2016-17. According to Census of India 2011, the approximate population of Uttar Pradesh is 199.8 million and the corresponding per capita air trips would be an approximate 0.031 reflecting the immense untapped potential in air transport sector in the state.

In Uttar Pradesh, the following six airports are providing intra-state and inter-state air connectivity Lucknow, Varanasi, Allahabad, Gorakhpur, Agra and Kanpur. Lucknow

airport serving 65% of the passenger air traffic demand in Uttar Pradesh followed by Varanasi 32%, Allahabad 2.4%, Gorakhpur 0.9%, Agra 0.2% and Kanpur 0.1% in 2016-17.

What initiatives are being taken to promote regional connectivity in UP? What about non-RCS airports such as Lucknow, Gorakhpur and Varanasi?

Under Industrial Investment and Employment Promotion Policy of Uttar Pradesh 2017 (IIAPP 2017) many incentives are given by the state government for industrial investment. For improving the air connectivity in the state, GoUP intends to develop new airports to connect all the regions of the state with the rest of the country. Private sector participation will be encouraged for the same. Along with facility of dry cargo, aircraft maintenance hubs will also be encouraged.

As envisaged under RCS scheme, Airport Authority of India and the state governments will be jointly developing the airstrips into no-frills airports with the financial assistance of Government of India, once successful RCS bidding covers that airport. The state government has the option to form an SPV/company on its own or with Airport Authority of India for developing airports, upgrading airstrips to no- frill civil airports and managing these airports. State government may explore the possibilities of development or upgradation of airports on PPP mode. The No-Frills Airports will be later upgraded on requirement basis. The cost of upgradation of airstrips to No-Frills airports including the cost of all equipment, furniture etc. will be borne by Government of India at an indicative cost of Rs 50 cr to Rs 100 cr.

RCS scheme of Government of India covers the air connectivity on un-served and under-served airports. U.P has 3 non-RCS airports: Lucknow, Gorakhpur and Varanasi, but they are not inter connected presently. The state Government intends to improve air connectivity on existing non-RCS airports also by providing certain incentives for short term. All new flights connecting a non-RCS airport in U.P. to non-RCS airport in or outside U.P. after 01.04.2017 (wherein origin and destination were not connected through a direct flight.) will be eligible for waiver of VAT (0% VAT) on ATF for all such new routes for one year from date of operation and reimbursement of S-GST on sale of air tickets on new flights.

What are the focus areas of development in aviation sector in UP?

State government is committed to improve civil aviation related infrastructure and air connectivity in Uttar Pradesh. There is scope for development of Greenfield /Brownfield airports in U.P. Site clearance has already been received from Government of India to develop a Greenfield international airport at Jewar in District Gautam Budh Nagar. State government will procure/acquire land to develop the airport in Jewar on PPP mode in a phased manner.

Towards promotion of "Make in India" and "Make in U.P.", for all aircraft/helicopters manufactured or assembled in U.P. the corresponding S-GST receivable to Govt. of U.P. will be reimbursed for 10 years up-to a maximum of 10 units.

What about the development of Cargo and MRO facilities?

Air cargo hubs are the engines of growth for aviation industry. U.P has the largest consumer base in India with a population of approximately 199 million as per Census 2011. State government is committed towards the growth of aviation sector with a focus on employment generation and industrial development. Concessions and incentives on investment under IIEPP 2017 will be admissible, as per eligibility - for investment to develop air cargo hubs and related facility development and logistics infrastructure in U.P.

Fiscal incentives for MRO setups in U.P. will be 100% reimbursement of S-GST levied on MRO job contracts from domestic or international airlines. Also, 50% of S-GST levied will be reimbursed on the purchase of aircraft parts or other accessories used for aircraft maintenance. These incentives will be provided for ten years.

THE PASSENGER AIR TRAFFIC IN UTTAR PRADESH HAS GROWN IN THE YEAR 2016-17 BY 30% TO 6.1 MILLION1 PASSENGERS ON A YEAR ON YEAR BASIS WHEREAS AIR CARGO HAS WITNESSED A SLIGHT NEGATIVE GROWTH FROM 5.91MMT (MILLION METRIC TONS) DURING YEAR 2015-16 TO 5.89 MMT DURING 2016-17.

What role will aviation play in tourism development in the state?

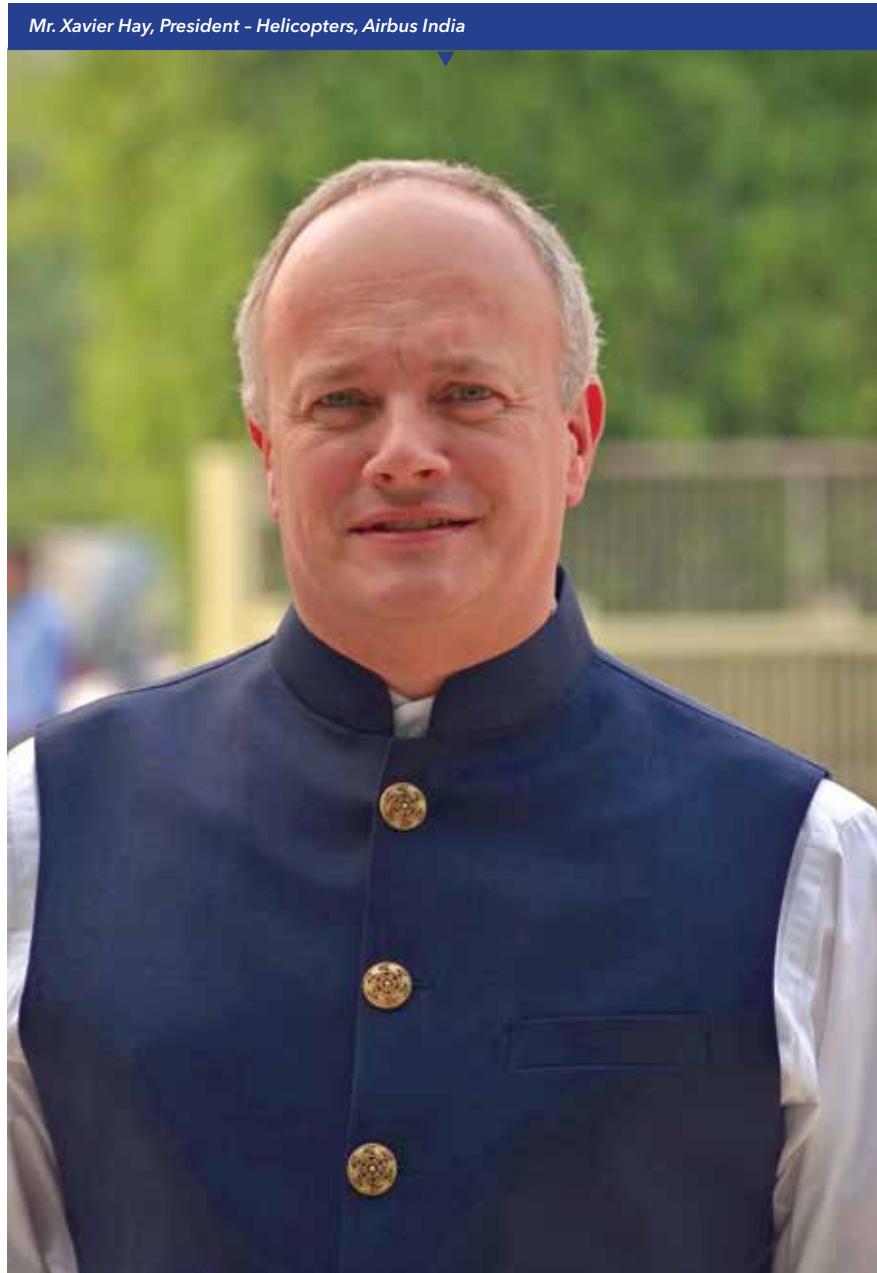
The top tourist destinations in U.P. are Agra, Vrindavan, Mathura, Varanasi, Kushinagar, Allahabad, Lucknow, Naimisharanya, Ayodhya, Jhansi, Chitrakoot, Sarnath, Dudhwa, Chandra Prabha, Mahoba, Chunar, Deogarh. Out of which Agra, Varanasi/ Sarnath, Kushinagar, Allahabad, Lucknow, Ayodhya/Faizabad, Jhansi, Chitrakoot, Dudhwa (Palia airstrip) have functional airport/airstrips.

