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Power behind Arrogance: Assessment of China's Air and Missile Arsenal

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Power behind Arrogance: Assessment of China's Air and Missile Arsenal

Going backwards from recent acts of Chinese belligerence and barbaric conduct in Galwan (sic) totally divorced from all ethos of soldiering, into events of the recent past, a pattern emerges. A pattern of Chinese aggressiveness, arrogance and more; unfreezing and heating up the border issue with India with a stink of hegemony and while the temperatures are high on both sides, carrying out military drills just across the border as if to send a crude message to India. Creating unrest and instability at several places on the Line of Actual Control (LAC) as if to give signal to the exiting businesses from China that India is an 'unsafe and unsettled domain'. Churning the calm waters of the South China Sea with aggressive posturing day-after-day probably to turn the global eye away from 'Covid guilt' in which the country is in the 'eye of the storm', bullying Hong Kong; showing eyes to Taiwan and more. In short, the rumblings of the dragon can be heard in different hues of anger and frustration, very passing day.

It is easy to see that the power behind all the brash, assertive, aggressive and hegemonic stance resides in the perception and belief of the Chinese leadership in the cumulative strength of its military might, coupled with other national powers in the tangible and intangible domains; soft power, political power, diplomatic power

to name a few. Talking of military might per se, it is essentially the capability of its armed forces on land, sea and air to prosecute war in pursuance of the national aim and interest.

Out of this trio of military might, this status brief relates to the air domain. In that, it tries to analyse the air and missile power of China in all its dimensions. The exercise begins by first visiting the factual details of the capability and goes on to examine how the same is likely to roll out given the realities of terrain, altitude, weather, environment and such other factors which obtain on the Sino-Indian border.

Chinese Air and Missile Power Today

Visiting the Factuals

The real transformation journey of the Peoples Liberation Army Air Force (PLAAF) actually started from around 1990-91. For up to about this time, the PLAAF though had a large number of aircrafts (around 5000+) but most of these were old and antiquated platforms of the 1950 era with predominance of platforms modelled on Russian lineage aircrafts (F6/MiG 19, H 6/TU 16, Q5/MiG 19, IL 76 etc.).

It is not intended to go into the transformation journey but cut straight to the current status of PLAAF. The Chinese aircraft inventory today spans the complete continuum of role-specific, as well as, multirole aircraft. Maximum numbers are of J 7 fighter aircrafts (388) which are the Chinese version of MiG 21 and J 11 and J 16 air superiority fighters (J 11-346, J 16-128+).

Next most in numbers is the indigenous multi-role fighter J 10 (235). Besides these, the PLAAF has around 100 air superiority

aircrafts capable of air-to-air and air-to-surface deep interdiction missions (SU 30-76 and SU 35- 24). Other aircrafts include JH-7 (fighter bomber - 70), H6 (strategic bomber-120), J-8 (Interceptor 96), and Q5 (strike aircraft - 118).

The pride of the place in the PLAAF inventory is occupied by J 20 which is the latest fifth-generation air superiority fighter aircraft that has super stealth features and precision strike capability. It stands in class with F 22 and F 35 front-line stealth aircrafts of the US Air Force. It is believed to have entered service with PLAAF in late 2019 /early 2020.[7]

Experts opine that besides the cutting edge of J-20, the future profile of PLAAF is likely to be based on aircrafts like of J-10 along with JH-7A as the PLAAF's main strike fighter.

As to the future platforms under development, it was reported in the open source in 2016, that the development work is in progress on the six new combat aircraft programmes. These include the qualitatively improved Chengdu J-10B multirole fighter, Shenyang J-11B5 heavyweight strike fighter, Shenyang J-15 carrier-borne fighter besides Chengdu J-20 which just entered Service. Besides future programmes, the current platforms like JH 7A and the H-6 bomber family are up for major upgrades.

The above fleet of combat aircraft (2000+) is duly supported by a variety of other platforms. These include the Airborne Early Warning and Control Aircrafts (AWACS) besides others. AWACs fleet is based on three main types namely, KJ 2000 (numbers held 5) installed on the old Russian platform of IL-7 duly modified. It has a capability to detect fighter-sized targets up a range of 470 kms and ballistic missiles to a range of 1200 kms. Another platform is KJ 200

(numbers held 11) which has a unique feature of having onboard the state-of-the-art Automatic Electronic Scanned Array (AESA) radar for accurate detection and identification of aerial targets. The latest in the series is KJ 500 (numbers held 13) which has an even better AESA radar with 360 degree coverage as compared to two-planer capability of KJ 200.

