



CHINA'S AIRLIFT CAPABILITY ENHANCEMENT



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The two month long crisis at Doklam was watched with great interest by many for the political and diplomatic stance of India and China as also the military steps that either side were taking. Indian intelligence would have kept a hawk eye on convoy moves across the Tsangpo bridges that would have indicated a Chinese build up in Tibet across Indian posts on the LAC. However, nothing much was discussed in the media about the mobilisation by air since PLAAF's capabilities are limited when it comes to airlifting heavy loads and large number of personnel into Tibetan airfields, most located at altitudes of 12,000 feet AMSL and above. This is set to change in the coming decade with advancements in Chinese aviation industry. While the news has been more about its stealth fighters, the J-20 and J-31, there have been major developments in the transport aircraft and helicopter fleets which will enhance People's Liberation Army Air Force's (PLAAF) mobilisation capability manifold into and intra Tibet area. This essay examines these advancements, starting first with the present capability, thereafter where it is heading and then implications for India; advances in civil aviation fleet, though an important and integral part of the airlift capability of any nation, are not covered in this analysis.

Present Airlift capability

Fixed Wing Transport Aircraft. The present capability is confined to the availability of Russian origin IL-76 airlifters and Y-8/9, reverse engineered variants of the 1950s vintage An-12, albeit with modern avionics and new Chinese origin aero-engines that give higher thrust. In addition, there are medium lift aircraft of the three to four tonne class too. From open sources, mostly *The Military Balance* of The International Institute for Strategic Studies, details of the present capability are as under: -

Aircraft	Origin	Numbers	Sea Level Payload
IL-76	Russia	20 ¹	40 tonnes
Y-20	China	3	50 tonnes
Y-8	China	30 + 4 (PLA)	20 tonnes ²
Y-9	China	12	20 – 25 tonnes ³

The fixed wing capability is thus very modest at the present stage. As a reference, the Indian Air Force, with its 16 x IL-76, 10 x C-17, 6 x C-130 and almost 100 x An-32 has a greater capability for a land mass that is about one third the size of China.

The heli-lift capability of PLAAF and PLA Aviation is as under: -

Helicopters	Origin	Numbers	Sea Level Payload	Remarks
Mi – 17 variants	Russia	88	04 tonnes	
Z-8/Z-18 (Both French Super Frelon based)	China	85/Not known	04 tonnes	Z-18 Indigenous Version Tailored for High Altitude
Mi-8/17 & S-70	China/US	190 + 19	4 tonnes ⁴	S-70 for High Altitude Ops

The heli-lift capability of India, with almost 250 medium lift Mi-17 and around 150 x ALH helicopters, is comparable to PLAAF and PLA Aviation.

The Chinese airlift capability is set to change dramatically in the medium to long term with new projects that are underway for both rotary and fixed wing fleets; there will not be any substantial change in the short term (five to eight years) since time would be required to build up fleet strength to appreciable numbers of planned new aircraft to make a difference in operations.

Fixed Wing Military Projects

Y-20. The Y-20 has just entered service with Russian D-30 KP2 aeroengines that give it a payload of 50 tonnes at sea level. The new WS-20 aero-engine, which will augment the payload to 66 tonnes, is reported to be close to finishing its flight testing. Once the supply line gets established and the requirement of logistic airlift is addressed, the Y-20 would then transit to becoming the base aircraft for Airborne Warning And Control System (AWACS) and flight refuelling aircraft which are major combat support force multipliers.⁵ China is thinking long term for even more enhanced airlift, as seen by its decision to purchase the An-225 production line from Ukraine.

An-225 Production Rights to China. China has signed a contract with Ukraine to help it restart production of the world's largest aircraft, the An-225;⁶ this has far reaching strategic ramifications. As per the agreement, China would get access to the design and technology of the aircraft. This is another case of China using its economic clout to jump start to a different level of technology and cut short the time required to go up the technology ladder. After the Y-20 which, with the new WS-20 engines would be at the performance level of the US C-17 Globemaster, the aircraft next in the payload ladder are the C-5 Galaxy (payload 110-130 tonnes) of the US and the Russian An-124 (payload 120-150 tonnes). At a later stage, with An-225 manufacturing well established, China would be able to call the shots in this niche 250 tonne payload capability sector.⁷ No other aircraft in the world is even planned to be in this class. In addition to carrying space shuttles that China may produce later, the An-225 could carry other military cargo like missile launchers and heavy artillery.⁸ In addition, the Chinese will also get access to high powered engines of the An-225 thereby helping their indigenous aero-engine industry. Thus, the acquisition of production rights of An-225 has long term implications for Chinese airlift capability, both for its civil and military sectors. This has to be read in conjunction with the heli-lift capability when it comes to an assessment of the overall inter and intra theatre lift that PLAAF can generate.