The government will consider development of helipads/heliports to connect the remaining of the following tourist destinations: Vrindavan, Mathura, Naimisharanya, Chandra Prabha, Mahoba, Chunar, Deogarh to promote tourism.

AIRBUS HELICOPTERS TO GIVE THRUST TO MAKE IN INDIA

Aviation Today in its inaugural issue, talks to industry leaders in general Aviation to understand their point of view, strengths, challenges and to get suggestions to share. In this series, team Aviation Today talks to Mr. Xavier Hay, President - Helicopters, Airbus India.

Mr. Xavier Hay, President - Helicopters, Airbus India



What is India to Airbus? What opportunities do you see in India?

We take immense pride in our long-standing relationship with India and will continue to play an integral role in the Indian growth story by helping the country build a robust aerospace and defense ecosystem. 'Make in India' remains at the core of our business strategy in the country.

We are also setting up a greenfield training facility in New Delhi, to support India's growing need for Airbus aircraft pilots and maintenance engineers. The investment is a key strategic Airbus initiative in line with the country's "Skill India" programme. The centre aims to be operational by end 2018 with an initial capacity to train over 800 pilots and 200 maintenance engineers annually.

Airbus Helicopters is also playing a vital role in developing new market segments in India such as power transmission lines stringing, heli-tourism, search and rescue, homeland security and Helicopter Emergency Medical Services (HEMS).

How has the present government reshaped business environment in India?

I must say that we are all encouraged by the progressive steps being taken by the current government – the wheels are turning. We welcomed the easing of the FDI norms in defense and the

release of the 'Strategic Partnership' model. The 'Strategic Partnership' model can unlock growth potential for both foreign OEMs and local private industry. While the efficacy of the model and its regulatory nuances will become clear once it is implemented, but for now, it is a worthwhile attempt to inject industrial policy in the DPP. Going forward, from an OEM point of view, we would like to see a majority stake being awarded to the foreign partner. This can be done in a phased-out manner where we begin with a majority stake, transfer the technologies and then gradually bring down our stake while increasing the stake of the local partner. This is good for two reasons. One, if the foreign partner is to assume liability on the product, it needs to have control, at least in the initial phase. Secondly, this will benefit local players as they will build up on the skills required for them to deliver subsequent programmes. This is the goal of the SP model – the building up of self-reliance amongst Indian defense players.

What is the status of the Coast Guard tender? Airbus Helicopters has proposed to set-up maintenance, repair and overhaul (MRO) facility in Goa for the helicopters used by Indian Coast Guards. Can you share more details on this MRO?

The EC725 (H225M) has been selected for the Indian Coast Guard's (ICG) requirement for 14 Twin Engine Heavy Helicopters (TEHHs). Airbus Helicopters is in the final contract stage with the customer. A MRO facility for these choppers is proposed in Goa as part of our offer to the ICG. The MRO will enable a comprehensive Performance Based Logistic (PBL) package to ensure maximum fleet availability of its EC725 from initial deliveries.

The greenfield facility would pave the way for an inflow of new military helicopter maintenance technologies and skill sets in addition to the creation of expert jobs in India. This would happen via transfer of engineering work, technical knowhow, training and setting-up of a logistics support and warehousing system by Airbus Helicopters in India.

Please comment on the MoU between Airbus Helicopters and Pawan Hans. What is the synergy here?



IN THE CIVIL AND PARA-PUBLIC SECTOR, WITH MORE THAN 90 AIRCRAFT FLYING, AIRBUS HELICOPTERS IS A FRONTRUNNER WITH ONE-THIRD OF THE MARKET SHARE IN THE COUNTRY. THE H125 AND THE H130 CONTINUE TO LEAD THE LIGHT SINGLE HELICOPTER SEGMENT WITH FOUR NEW INDUCTIONS THIS YEAR. THE DAUPHIN AS365N3+ REMAINS TO BE A REFERENCE FOR OIL & GAS (O&G) MARKET.

Discussions are on as specific conditions are to be met before Pawan Hans becomes an Airbus Maintenance Centre. PHL has been one of the most valuable customers for Airbus Helicopters for over 30 years and currently has the largest civil Dauphin fleet in the world (32 units). It has flown over 500,000 hours and has developed unparalleled expertise in operation and maintenance of Dauphin helicopters. The divestment of a prime helicopter company like PHL is not only a financial operation but should also be analysed in terms of an opportunity to exploit the technical expertise at a time when some new segments of domestic helicopter market should open. So, it is

of interest to us to see how the process advances.

How is Airbus Helicopters performing in the civil and para-public segment in India?

In the civil and para-public sector, with more than 90 aircraft flying, Airbus Helicopters is a frontrunner with one-third of the market share in the country. The H125 and the H130 continue to lead the light single helicopter segment with four new inductions this year. The Dauphin AS365N3+ remains to be a reference for Oil & Gas (O&G) market. Also, we are hoping to see the H145 and the H175 coming to India for O&G missions. We are expecting growth in Business Aviation and State Government segment. We have the first VIP configured H145 being delivered to India in 2018.

Airbus Helicopters is already involved in developing new market segments in India. This year, India's first dedicated HEMS was launched using H130 helicopters with Aviators. We see this segment growing further with more HEMS helicopters coming to India in 2018.

We are interested in the regional connectivity scheme where helicopters can complement aircraft and even provide shuttle service between smaller cities and industrial corridors. As of today, only twin-engine helicopters are authorized to be used for regional connectivity. We are hoping that the segment will soon open up for single engines where the H130 is a world reference.

Airbus Helicopters provides a full suite of support and services and is now further expanding its activities. One-fourth of its fleet will be covered by the HCare smart program by the end of 2017.



RJ Associates

RJ ASSOCIATES

A lighthouse of insightful information

RJ Associates is the newest shining star in Indian travel trade and business publication. With our flagship travel trade journal "Travel Heights", and business-focused magazine "Business Unlimited" we have created a niche position for ourselves in the fiercely competitive travel publishing business owing to our deep understanding of the industry, highest quality well-researched articles, best-in-class designing.



There is no dearth of information but what is clearly missing is a sustained and reliable source of information that provides free and fair analysis on the real situation on the ground in India and clearly outline the challenges as much as the opportunities. RJ Associates is dedicated to providing that with its experienced and skilled team.



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energising lives. energising new india

Bharat Petroleum Corporation Limited (BPCL) came into existence in January, 1976 when Burmah-Shell was taken over by the Government of India. A Fortune Global 500 Company, BPCL is one of the premier integrated energy companies in India, engaged in refining of crude oil and marketing of petroleum products, with a significant presence in the upstream and downstream sectors of the oil and gas industry.

BPCL's Refineries at Mumbai and Kochi, subsidiary Numaligarh Refinery Ltd. at Assam and joint venture Bina Refinery at Madhya Pradesh have a combined refining capacity of over 30 MMTPA. BPCL's subsidiary, Bharat PetroResources Ltd. has acquired participating interests in 17 oil & gas blocks in India and abroad. BPCL markets its products through a robust marketing and distribution network comprising 14,015 Retail Outlets, 4701 LPG distributorships, 645 Lubes distributorships, 1014 SKO/LDO dealerships, 128 POL storage locations, 50 LPG Bottling Plants, 44 Aviation Service Stations, 3 Lube blending plants and 3 cross-country pipelines.

During the year 2016-17, BPCL's gross revenue from operations stood at Rs.2,42,048 crores(USD 36.0 billion), net profit was a record Rs. 8,039 crores (USD 1.198 billion), market sales were 37.68 MMT and market share amongst public sector oil companies was 22.8%. The products have a wide range of applications in industrial, transport, power and agriculture sectors. BPCL has formed 18 joint venture companies covering refining, city gas distribution, renewable energy, pipelines, gas, into-plane servicing, airports, payment banks etc. to cater to the diverse requirements of its customers.