There is another version KJ 600 which is a transport and a cargo aircraft as well as an AWACs capable of being deployed onType 003 aircraft carriers. For the future,there are unconfirmed reports of importing a large number (50) ofAWACS platforms from Russia.

China is also reasonably strong in the domain of Unmanned Aerial Systems (UAS). It has in its fleet, the complete spectrum of UAS. Like all other nations it started with the Information, Surveillance, Target Acquisition and Reconnaissance(ISTAR) variety of UAS and then went on to arming them systematically by first adapting them to the existing sensors and air-to-surface missiles and later developing tailor-made arsenal suit for them.

The Chinese UAS range covers the complete altitude band from Low (below 30m) to Medium (30-300m) to High (>300m). The list of miniature, micro, and combatized UAS, rotary wing machines and more runs into hundreds.

Chinese have pro-actively encouraged innovations in UAS involving not only the defence scientists but also youngsters/debutants with ideas, academia, science and technology community and more. It is no wonder therefore that its UAS arsenal has many varieties such as stealth UAS, machines with morphing capabilities, annular wing UAS, Vertical Take-off and Landing (VTOL) types, flying wings, flying discs and flapping wing UAS called orinthopters .

In the category of Medium Range Long Endurance or MALE UAS, (service ceiling up to 9000 m, endurance up to 24 hrs) it has three main types viz

BZK-005, GJ-1 and GJ-2 while in the bracket of High Altitude Long Endurance or HALE UAS (service ceiling 18000m, endurance 24 h+), there are EA 03 and WZ 7. The front edge of the combat UAS is of course held by the Wing Loong UAS

This state-of-the-art combat drone stands in the class of MQ-1 Predator UAS from General Atomics US. Wing Loong can carry a payload of 480 kg which could include bombs (FT 7- 130 kg bomb with planner wing, FT 9 - 50 kg bomb, FT 10 - 25 kg bomb), guided rockets and missiles (BRM 1, AKD 10) suitable for taking on targets like bunkers, fortifications and vehicles. It can also carry laser-guided air-to-surface missiles or YJ9E anti-ship missiles etc.

Another area where China has emerged strongly is the Manned and Unmanned Teaming or MUM-T for short. It is the battle function, where in a win-win situation, the combat virtues of a human pilot, namely, his intellect, tolerance for ambiguity, instant decision-making capability, hunch and battle experience is teamed with UAS which bring to combat, their all-weather all-terrain capability, phenomenal endurance, weapon loads comparable to manned platforms and decision making capabilities powered by Artificial Intelligence (AI). This increases the capability of the combat mission manifolds.

Specific machines have been designed for the MUM-T role. Besides Wing Loong, these include the Skyhawk drone (also referred to as Tianying stealth UAS, speed 200 km/h, endurance of 6-12 h),

Gongji-11 (GJ 11) stealth UAS (highly technologically advanced, combat radius 1000 km capable of carrying 2x500 kg bombs or 8x100 kg bombs). WZ 8 supersonic reconnaissance vehicle is also reported to be MUMT capable.

In the area of Swarm Drones China is making steady progress. It was reported in Feb 2020, that China has developed helicopter drones. These small machines deployed in big numbers are capable of carrying a variety of munitions like machine guns, grenade launchers and mortar shells. Moving as a swarm, thesecan navigate to the designated target and carry out ordered engagement in an autonomous mode. The machines are enabled with AI to follow operator's command in executing the mission.

Helicopter drones capable of swarm attack

Source: https://www.globaltimes.cn/Portals/0/attachment/2019/2019-05-09/38a95bdf-dfc2-47c1-a76f-3dd790464aaf.jpeg

As to advance technologies in swarm drone warfare where the vehicles operate as an intelligent grid, show collective (hive) behavior, can take precision strikes , have decision-making capability based on enabling tools of AI and can execute a mission from launch to recovery in an autonomous mode, research is on to realise this capability(some machines stands realized already). Simple control of thousands of drones in any desired maneuver is an old thing done way back in 2017 when 1180 drones did formation maneuver during the closing ceremony of Global Fortune Forum in Guangzhou on 07 Dec 2017.

