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The General Aviation Industry in China

2012

An overview of Booz Allen's Report, "*Catalyzing Growth in China's Regional and General Aviation Sectors*," sponsored by the U.S.-China Aviation Cooperation Program



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I. History of General Aviation (GA) Development in China

When the general aviation industry in China began over half a century ago in 1951, its primary goal was to carry out pest control via insecticide spraying. However, during the Cultural Revolution, like most industries, general aviation in China also suffered serious setbacks, resuming development only after 1971. From 1977 to 1996, China's general aviation industry underwent a revival phase; agriculture, forestry, animal husbandry, fishery, mapping, water conservancy, railway, transportation, posts and telecommunications, city construction, and environmental protection services were provided. After 1996, the volume of general aviation operations and services has increased throughout China each year.

II. Current Situation of General Aviation in China

Today the general aviation industry in China is still underdeveloped, even among developing nations. This is despite showing over double digit growth in aircraft numbers and in the number of GA flight hours since 2001. Although the latter is dominated by economic construction and public service needs, consumer aviation has been growing at a rate of 21% since 1996. Interestingly, the general aviation growth recently seen in China could represent the highest growth in the world in this sector, but operationally, still involves a relatively small total number of aircraft and operations for such a large nation.

In light of China's GDP growth of over 10% for the past 3 decades, the following three factors have greatly contributed to GA development in China:

- 1) Demand for aerial work,
- 2) Private sector involvement
- 3) Civil aviation development and growth

However, the availability of a critical infrastructure and human-resources including pilots, mechanics, and inspectors are mandatory to secure the sustainable development of a healthy GA sector. Until a more complete infrastructure is put in place, GA in China will not be able to successfully expand its services.

Operators

China currently has 70 operators registered with the Civil Aviation Administration of China (CAAC), the main stakeholder formulating policies and regulations concerning the safety and economics of GA in China. However, 80% or over 50 Chinese operators have only 2 or 3 aircrafts thus struggle to achieve operating scale and profitability. In addition, GA aircraft is very costly to use in China due to airspace access, flight approval procedures, and operation charges such as airport charges, plus maintenance services. All of these factors contribute to low profitability for Chinese operators.

Currently, a little over 50% of China's GA aircrafts are foreign made, mainly by Cessna and Hawker-Beechcraft, making maintenance difficult. Regarding Chinese-made aircrafts, the

majority are piston engine aircrafts made by the China Aviation Industry Corporation. Unfortunately, the current situation of general aviation in China creates a cycle of low demand, small fleets, high unit maintenance and operation costs and low profit margins and high prices for aviation services.

Pilots

The dearth of GA pilots in China can be explained by the relative lack of financial rewards and poorer working conditions compared to the commercial airlines. Training venues are limited and targeted for other types of pilots. There are 10 GA pilot training schools with average capacity of 50 pilots per school year. Some GA schools are facing restricting or liquidation. In fact, a large number of GA pilots are actually aviation enthusiasts or military veterans. Surprisingly, pilot training costs in China are actually higher than in the United States. Due to these constraints, in the future, there will be a significant shortage of GA pilots in China.

Airspace

In China, the airspace is tightly controlled by the Chinese military and the airspace class system does not segment out its GA air activities. This unfortunately contributes to difficulty in gaining GA airspace and organization of airspace for this segment, leading to a cumbersome GA flight application process in China. For example, GA pilots in the U.S. can simply reserve airspace on their way to the airport from their mobile phone, but GA pilots in China need to do this at least 8 days ahead of time.

III. Key Constraints of GA Growth in China

As the information above describes, most GA operators face high operating costs, an unfavorable operating environment, and aftermarket challenges. See the table below highlighting the key constraints of GA growth in China.

(a) High Operating Cost

<i>Aircraft Cost:</i>	China-made aircrafts limited, foreign-made aircraft tax, maintenance and repair services costly
<i>Aviation Gasoline Availability:</i>	Aviation fuel cost increases
<i>Airport Charges:</i>	Substantial landing charges
<i>Pilot Cost:</i>	Most GA pilots are military veterans-transfer process is long and cost is high

(b) Unfavorable Operating Environment

<i>Nature of Operations:</i>	Direct economic impact and social benefits not realized since industry so small
<i>Airspace:</i>	Long bureaucratic approval process
<i>Airports:</i>	Varied operating conditions (some do not have safety controls)
<i>Pilots:</i>	Insufficient supply, commercial airplanes offer higher pay

Similar to operational challenges, China's lack of demand for aircraft manufacturing and operations inhibits the development of GA aftermarket and service capabilities.