BPCL's next 5 year strategic roadmap, which will entail investments of over Rs 1 Lakh crores, focuses on creating infrastructure, customer centricity through service models and enhanced fuel offerings, establishing a global footprint in downstream retailing, developing renewable energy sources, inclusive growth, reducing the carbon footprint etc. As a good corporate citizen, BPCL's thrust is primarily in the areas of education, water conservation, skill development, health, community development, capacity building and employee volunteering. With '*energising lives*' as its core purpose, BPCL's vision is to be the most admired global energy company leveraging talent and technology.



THE FUTURE OF HELICOPTER MAINTENANCE IN INDIA



GLOBAL TREND

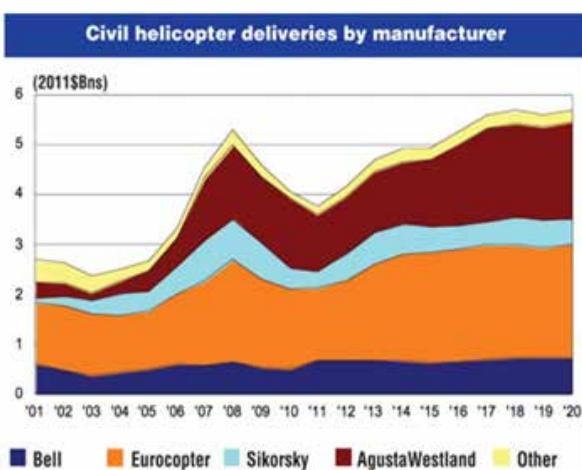
Global commercial helicopter systems market is valued at \$ 8.2 Billion in 2017 and is expected to increase to \$ 11.6 Billion by 2027, representing a CAGR of 3.49% during the forecast period (2017-2027). Rising demand from emerging economies in the Asia-Pacific, Middle Eastern, and Latin American markets, along with the growing usage of helicopters across different sectors, such as medical emergency services, law enforcement, VIP and corporate transportation, and tourism, as well as offshore oil and gas, are some of the key factors expected to drive the market for commercial helicopters over the forecast period.

INDIAN MARKET – CURRENT STATUS

In 1986 Pawan Hans Limited entered the market providing maintenance repair and overhaul services for Helicopters and small fixed wing aircraft. Today they have grown to be a market leader in the Indian MRO. But the growth of the India Civil Aviation hasn't been in Helicopters and this is borne out but the numbers where India has only 1% of the total world civil helicopter population.

Despite this low percentage there has been growth in the areas where helicopters are being used. From the early days of communication and crop dusting, helicopters can and are being used for disaster management, surveillance and fire-fighting, medical, search and rescue operation, and in the Oil and gas pipe industry. Additional sectors such as intercity travel, tourism and business chartering have also helped the expansion of helicopters in India.

Reaching the goals of India's Indian Helicopter industry and becoming one of the top countries offering helicopter services is an attainable target if as nation we focus on infrastructure, capacity creation, and invest in the necessary maintenance skills and resources. To address this growing demand, there is a need to bring advanced information systems that will meet the regulatory requirements and the productivity gains thereof that will help India get an increased market share of the aftermarket global spend.



In terms of categories, medium helicopters are expected to account for the highest proportion of spending, followed by markets for light and heavy helicopters. The demand for commercial helicopters is expected to be driven by the rapid expansion of major helicopter operators and leasing corporations procuring significant numbers of new and advanced helicopters to renew their fleets. These helicopter operators and leasing firms serve a diverse client base from various industries including offshore oil & gas, energy, helicopter emergency medical services (HEMS), search and rescue services, and VIP transport. The increase in demand for helicopters can be seen from the delivery chart for 5 of the top Manufacturers.

About infoTRAK MRO™

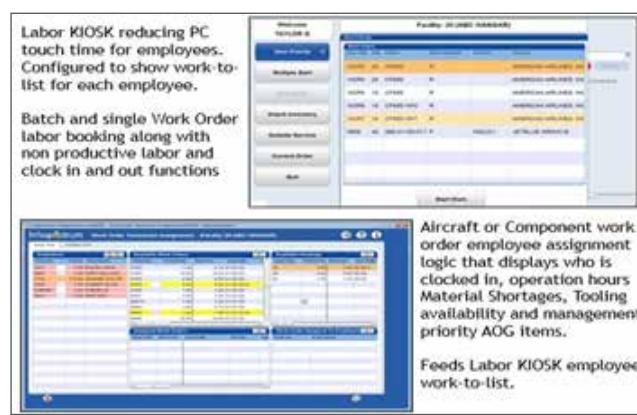
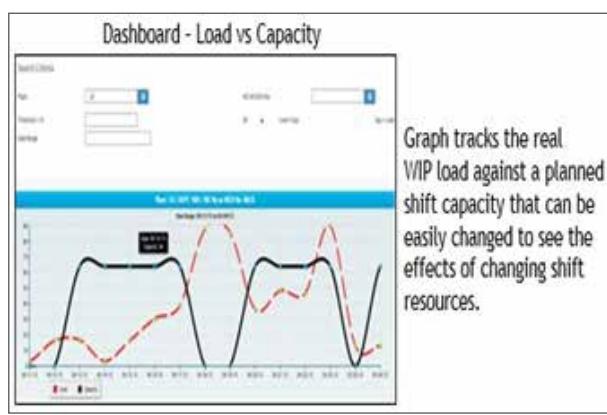
infoTRAK™ is a leading software for Asset Maintenance used by Aerospace companies providing MRO services (fixed wing/Rotary) worldwide, developed by Infospectrum, a US based software company for over a decade. Infospectrum is planning to make its infoTRAK™ software for Maintenance, Repair and Overhaul (MRO) available to the Indian market through a local partner to help India bridge the Aviation Dream gap. InfoTRAK MRO™ is an enterprise-wide software solution designed to meet the

needs of Maintenance and Engineering organizations. The application is a flexible system offering a diverse organization the opportunity to have Component MRO, Aircraft MRO (fixed wing as well as Rotary), Complex Assembly (e.g. Engine) MRO and Manufacturing set up and operate at different facilities, or in a single plant.

The infoTRAK MRO™ architectural Framework enables thin client web based deployment. The framework delivers

power and flexibility to the full range of users in an enterprise by providing role-based access, reports, dashboards and point-of-work execution through mobile computing.

Heavy emphasis has been put in creating the most optimized business process for Installs, Removals, Swaps and other labor-intensive tasks through the use of simple user interfaces such as Kiosks, tablets and Mobile handsets. More information is available at www.info-spectrum.com



INDIAN GENERAL AVIATION SECTOR GROWING NEW WINGS

By Rajeev Suman



Indian Aviation sector is growing at a high rate. India has witnessed a significant growth in the number of non-scheduled airline operators. Total number of operators registered with DGCA as of 26 Sep 2017 is 112. This is a 211% rise from 36 operators in 2000. Pawan Hans limited, national helicopter company of India in its inaugural issue of Aviation Today Magazine takes an eagle's eye view of the general aviation sector in India.



While the present ownership pattern in Indian General Aviation sector indicates a fragmented sector with majority of the players owning less than 10 helicopters or aircrafts. As per DGCA, the General Aviation (GA) fleet in India comprises around 339 helicopters and small aircrafts combined as of 29 Sep 2017. The Government had announced 100% FDI in general aviation which was welcomed by the industry with caveats. The biggest challenge was inadequate parking and landing slots for general aviation in Delhi and Mumbai airports. As per industry estimates, an investment to the tune of \$4 billion is required in General Aviation by 2017.

GENERAL AVIATION SNAPSHOT

India is poised to experience a rapid upswing in the business aviation sector due to its strategic geographic location, favorable demographics and robust economic growth. Located strategically between the Middle East and Europe on one side and the East Asian economies on the other, India's geography offers a lucrative opportunity for growth of general and non-scheduled aviation due to the rising demand from the ever-growing volume of high net-worth individuals and business houses in the country.

As per industry estimates, there are 280 helicopters and 1090 aircrafts in India. Although the general aviation sector is growing at a high rate, the contribution

to global GA infrastructure is dismal. These numbers represent less than 1% of the respective vessels globally.