As to Attack Helicopters (AHs), China has WZ-10, WZ-9 and Z-11 machines. WZ 10 also called the Fierce Thunderbolt (Pi Li Huo). It is a state-of-the-art machine that stands in the class of AH 1S Huey Cobra; though both have their strengths and weaknesses. In that, while WZ10 will pip AH 1S in agility, speed and manoeuvrability aspects, the later has more payload carriage capability besides superior engines. Another frontline AH with China is WZ 19.

In the precision-kill capability, Chinese air threat vehicles can carry a full spectrum. These may include smart, intelligent and precision guided munitions (PGMs) with surgical strike capability. AESA guided Beyond Visual Range Air-to-air Missiles or BVRAAMs (PL 12, PL-15 etc.), supersonic Russian and Chinese made Anti-radiation Missilesor ARMs (KH 31P, YJ-91) for operational use with SU-30, JH 7A and J-11 ac. Laser-guided and satellite-guided bombs (on board Q-5 aircraft).Experts opine that most of the modern aircrafts of PLAAF today are capable of carrying the PGMs . (Platform-wise details of munitions not covered)

Associated with the above capability is the strong electronic warfare (EW) muscle both by way of stand-alone EW platforms such as Y 8, AN 30 and the old horse TU 154, as also, tailor-made EW packs on various combat aircrafts and AHs. (Platform-wise details of munitions not covered)

In the niche sector of Hypersonic weapons,China is in pace with Russia and ahead of US. These weapons flying in the region of 5-10 Mach with super high manoeuvrability are claimed to be unstoppable by any known conventional air defences. In both the classes of hypersonic arsenal, namely the Hypersonic Glide Vehicles (HGVs), as well as, Hypersonic Cruise Missiles (HCMs), China

has created capabilities which at present are essentially in the testing and developmental stages.

Test on hypersonic weapons are going on China for almost a decade though initial successes in experimentations started to get reported from around Dec 2017. Going forward on this time-line, China in May 2018 reported testing the DF 17 - a ballistic missile combined with a Hypersonic Glide Vehicle (HGV). It was reported that this capability is likely to become operational by 2020. Continuing with HGVs on board ballistic missiles, it was reported that China is developing, hypersonic weapons which could be used on a variety of ballistic missiles including Inter Continental Ballistic Missiles (ICBMs) such as DF 41 (details covered later).

In the field of HCM, China on 03 Aug 18 test-fired a hypersonic aircraft named Xingkong -2 or Starry Sky -2 developed by China Aerospace Science and Technology Corporation . Xingkong 2 is claimed to be capable of carrying multiple nuclear weapons and claimed to be unstoppable by the current generation of air defence and ballistic missile systems.

During the above test fire, the hypersonic aircraft achieved a speed of 5.5 to 6 Mach (6738-7350 Km/hr) and an altitude of 30 Km. It performed some large-angle turning manoeuvres and landed in the target area as planned. A host of other cutting-edge technologies were also tested and validated. The test was declared a success. Since hypersonic weapons are still in the test and development stage, these are not factored in the threat equation as of now.

Another field where China has a strong muscle is Ballistic missiles. The Chinese Ballistic Missile Programme got off to a humble start sometime in 1955 with Russian SS2 (Sibling) Short Range Ballistic

Missile (SRBM). Progressing further, in late fifties and early sixties, Chinese produced a small number of indigenous ballistic missiles which went by the generic name 'Dong Feng' (East Wind)-1. Today the Chinese Ballistic Missile arsenal has ranges from a few hundred kms to some 14000+kms. The NATO designation of thesemissiles runs with a prefix CSS or SS.

The continuum of Chinese ballistic missiles (BMs) spans the complete arsenal from Short range or SRBM (300 -1000 km), Medium Range or MRBM(1000-3500 Km), Intermediate Range or IRBM (3500-5500 km) and Intercontinental Range ICBM(>5500 Km.)

The range, altitude and the warhead details of the Ballistic missiles are briefly enumerated.