(c) Aftermarket Challenges

Small in size and volume:	Lack of maintenance, repair and overhaul (MRO) facilities
Lack of core MRO technology:	Repair and refitting done in Hong Kong or overseas
Lack of MRO Talent:	Maintenance technicians are non-proficient
No fixed base operators (FBOs):	Virtually no FBOs exist to provide these kinds of GA aircraft services

The following table summarizes the main impeding factors to the GA industry in China.

(d) Key Constraints of GA Growth in China

Restrictive Regulatory Environment:	<ul style="list-style-type: none"> • Lack of effective regulatory framework to ensure safety and security • Lack of coordinated regulations and policies across stakeholders
Restrictive Airspace Access:	<ul style="list-style-type: none"> • China has not captured all full usage of airspace as a resource • Limited air traffic managements
Infrastructure and Resources Constraints:	<ul style="list-style-type: none"> • Few airports and low utilization of existing airports • Dearth of pilots and pilot development training system
Underdeveloped Supply Ecosystem:	<ul style="list-style-type: none"> • Management, technology, and engineering constraints limit advances in aviation manufacturing • Most GA operators not profitable

IV. China General Aviation Market Outlook

In nations such as the United States that have the benefits of a developed GA sector, GA significantly contributes to its national GDP and aviation-related employment opportunities. The U.S.-China Aviation Cooperation Program conducted a forecast estimating flight activities and the number of GA aircrafts in China by the year 2015. For the purposes of brevity, this summary omits the methodology of the study, but provides a summary of the key predictions pertaining to certain GA activities.

GA Segment	Historical Trend	Growth Scenario (Low)	Growth Scenario (High)
Private Jet	China has latent demand of ~400 aircrafts	60 hours per aircraft annually	80 hours per aircraft annually
Training	n/a	5%	10%
Other (business jet, tourism)	25% growth from 2002-2006	25%	35%
Aerial seeding	China aims to increase forest coverage area from 12% to 16% of total land areas	14%	22%
Chemical Spraying	Historical CAGR 1994-2006, or 6%	6%	10%

This table above illustrates that growth in flight hours is correlated to the growth in GA aircraft. After 2015, it is expected that the GA industry will grow at an even faster rate than before 2015.

Please note that these predictions are based on the assumption that the Chinese economy has sustained growth and the removal of GA growth constraints discussed above.

V. China General Aviation Economic Benefits

According to Booz Allen's study, if the right set of policies and infrastructure development are combined, then the total number of GA work aircraft and training and private aircraft would be expected to grow at an annual rate of 10% to 20% with more than 2500 aircraft required by 2015. The private aircraft segment, or business and personal transportation, is predicated to grow the fastest. Therefore, this segment also has the most economic and social benefits to China's economy in the future.

Using forecasted flight hours and the number of aircrafts, the economic impact is estimated by evaluating revenue, airport services, maintenance, and aircraft sales:

Direct economic benefits of GA	5-10 million RMB
Indirect economic benefits	132,000-240,000
GA Employment	8,000-14,860
Number of GA Aircraft	1,110-1,829
Number of Training Aircraft	705-1,350

In conclusion, a healthy GA sector will bring important intangible benefits to the Chinese society overall. Enhanced transportation capabilities, improved rescue and emergency medical care missions, better agricultural, environmental, and forestry related missions, and better infrastructure development missions are just a few. In particular, the 2000 earthquake in Sichuan highlighted the desperate need for a better disaster relief system and served as an international embarrassment for the nation. When China can take control of artificial rain making, seeding, aerial photography, and power line services through its own general aviation infrastructure, the social benefits of a developed GA sector will have come to fruition.

On behalf of the U.S. Commercial Service in Shanghai, we wish you the best of luck for a successful and informative 2012 Asian Business Aviation Conference and Exhibition!

This report was written by Kimberly Hagner at the U.S. Commercial Service.

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