When it comes to fleet utilization in general aviation segment, 70% of the total is utilized by the corporates and 15% by oil and gas sector. In India 35% of general aviation aircraft capacity is underutilized. Here the maximum utilization per aircraft is 400 hours per year as compared to 800 to 900 hours internationally.

"Bringing 100% FDI in non-scheduled air transport services, especially in the Helicopter sector is a welcome move. With the draft civil aviation policy providing a structural lift to the

Helicopter operations in India, 100% FDI will bring in capital and expertise and shift dynamics completely," said Kapil Kaul, CEO, South Asia, Centre for Asia Pacific Aviation (CAPA).

There are 352 airports in India which again account for only 1% of the total number of airports globally. There are only 150 airports in the country capable of handling business aviation aircraft. However, there is significant variation in the level of infrastructure and facilities available at these airports. Aviation infrastructure capable of handling big commercial jets is not readily available in most of Tier II and Tier III cities in our country.

100% foreign direct investment (FDI) is permitted under the automatic route for MRO, flying training institutes and technical training institutions. The government has also undertaken a major program to develop and improve the ecosystem for the civil aviation sector. However, the focus of these efforts is scheduled commercial aviation. Due attention therefore is required to be paid to general aviation. This market is small and under-developed as compared to its global peers.

AS PER INDUSTRY ESTIMATES, THERE ARE 280 HELICOPTERS AND 1090 AIRCRAFTS IN INDIA. ALTHOUGH THE GENERAL AVIATION SECTOR IS GROWING AT A HIGH RATE, THE CONTRIBUTION TO GLOBAL GA INFRASTRUCTURE IS DISMAL. THESE NUMBERS REPRESENT LESS THAN 1% OF THE RESPECTIVE VESSELS GLOBALLY.



MARKET POTENTIAL

In view of the sustained growth witnessed in the Indian market, it holds enormous potential for non-scheduled aviation. However, at present, the Indian GA market is small and under-developed as compared to its global peers. The US with over 15,000 airports, over 5200 heliports, 2,09,034 aircrafts, the largest in the world, also has the largest number of GA aircraft approximating more than 25,000.

In India, GA and non-scheduled services have picked up steadily, primarily driven by a booming economy and facilitated by business needs to invest in more productive hours every day. One of the major reasons for growth in the business and GA markets in India is the rising revenues of Indian corporates and the increasing number of high-net-worth individuals. Another crucial factor which has spurred the growth of non-scheduled aviation is that commercial flights are mostly limited to metropolitan areas and large cities and not to the smaller cities in the hinterland.

Most business jet and helicopter manufacturers are optimistic regarding the lucrative potential of the Indian GA market. Manufacturers such as Cessna, Gulfstream, Hawker Beechcraft are either setting up offices in the country or expanding their existing businesses.

Tier II and Tier III cities in India have shown enormous potential for the development of GA. Home to between two million and four million people each, these cities are local and regional centers for manufacturing, trading and logistics. There is also a growing demand for travel to such towns for which some may opt for business aviation. As a result, airlines are increasingly looking at these cities as viable options to expand their route networks.



"BRINGING 100% FDI IN NON-SCHEDULED AIR TRANSPORT SERVICES, ESPECIALLY IN THE HELICOPTER SECTOR IS A WELCOME MOVE. WITH THE DRAFT CIVIL AVIATION POLICY PROVIDING A STRUCTURAL LIFT TO THE HELICOPTER OPERATIONS IN INDIA, 100% FDI WILL BRING IN CAPITAL AND EXPERTISE AND SHIFT DYNAMICS COMPLETELY,"

Kapil Kaul, CEO, South Asia, Centre for Asia Pacific Aviation





HELICOPTER SEGMENT IN INDIA

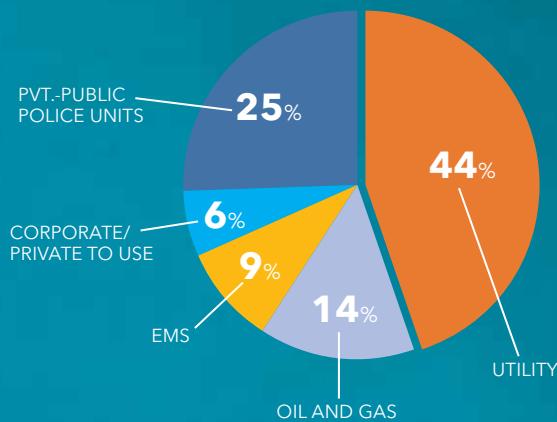
The helicopter market in India is equally promising, with growing requirements in tourism, mining, corporate travel, air ambulance, homeland security, etc. The overall helicopter market comprises of military and civil helicopter segments. Together they make a market worth \$30-40 billion as per market assessment done by DefenceProAc Biz News. The Indian civil Helicopter market uses helicopters primarily for utilities and oil and gas segments.

Civil helicopter market is estimated to grow at 9.5% per year for the next 15 years and the projected market estimates an induction of 600+ helicopter till 2027. This growth will mainly be fueled by private players and players like Pawan Hans.

Major non-scheduled helicopter operators

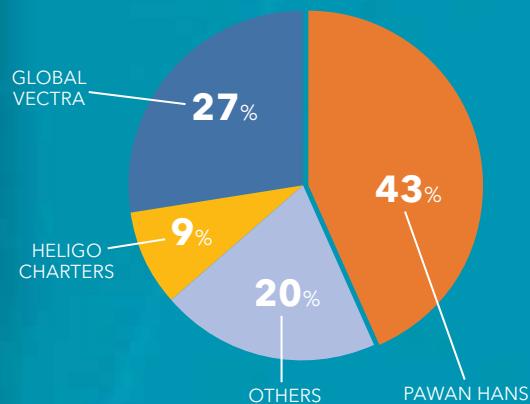
Out of the total 54 non-scheduled helicopter operators, top 3 accounted for over 80% of the total number of flights operated in FY 2016.

Segment wise use of civil helicopter sector;



Source: DefenceProAc Biz News, 2013-2027

Market shares of major helicopter operators, 2016



Source: CAPA



PAWAN HANS - KING OF INDIAN SKIES

Pawan Hans Limited is the national helicopter carrier of India. It was incorporated on 15 Oct 1985 and is a mini CPSE. It has cumulatively flown over 1 million hours and has had 2.5 million landings on its fleet since its formation. Other than providing helicopter services to ONGC to its off-shore locations, Pawan Hans also provides its helicopter services to various state governments in India, particularly in North-east India, and Inter-island ferry services in Andaman & Nicobar Islands. Rohini Heliport owned by Pawan Hans, was inaugurated by Union Civil Aviation Minister, Ashok Gajapathi Raju on February 28, 2017. The heliport, located north west of New Delhi, is the first of its kind in the country.

With a fleet of over 50 helicopters, Pawan Hans has become largest helicopter carrier in south Asia. The company plans to expand its fleet to 100 helicopters by 2027. Additionally, it is also diversifying into seaplanes, small Fixed Wing Aircrafts, Training & Skill Development, Safety Audit & Consultancy, Foreign Projects and creation of infrastructure such as Heliports and Helipads as well.



SEAPLANES: NEW BLOOMING OPPORTUNITY

India's tourism industry could soon get a fillip with the re-introduction of seaplanes. Spicejet has signed a MoU with Japan's Setouchi Holdings to exploring opportunities to buy seaplanes to increase its reach in areas which do not have air strips.

Seaplane is a fixed-wing aircraft, which can take off and land on water. These can also take off and land on airfields. There is enormous potential of their use for tourism, not just for leisure but also in case of crises or emergencies since these can reach the remotest areas and can land on water bodies. There is good opportunity to operate such planes in places like the north-eastern parts of the country, Andaman and Nicobar Islands, Rajasthan, where tourism flourishes.

Setouchi Holdings is also considering having its global MRO facility in India through this MoU with Spicejet.

The country's first seaplane was launched in 2010 in Andaman and Nicobar Islands. But later the services were stopped due to non-renewal of the agreement and because the service became financially unviable. The Andaman and Nicobar administration had subsidized travel for locals from small islands.

GOVERNMENT INITIATIVES

In the Union Budget 2017-18, the Civil Aviation Ministry received a substantial increase of over 22% in budgetary allocation at INR 5,167.60 crore (\$775.14 million) for the next fiscal year.