Rotary Wing Developments

The existing heli-lift capability of PLA is centred around Mi-series Russian helicopters. China also has the three-engined Z-8, an indigenous copy of the French Super Frelon, which has now been developed into the Z-18 (with new composite rotor blades, fuselage and engines).⁹ But a more important product that is in the offing is a Joint Venture between Russian Helicopters and Avicopter of China, set up to design and build an Advanced Heavy Lift (AHL) Helicopter especially for high altitude operations.¹⁰ The helicopter, AC-332, would have the capability to carry sixty troops¹¹ or 10 tonnes of internal

payload and fifteen tonnes external.¹² What is of interest is that the design and production would happen in China to meet the demands of the Chinese market; what goes without saying is that there would be a large transfusion of technology from Russia, with the capital coming from China. Once this helicopter enters operational service, which would be at least five years from now, the capability of the PLA to tranship large numbers of troops across the Tibetan plateau would augment greatly.

Assessment of Augmentation in Mobilisation Capability in Tibet.

Like for any aircraft, the high altitude of Tibet would reduce the airlift capability of the Y-20 transport aircraft as well as that of the Advanced Heavy Lift (AHL) helicopter. However, due the use of composites in airframe design, which can be optimally tailored to improve aerodynamic efficiency, and advanced engine technology, the reduction in payload capability would be much less. As an example, the old generation IL-76, in summer months is able to lift out negligible load from Leh (10,000 feet AMSL) while the modern C-17 takes off with a payload in the region of thirty five odd tonnes in similar conditions; the sea level performance at the same time of the year for these two aircraft is in the region of 30 tonnes and 50 tonnes respectively! Similarly, a Mi-17 cannot land at 15,500 feet helipads in the Siachen Glacier at any time of the year while an ALH Dhruv can, even in summers, with around three to five hundred kilograms of load.¹³

So, in the medium to long term, with the Y-20 and AHL combination, a similar scale of augmentation in airlift capability of PLAAF and PLA aviation can be expected in the Tibet sector. The same, however, cannot be said with certainty of the 1980 vintage An-225, since the technology of its airframe and aeroengine is not going to change. However, availability of more technical and performance details would greatly enable a fairly accurate deduction. The An-225 would change the airlift scenario in another dimension.

Effect of An-225

The An-225 was designed in the erstwhile USSR for transporting, in the piggyback mode, its under development space shuttle Buran. Since the Buran programme was stopped, the An-225 development also ceased with only one flying aircraft and one partially completed fuselage lying in Ukraine. The resurrection of the AN-225 with Chinese money and its upsticking and movement to China indicates the following: -

- (a) China has plans to make a space shuttle for which it would use the An-225.

- (b) With its 87 metre long fuselage, it would enable quick movement of its strategic missile components within China.
- (c) The large cargo hold can carry four army tanks, each weighing around 60 tonnes. The transfer of firepower of this magnitude can tilt the scale of fire power asymmetry in a sector very quickly.
- (d) In the civil field, a Chinese website¹⁴ says that, *“The company China Airspace Industry Group Ltd (which has bought the An-225 production rights) is planning to build six major international aviation logistics hubs in the Yangtze River Delta, Pearl River Delta, North Bay, Shandong Peninsula, northwest and north China, including logistics warehouses, airports, transport aircraft production base, production base of engine, spare parts and other materials production base etc., to implement its global logistics business. It will connect four major regions such as ASEAN, Africa, the Middle East and Eastern Europe through the six major logistics hubs.”* The worldwide mobility accorded to spread of Chinese manufactured goods would thus be enormous.
- (e) The move of heavy equipment to develop infrastructure in Central and Western China (in quick time and without dis-assembly), a key aim of the Chinese government, would be greatly enabled. The airlifting of a 117 tonne generator from Prague to Perth in Australia in May 2016 is an example of this extra ordinary capability that will accrue.¹⁵

Implications for India.