Some major initiatives undertaken by the government are:

- The Government of India has approved the construction of 18 Greenfield airports in the country, which would be executed and

financed by the respective airport promoters, and are estimated to require an investment of INR 30,000 crore (\$4.66 billion).

- The Cabinet Committee on Economic Affairs, Government of India, has approved the proposal to revive 50 un-served and under-served airstrips in three years starting from 2017-18 at an estimated cost of INR 4500 crore (\$698.7 million).

- The Executive Development Programme of Rajiv Gandhi National Aviation University in collaboration with Indo US - American Cooperation Program, inaugurated by Mr Ashok Gajapathi Raju, Minister for Civil Aviation, aims to promote skill development of senior leadership and close the gap of increasing demand for trained people in the aviation sector.

ROAD AHEAD

To further drive the growth of General Aviation sector in India, there are few areas of improvement that must be taken care of:

Need of equitable treatment to GA operators

With the current traffic load of scheduled flights at metro airports, many a time GA aircrafts get a lower priority as compared to scheduled operators. Delays in take-off and landing clearances defeat the purpose of investments in GA aircrafts. There is a need to review this operational framework for more equitable treatment to GA aircrafts.

Development of Support infrastructure

It is important to develop the supporting infrastructure at airports in Tier 2/3 cities including night-landing facilities, enhancement of passenger amenities and state support in statutory services, like security, to boost the GA industry. GA facilities at metro airports need an upgrade in terms of dedicated terminal, entry point, apron and parking space, etc.



Upgrading of non-operational air-strips

Non-operational airstrips need to be upgraded in places of economic significance such as ports, mines, industrial clusters and tourist locations. These need to be done at the lowest possible cost without compromising on safety. The airstrip may attract a small number of GA flights initially and if it has a strong business case, it may ultimately lead to full scale operations in future, with significant benefits to the local economy.





Airfield information

GA aircrafts and helicopters at times use airports and helipads that are not in widespread use. It is extremely important for MoCA to create a reliable and regularly updated database of all airports and airstrips in the country. It is also important to improve coordination with IAF airfields and introduce basic low-cost navigational aids in these small airports.

Development of heliports

Development of heliports is important to support the growth of GA in India, especially in areas that cannot

have runways due to financial constraints or terrain-related challenges. MoCA may consider developing a PPP policy for development of heliports. There is a need to develop standardized route operating procedures for helicopters.

Monitoring and oversight

Monitoring of over 126 GA operators may be a mammoth responsibility for DGCA. The numbers are expected to increase in future. The option of a separate monitoring and facilitation agency for GA may be evaluated by MoCA.



References: Media Reports, Press Releases, Press Information Bureau, Directorate General of Civil Aviation (DGCA), Airports Authority of India (AAI), Union Budget 2017-18



MARK D MARTIN,
Founder and CEO of Martin
Consulting

INDIA'S HELICOPTER OPERATIONS INDUSTRY

SUSTAINABLE, VIABLE AND ROBUST

Mark D Martin comes with 20 years of experience in the Aviation industry. Mark is the founder and CEO of Martin Consulting, an aviation consultancy dedicated to working with airports, regulators, airlines and building sustainable aviation in the South Asian and South East Asian Region. Mark and his team analyses the status of Indian helicopter segment

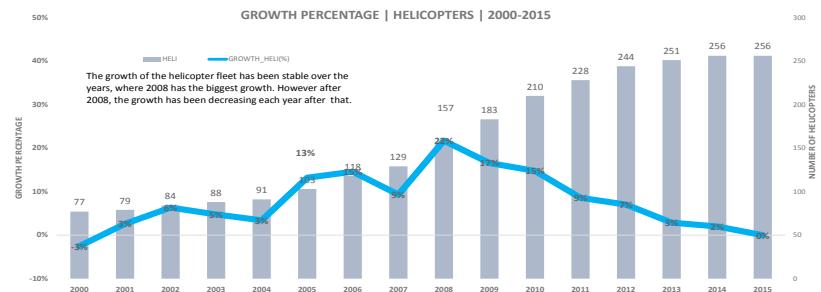


India's helicopter fleet represents half of the total aircraft and helicopter fleet in India, that's almost a 50% market share and if India as an economy grows, and alongside its manufacturing, oil and gas, natural resources, renewables business and infrastructure development sector, helicopters would continue to be highly utilized.

The below presents a quick analysis of how Helicopters grew in India over the years.

2000-2005 | STABLE AND POISED FOR HELICOPTER FLEET GROWTH

From 2000 to 2005, helicopters grew at 4.97% CAGR while India's economy clocked an average growth of 6.3%. Despite the slow growth and recovering phase of India's economy, in 2001, India added helicopters which for both utility as well as VVIP Transportation roles. The Robinson R-44 gained popularity, Tata steel got a new MD 902 in 2002,

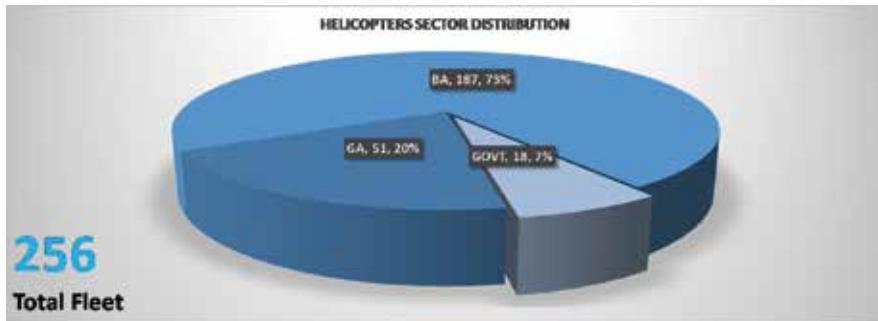


Total Fleet Size



256

Martin Consulting analysis based on the Cumulative Growth Rate of Helicopter in India, Average fleet growth taken based on the 'Collective Growth' Review Model and CAGR



Average Fleet Age



19.9 Years

Martin Consulting Analysis of coverage of aircraft in operation and in service 2009 which include domestic and fleet operated in India. Actual Age is effectively defined as the current fleet

Average Growth Rate | Helicopters

Martin Consulting analysis based on the Cumulative Growth Rate of Helicopter in India, Average fleet growth taken based on the 'Collective Growth' Review Model and CAGR



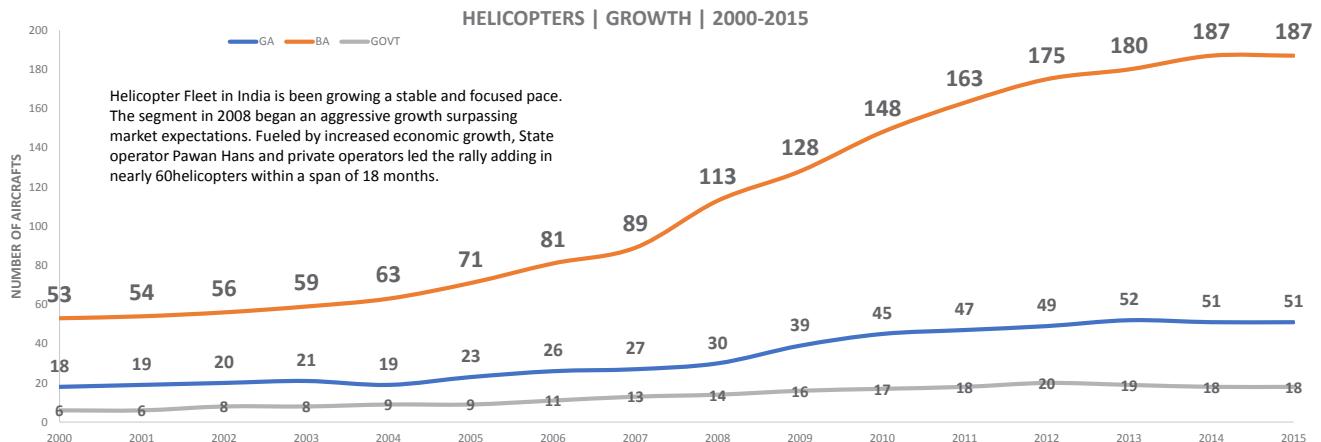
8.2% CAGR

Government of Rajasthan got an Augusta Westland 109 and India got its first EC120 in 2004.

2006-2010 | INDIA'S HELICOPTER FLEET SURGES AHEAD

Helicopters grew at a fast pace of 12.2% CAGR while India grew at a healthy 7.9%. Though the rupee fluctuated from Rs. 45.18 in 2006, Rs. 43.63 in 2008, Rs. 48.42 in 2009 and back to Rs. 45.72 in 2010, the fleet grew nevertheless. Helicopter fleet growth accelerated from 89 aircraft in 2007 to 113 in 2008. This was mainly due to the import duty concession given to NSOP's and as a result, private operators shifted from the NSOP to the Private category as they saved almost 20% in import duty.





2011-2015 | HELICOPTERS

Clearly a dark period for aviation. Helicopters, which symbolized utility, stagnated and as the years grew fleet figures reduced in number. Growth in helicopters reduced to a meagre 2.34% CAGR, the rupee continued to weaken to Rs. 63.84 in 2015 from Rs. 46.85 in 2011 and signs of neglect towards the industry by the Government were seen.

The Future of India's Helicopter Industry
We have all grown up seeing visuals of police units using aircraft and helicopters in fighting crime and ensuring day to day law enforcement in their given jurisdictions. The aerial unit divisions of metropolitan police forces around the world play a most active and crucial role in regular policing and law enforcement.

HELICOPTERS IN POLICE PATROLLING AND LAW ENFORCEMENT

In India, the union government initiated a proposal for the Delhi Police to

INDIA'S HELICOPTER FLEET REPRESENTS HALF OF THE TOTAL AIRCRAFT AND HELICOPTER FLEET IN INDIA, THAT'S ALMOST A 50% MARKET SHARE AND IF INDIA AS AN ECONOMY GROWS, AND ALONGSIDE ITS MANUFACTURING, OIL AND GAS, NATURAL RESOURCES, RENEWABLES BUSINESS AND INFRASTRUCTURE DEVELOPMENT SECTOR, HELICOPTERS WOULD CONTINUE TO BE HIGHLY UTILIZATION.

lease in two helicopters from Pawan Hans for day to day policing and law enforcement, but more than a year later the said proposal is yet to see the light of day. Hopefully this will be expedited and taken to its logical conclusion, including allow for more operators to commence operations. From a BRICS comparison standpoint, while India has zero helicopters used by Police forces, the Brazilian Federal Police Department owns and operates 7 helicopters and an



equal number of fixed wing aircraft. As of 2017, the India has ZERO helicopters in Police Law Enforcement.

HEMS INDIA'S FLYING SAMARITANS

Medical evacuation and Emergency Medical Support or EMS in India is done exclusively by charter service providers and one of the reasons for that is that the Government does not believe as that to be an area of social and socio-economic interest, which is not just disappointing but a mindset unbecoming in the 20th century.

The side of India aircraft fleet, with capability to offer Medivac and EMC today stands at around 16 aircraft and helicopters. Although a reasonable amount of mid-size jets has also been configured to offer Medical support flights, the fleet which is at this stage is dedicated to offer a more specialist service remains below 20 which is extremely representational of India's current stature.

From the Helicopter stable, the pioneer with offering 'intensive medical care' is

THE HELICOPTER INDUSTRY IS THE LARGEST AMONGST THE GENERAL AVIATION/BUSINESS AVIATION SEGMENT IN INDIA WITH OVER 250 HELICOPTERS IN ACTIVE USE AND THAT IS A GOOD ENOUGH REASON TO ENCOURAGE THE SEGMENT CONSIDERING THAT THE INDUSTRY, NOW DIRECTLY EMPLOYS CLOSE TO 2000 PERSONNEL AND A SUPPORT WORKFORCE OF 8700 IN INDIRECT EMPLOYMENT.

OSS Air Management with a reconfigured Agusta 109 helicopter.

CONCLUSION

Helicopters are and will continue to be the transport backbone of a modern-day India and till India continues to have mountains, island archipelago's, natural resources and exploration, the chances are that we will continue to see a whirlybird up in the air. The criticality with the segment now centers around two key pillars:

■ Tax on helicopter services and GST including the import duties levied on

helicopter spare parts and

■ Creating a sustainable aviation support ecosystem that can help facilitate the industry to be more robust

India in 2017 continues to send helicopter engines to other countries for maintenance and repair and that's because we don't really have any effective maintenance centers that can deal with the global quality one wants. Whilst there are Helicopter maintenance companies in general, who at best, do their best with ensuring maintenance standards aren't compromised, we believe more needs to be done with improving the overall investment climate when it comes to building a more robust Industry.

The helicopter industry is the largest amongst the general aviation/business aviation segment in India with over 250 helicopters in active use and that is a good enough reason to encourage the segment considering that the industry, now directly employs close to 2000 personnel and a support workforce of 8700 in indirect employment.

It's time the helicopter industry came together and worked on a single unified strategy defining its future; we believe it's imperative that such a action is taken so as to not, in anyway compromise the future it has, especially with niche services like HEMS, Police Patrolling, News Gathering, PowerLine Survey, Pipeline Survey and regional connectivity.

Clearly, these are Interesting times for the Helicopter Industry in India!



FEATURE





INDIAN MRO INDUSTRY

AN ENORMOUS OPPORTUNITY WITH MAKE IN INDIA

Maintenance, repair and overhaul (MRO) is an integral part of the aviation industry. With its growing aviation industry, and overall fleet size, there is a huge opportunity in India. Aviation Today provides an overview of the Indian MRO Industry

By Rajeev Suman

India, with its growing non-scheduled vessel fleet size (including both helicopters and aircrafts), strategic location advantage, rich pool of engineering expertise, and lower labor costs has enormous potential to be a global MRO hub. At present, airlines operating in India get nearly 90% of their MRO done abroad,

mainly due to cost advantages resulting from the comparatively high tax burden, cumbersome operating procedures, and the inadequate MRO service facilities available in India. At present, there are a handful of very small times MROs who basically only have AMCs for keeping the helicopters afloat.

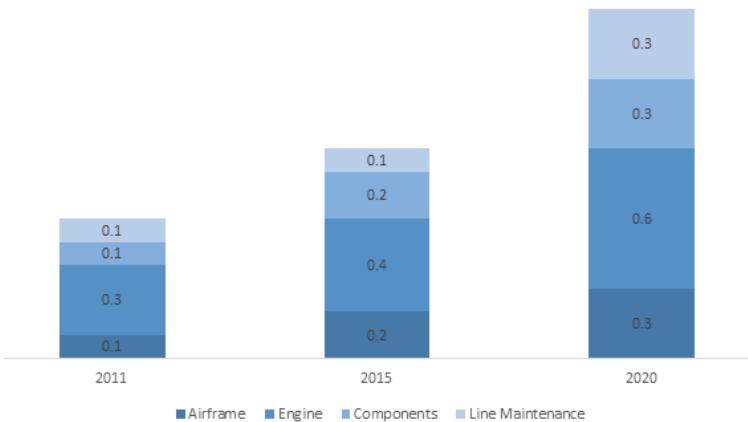
MRO MARKET SNAPSHOT

Indian aircraft MRO market is expected to reach \$5.2 billion by 2036. With an expected growth in fleet size of Indian carriers to 1,740 aircraft in the next 20 years, the Indian MRO market is pegged at an estimated value of \$5.2 bn by 2036.

However, currently India constitutes just 1% of the global MRO market worth \$45 billion. The measured steps that the Indian government has taken in moving towards the open sky policy, increase in military, civil and business aircraft fleet in the country, the growing preference for air travel by India's largely underserved middle class, and the focus by industry to optimize cost of aircraft operations, provides a solid foundation for the Indian MRO industry to strengthen its capability to meet global standards of excellence. Setting up an MRO is highly capital intensive with a long break-even time. Operating a credible MRO is highly dependent on investing in the right manpower which is regularly trained and optimally utilized with a strong focus on quality and turnaround time. It also requires continuous investment in tooling, certification from safety regulators such as the Federal Aviation Administration (FAA) and the European Aviation Safety Agency (EASA) and global OEMs such as Airbus, Bell Helicopter, Boeing, Bombardier Aerospace, Dassault Aviation, Gulfstream Aerospace, Honeywell and others, in addition to certification from the local regulator to stay relevant in today's competitive global environment.