The availability of enhanced airlift capability with PLAAF and PLA aviation in the Tibet area in the coming decade is of major operational consequence for Indian planners. China would be able to augment large numbers of troops and heavy war fighting implements like tanks (if the An-225 can operate in Tibet), APCs and artillery guns from other sectors or re-assign them within Tibet. Additionally, with Y-20 being converted to an AWACS platform, the availability of airborne surveillance would increase substantially due the higher time-on-station capability. With higher heli-lift capability, intra Tibet movement would be greatly facilitated to concentrate mass at required places and in the valleys of Arunachal Pradesh. Since air power can be activated at very short notice and execute missions quickly, the notice available to an adversary is very short. Hence, in a future Doklam type situation that gets aggravated, Indian planners would have to factor-in this rapid mobilisation capability that could tilt the fire power balance asymmetrically. Since it is in the medium term (beyond eight years) that this situation would arise, action needs to be initiated now due long lead time required in weapon system acquisitions.

(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])

Keywords: PLAAF, China, Air power, Airlift capability

Notes

- ¹*The Military Balance*, International Institute of Strategic Studies, Available at <https://www.iiss.org/en/publications/military%20balance/issues/the-military-balance-2017-b47b/mb2017-06-asia-2-da36>
- ² *Military-today.com* Available at <http://www.military-today.com/aircraft/y8.htm>
- ³ *Globalsecurity.org*, Available at <http://www.globalsecurity.org/military/world/china/y-9.htm>
- ⁴ *Military-today.com* Available at <http://www.military-today.com/aircraft/y8.htm>
- ⁵ "How much Air Tanker does the PLA need in the End?" Available at <http://www.cn1n.com/mil/af/20170128/538128912.htm> accessed February 28, 2017. It is pertinent to point out that, at present, the in-flight refuelling capability of PLAAF is severely limited, with the H-6U tanker capable for giving fuel to only Chinese origin aircraft (like J-10) and IL-78 (only three in number) to Russian origin fighters like the Su-27 and its local derivatives.
- ⁶ Gareth Jennings, "China and Ukraine agree to restart An-225 production," Available at <http://www.janes.com/article/63341/china-and-ukraine-agree-to-restart-an-225-production>
- ⁷ Stephen Trimble, "An-225 Revival proposed in new Antonov-China pact," Available at <https://www.flightglobal.com/news/articles/an-225-revival-proposed-in-new-antonov-china-pact-428949/>
- ⁸ Jeffrey Lin and PW Singer, "China will resurrect the World's Largest Plane," Available at <http://www.popsci.com/china-will-resurrect-worlds-largest-plane>
- ⁹ "Z-18 Medium Transport Helicopter," Available at <http://www.military-today.com/helicopters/z18.htm>
- ¹⁰ John Grevatt, "China and Russia finalise Joint Heavy Lift Helicopter Collaboration Project," Available at <http://www.janes.com/article/61774/china-and-russia-finalise-heavy-lift-helicopter-collaboration-project> accessed on February 28, 2017.
- ¹¹ AVIcoter AC332(Advance HeavyLifter – AHL) Heavy-Lift /High Altitude Transport Helicopter," Available at http://www.militaryfactory.com/aircraft/detail.asp?aircraft_id=1481
- ¹² Greg Waldron, "Russia, China in formal pact for heavy-lift helicopter," Available at <https://www.flightglobal.com/news/articles/russia-china-in-formal-pact-for-heavy-lift-helicop-426748/>
- ¹³ For sure there are many variables which govern the payload carrying capability like length of runway/helipad size, fuel on board and prevalent winds; the capability figures given here are indicative of the degradation in performance as well as to indicate the difference due use of modern technology innew generation aircraft/helicopters.
- ¹⁴ "Does China want to introduce An-225 to solve these two problems first," Available at <http://mil.news.sina.com.cn/jssd/2016-09-01/doc-ixvqctu5877217.shtml>
- ¹⁵ Mitchell Bingemann, *Antonov An-225 flies into Perth carrying generator for Worsley*, Available at <http://www.theaustralian.com.au/business/aviation/antonov-an225-flies-into-perth-carrying-generator-for-worsley/news-story/12eb200cbb98ff78244d09dd981ae374>