MRO Market Size in India (USD billion)



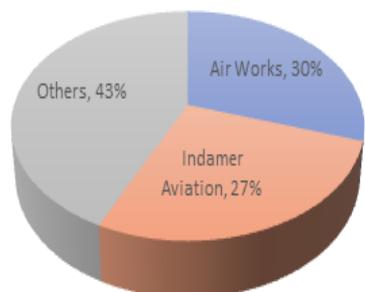
Source: FICCI-KPMG background paper on India Aviation 2016, MRO monitor, Ascend Database

INDIAN AIRCRAFT MRO MARKET IS EXPECTED TO REACH \$5.2 BILLION BY 2036. WITH AN EXPECTED GROWTH IN FLEET SIZE OF INDIAN CARRIERS TO 1,740 AIRCRAFT IN THE NEXT 20 YEARS, THE INDIAN MRO MARKET IS PEGGED AT AN ESTIMATED VALUE OF \$5.2 BN BY 2036.

MRO IN BUSINESS AVIATION



Indian Business MRO Market



Source: Internet

Creation of this infrastructure requires a level of investment (both initial and recurring) which most MROs do not find economically viable to support. Therefore, the industry is highly fragmented.

- **Air Works** has approvals on over 50 distinct types from DGCA at 15 locations in India and OEM certification from Agusta Westland, Bell, Bombardier, Dassault, Embraer, Garmin, Gulfstream, Hawker Beechcraft, Honeywell and Rockwell Collins)
- **Indamer Aviation Pvt. Ltd** has approvals on over 28 different aircraft from DGCA at 14 locations across India.

CURRENT MRO INFRASTRUCTURE IN INDIA

In the absence of well-developed maintenance infrastructure in India, there are currently over 40+ overseas MRO providers approved by the DGCA to conduct work on Indian-registered commercial and general aviation aircraft, in locations such as the UK, Scandinavia, Germany, Malta, Romania, Slovenia, Jordan, Israel, the UAE, Sri Lanka, China, Singapore and Australia. At present, there are a handful of very small times MROs who basically only have AMCs for keeping the helicopters afloat.

MROs in India currently provide only primary level of services. For instance, Max aerospace is the biggest MRO in India but will not provide advanced overhauls and services. Commercial airlines use either Dubai or UK for secondary and tertiary level services. The commercial aviation MRO market in India is largely untapped, as there are hardly any third-party service providers with the ability to address the needs of the existing fleet.

Private operators and NSOP (non-scheduled operators permit) holders are required by DGCA (Directorate General of Civil Aviation) to set up a CAR 145 approved maintenance shop or work with a DGCA approved third-party MRO. Most private operators and NSOP holders prefer the outsourced model for line maintenance (on-tarmac checks) and use OEM/DGCA approved facilities for engine, heavy maintenance and modifications on their aircraft. The Indian business aviation market is complex from a maintenance perspective as it has over 60 different aircraft types operating in a total market of about 350 aircraft (business jets, turboprops and helicopters). Each individual type requires trained technical manpower, tooling, and approvals from regulator as well as the OEM to enable an MRO to offer world-class maintenance services.

JOINT VENTURES/PARTNERSHIPS



With the increase in the number of civil and military aircrafts, more and more global MRO companies are planning to offer engineering services by forming joint ventures with Indian firms. For instance, GMR Hyderabad International Airport (GHIAL), and MAS Aerospace Engineering (MAE), a wholly-owned subsidiary of Malaysia Airlines, have set up a 50:50 joint venture airframe MRO company in Hyderabad. The company would make an initial investment of \$50 million. Another 1,000-acre MRO and aerospace park will be developed near the international airport at Devanahalli. Also, Jupiter Aviation and HAL have already acquired land for MRO purpose in Karnataka. Other JVs are:

- Boeing with Air India
- Airbus with Air India
- Sabena Technics of TAT Group, France with TAAL
- Timco Aviation Services with HAL
- MAS Aerospace Engineering (MAE) with GMR Hyderabad
- EADS with Air India and Jupiter Aviation & Logistics
- Eurocopter with Pawan Hans Helicopters for Dolphin fleet
- Concor with HAL
- SIA Engineering of Singapore with Wadia group

WITH THE INCREASE IN THE NUMBER OF CIVIL AND MILITARY AIRCRAFTS, MORE AND MORE GLOBAL MRO COMPANIES ARE PLANNING TO OFFER ENGINEERING SERVICES BY FORMING JOINT VENTURES WITH INDIAN FIRMS.

- Pratt and Whitney with HAL (engines)
- GE Aviation with Air India (engines)
- Air France Industries KLM with Max Aerospace
- Rosoboronexport of Russia and India's Krasny Marine Services for Russian fleet
- Taneja Aerospace with Air Works Commercial MRO Services Pvt. Ltd for maintenance, repair and overhaul (MRO).
- GMR with Lufthansa Technik for first foreign-owned, airport maintenance facility in India.
- EADS with Indian Aero Ventures for airport development and operation, MRO services for aircraft and engines, Aviation training academy and manufacture of trainer aircraft and aircraft interiors.
- Max Aerospace with Air France-KLM for maintenance, repair and overhaul (MRO) facility for aircraft components in India.
- Maini Global Aerospace Pvt. Ltd (MGA) with GE Aviation.
- GMR Hyderabad International Airport Ltd. (GHIAL), a subsidiary of GMR Infrastructure and Malaysian Aerospace Engineering (MAE) has formed a joint venture MASGMR
- Aerospace Engineering Company (MGAE). The joint venture is a third-party airframe MRO facility.
- Pipavav Defense and Offshore Engineering Co. Ltd and Airbus SAS have agreed to jointly start an aircraft maintenance, repair and overhaul (MRO) unit in India.

MARKET POTENTIAL AND BENEFITS

It is a known fact that every airline spends almost 13-15% of its revenues towards maintenance, repairs and overhaul, which makes it the second highest cost item after fuel. India's MRO industry is at a nascent stage with over 90% of the MRO expenditures being made outside India in countries like Sri Lanka, Dubai, Singapore etc. India's share is a meagre 1% of the Global MRO Market and lack of MRO facilities in India is a prime reason for that.

With increasing fleet size every year, expected to be double of the current fleet size by 2020, it is not only convenient but also highly imperative that India develops its MRO industry. With a shift towards the 'Make in India' initiative, a new wave of opportunities has risen for the aerospace and MRO industry. Government has announced sops which include zero service tax on MRO, services, simplification of import processes for aircraft spares, exemption on customs duty for maintenance tools and tool kit and removal of the one year window restriction period for using duty free parts, these initiatives will present the companies a more viable opportunity to set up MRO facilities in India. Meanwhile, relaxations of FDI norms, which allow up to 100% in the maintenance and repairs operations, have created more opportunities for investments in this sector. With international players setting up their MRO facilities in India, this will benefit in more foreign earnings driving more



"THE INDUSTRY IS IN FAVOR OF GST; HOWEVER, IT WOULD BE A NECESSITY TO PROVIDE GST EXEMPTION FOR THE MRO INDUSTRY INCLUDING SPARE PART TRADING COMPANIES TO ENSURE THAT THE GROWTH POTENTIAL OF THE SECTOR IS NOT STIFLED."

international and domestic airlines into the country.

India has the potential of evolving into a major MRO Hub within a short span, fueled by the growing fleet, availability of engineering talent and the forward looking NCAP 2016. A strong MRO industry could achieve the following benefits in next 10 years:

- Create thousands of Jobs for Aerospace engineers and other professionals.
- Save and earn foreign exchange by attracting national and international carriers to Indian MROs.
- Reduce dependency of Indian carriers on other countries for their MRO requirements.
- With the induction of more aircraft in India every year and the existing ones getting aged, the opportunities for employments, saving in foreign exchange, and the revenue earned by taxes will increase every year.
- Make India an attractive MRO hub in this part of the world

The industry is in favor of GST; however, it would be a necessity to provide GST exemption for the MRO industry including spare part trading companies to ensure that the growth potential of the sector is not stifled.





INDUSTRY REVIEW



GENERAL AVIATION IN INDIA

NOBODY'S BABY





AMBER DUBEY,
Partner and India
Head of Aerospace
and Defense, at global
consultancy KPMG

General aviation in India is a sector in need of immediate attention. Amber Dubey, Partner and India Head of Aerospace and Defense, at global consultancy KPMG assisted by Capt. Vinod Narasimhamurthy, Associate Director, Aerospace and Defense, KPMG in India writes and analyses the current state of general aviation in India. All views expressed here are personal views of the writers



General Aviation (GA) is the term used for all civilian flights other than scheduled and non-scheduled air transport operations. GA comprises business jets, helicopters and amphibious aircraft. GA has been facilitating regional connectivity long before it became the buzzword thanks to the National Civil Aviation Policy (NCAP 2016). They bring investors, tourists, jobs and development to the interiors of India without any fiscal or monetary benefit.

Elitist tag and a small fleet size

Despite all this, GA is perhaps the most neglected sub-sector of Indian aviation. One reason could be because GA being popularly perceived as an industry for

the elite. The current users of GA are primarily the high and mighty—politicians, industrialists, corporate executives and celebrities. In a case of fake egalitarianism, any support to GA is considered politically risky. It therefore continues to remain high cost; out of reach for most middle-class Indians; and the elitist tag persists. It becomes a self-fulfilling fallacy.

The evidence speaks for itself. UK has over 20,000 GA aircraft using over 1800 aerodromes. US has several times the UK GA fleet, flying to over 5200 aerodromes. In India, of the 1090 GA aircraft in 2016, over 339 are with 112 NSOP holders, which means three aircraft per operator. Such small fleet result in higher cost of operations and compliance. Add to

these, high Aviation Turbine Fuel (ATF) charges, lack of hangars and parking slots; high airport charges and curfew hours at major airports; and one can understand why GA in India never really took off.

Tax anomalies

In one fell swoop, the custom duty on private aircraft was hiked from 3% in 2005 to 24.8% in 2007, as if aircraft are demerit goods. Leading aviation powers like US, UK, Australia, Japan etc. impose ZERO import duty on GA aircraft.

Under GST, the tax incidence has risen to a whopping 31%. This plus the high operating cost of GA ensure that this sector continues to lag. No wonder we have fleet of a mere 142 private jets. Just

one private jet was imported in years 2014 and 2015 each, despite a huge need and purchasing power existing in India. The government in turn gets almost nothing by way of tax, making it look like a self-goal. Everyone loses.

Ironically, the tax on importers with a Non-Scheduled Operator's Permit (NSOP) is around 5%. This huge tax anomaly forces ensures that buyers will rarely import an aircraft under the private category. This also creates needless confrontation with customs and tax authorities. Why not make it a level playing field and tax all GA aircraft at 5%, irrespective of the status of the importer?

Helicopters

The situation is equally bad with helicopters, with the whole of India accounting for just around 250 helicopters. Over 70% of their flying hours, according to industry sources, are accounted for by just around 40 helicopters deployed in the offshore oil-rigs, which indicates that the rest are lying severely under-utilized. In comparison, the city of São Paulo in Brazil has over 700 registered helicopters and over 500 helipads. USA is far ahead with over 14,000 helicopters.

Given their versatility, helicopters

have a far wider range of applications: commuting, cargo, air ambulance, law enforcement, search and rescue, tourism, firefighting, agriculture, media and entertainment etc. Most of these offer tremendous potential for India. We haven't scratched the surface yet.

Religious tourism in India draws millions of people across different income strata. Since many of the religious locations involve difficult terrain and a strenuous trek, heli-taxis have an enormous potential, especially for senior citizens, children and the differently abled. The success of heli-taxis at the Vaishno Devi shrine is an eye-opener. It needs to be replicated across the country.

Amphibious aircraft

With a coastline of over 7516 km and 246 islands, India has tremendous potential for coastal tourism. Plus, we

have vast lakes and rivers. Countries with far less have done much better in terms of tourism revenue and jobs. One reason has been a near absence of amphibious aircraft in India. Many of the high potential coastal spots are located far off from the nearest airport, highway or railway station due to terrain issues or a sheer lack of vision. Amphibious planes help us leapfrog from coast to coast or airport to coast and back. Given the small weight, amphibious aircraft can operate from very small regional airfields with minimal infrastructure. NCAP 2016 has rightly highlighted amphibious aircraft as an opportunity area and provided policy support.

What do we do?

Here are the top ten action steps to revive GA in India:

- First and foremost, the industry needs to identify a strong,

GIVEN THEIR VERSATILITY, HELICOPTERS HAVE A FAR WIDER RANGE OF APPLICATIONS: COMMUTING, CARGO, AIR AMBULANCE, LAW ENFORCEMENT, SEARCH AND RESCUE, TOURISM, FIREFIGHTING, AGRICULTURE, MEDIA AND ENTERTAINMENT ETC. MOST OF THESE OFFER TREMENDOUS POTENTIAL FOR INDIA. WE HAVEN'T SCRATCHED THE SURFACE YET.





committed person who can champion the industry's potential. It must be a well-respected politician or business leader or both. Precious little may happen otherwise.

▪ Helitaxis and medical evacuation are an immediate win-win on India's highly congested metros. MoCA, DGCA, ANS and industry should work together to develop helitaxi routes in Mumbai and Delhi to begin with. These should cover 8-10 key areas of the city with a flight every 60 minutes.

▪ Rooftop helipads need to be built over metros stations, railway stations, stadia, key buildings and near highways for rapid evacuation in case of an emergency. MoCA should work with ministries of railways and highways; insurance companies, helicopter operators and hospitals to evolve a cashless

system for medical evacuation.

NCAP 2016 allows helicopters to fly without prior ATC clearance if it stays below 5000 feet and does not enter restricted areas. However, the defense ministry still insists on an Air Defense Clearance, which defeats the utility and quick response time of the helicopter. The Air Defense Clearance for non-restricted areas should be done away with. For the rest, it should be available expeditiously through a phone-based app.

All major India cities will need 1-3 small airfields for GA. For instance, we have Teterboro in New York, Le Bourget in Paris and Seletar in Singapore. MoCA and the states need to plan for the same as of yesterday, given the huge challenges in land acquisition.

▪ The government should extend all

non-VGF benefits of UDAN like tax rebates and zero landing charges etc. to all GA operators operating at UDAN airports. The huge tax anomaly on private aircraft should be nullified.

- The curfew for GA flights at Indian airports during peak hours defeats their very purpose. The government should consider releasing at least 5 slots per hour for GA during peak periods at a reasonable premium for those who are willing to pay.
- GA operators complain of maltreatment and high charges at metro airports since these are not regulated by the tariff regulator, AERA. NCAP 2016 stipulated that airport charges for helicopter operations will be suitably rationalized. The same needs to be implemented on priority.
- DGCA should have a separate cell for GA as per NCAP 2016. DGCA should co-develop GA regulations with the industry, like in developed nations. In some cases, industry sources reveal, the DGCA regulations are far more onerous and restrictive than FAA and EASA. Routine approvals at DGCA should be made online at the earliest, to prevent needless delays, untraceable files and harassment.
- Amphibious aircraft should be brought under UDAN, the regional connectivity scheme. UDAN currently doesn't allow single engine aircraft. This may need to be amended since most seaplanes operate with a single engine. Since amphibious aircraft operate from jetties, the same shall need to be added to the list of eligible airfields under UDAN.

Conclusion

India has the potential to become the world's largest aviation market by 2030. That would not be possible without a robust general aviation industry that brings far flung areas into the national air grid. A close co-operation between government, regulators and industry is the way forward.

We'll get there!

HEЛИTAXIS AND MEDICAL EVACUATION ARE AN IMMEDIATE WIN-WIN ON INDIA'S HIGHLY CONGESTED METROS. MOCA, DGCA, ANS AND INDUSTRY SHOULD WORK TOGETHER TO DEVELOP HELITAXI ROUTES IN MUMBAI AND DELHI TO BEGIN WITH.

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