DF1 (SS2) is an SRBM with a range 550 Km; it can carry a payload 500 kg. DF2 (CSS1) is an MRBM; it has a range of 1250 Km and can carry a nuclear warhead of 15-20 kiloton (KT). DF 3 (CSS 2) is an IRBM with a range 2500-2800 km. This missile has a capability to carry thermonuclear warhead up to 2000 kg. DF4 (CSS 3) is a two stage ballistic missile in the ICBM range of 5500-7000 Km. It has a capability to carry a huge three mega ton (MT) nuclear payload, DF 5 (CSS 4) is a long range ICBM capable of delivering a three MT nuclear warhead to a range of 12,000 km. DF 11 (CSS 7) is a short range road-mobile SRBM for tactical application of range 300 km. Its advanced version has a range of 825 Km and a payload carrying capability of 800 Kg. DF 12 (CSS X-15) is a shortrange missile effective in the range bracket of 400-420 Km. DF 15 (CSS 6) is a higher range SRBMwhich is effective up to 600 Km and has a payload carriage capability 500 kg .

DF 16 (CSS 11) is an MRBM with a range of 800-1000 Km. It is capable of carrying a warhead of 1000-1200 kg. DF 21 codenamed CSS 5 has two variants, ground-launched and sea-launched. It has a range of 2500 km and can carry a huge warhead of 500 KT. DF 25is the IRBM class with a range of 3200 km. It has a multiple warhead carrying capability and can carry upto three warheads which could be conventional or nuclear. DF 26 is also an IRBM based on solid fuel. It has a marginally higher range than DF 25 (3500 Km).

DF 31 codenamed CSS 10 is an ICBM with a huge range of 11000 km. It is designed to be a road-mobile weapon capable of carrying a warhead of 1000KT. It could also carry upto three Multiple Independently Targetable Re-entry Vehicles (MIRVs) of 15-150 KT. MIRVs are payloads carried by missiles which are capable of being targeted independently on same or different targets. These are released as the long range ballistic missilelike an IRBM or ICBM makes a re-entry into the atmosphere from exo-atmospheric region DF41 (CSS X 10) is the next generation ICBM with a range of 12000- 14000 km with single/three/six/ten MIRV warheads. This is the longest range ICBM with China.

DF 41 Next Gen ICBM . range 14,000 km

Source: https://www.defenseworld.net/uploads//news/big/df-41_1511869039.jpg

In addition to the ballistic missiles, China also has a well-developed arsenal of Cruise Missiles. These include DH-10 and YJ-62 cruise missiles which are land attack variety, SS-N-22/SUNBURN supersonic air-launched cruise missile and the SS-N-27B/ SIZZLER cruise missile which is an air-launched weapon in the supersonic range YJ-62C is a naval version of the weapon

Open sources report that the following associated structures is in place:-

1. Delivery means to launch the missiles from land sea and air
2. Conventional and unconventional warheads (numbers not discussed)
3. Associated command and control structures.
4. Regime of codes and authorisation, chain of command with succession details

Implications from the Factuals

Weapons and munitions translate into capabilities. How much of these capabilities become actually executable depends upon how these are employed in the battle and what are the restrictions imposed by terrain, altitude, weather, availableinfrastructure to operationalise the potential of the weapons, local tactical situation, degree of freedom in operating in the air overall war situation, besides intangibles like morale and motivation of troops and the skill and training of the man behind the machine to name a few.

While the impact assessment of the above factors will be dealt later, simply by way of weapons and munitions what capabilities accrue is enumerated further.

Arsenal Translated into Capability

Considering purely in terms of weapons and munitions held by PLAAF, following points are made as to its capability.

1. As regards combat aircrafts, the PLAAF has a full spectrum of the role types both in quantum (2000+) and range. These include fighters, bombers, strategic deep strike aircrafts, interceptors (air defence role), air superiority fighters and aircrafts capable of performing multiple tasks (multi-role aircrafts).

2. Leaving aside old strategic bombers like the H 6 (un-upgraded) or TU 16 which are vintage machines most of Chinese combat aircrafts are either 3rd generation (J7, J 8, H6, Q5) or fourth generation (J 11, SU 27, JF17, JH 7), SU 30 MKK and J 10 post upgrades belong to 4th generation+ category. China also possesses a fifth generation air superiority fighter with latest stealth features (J 20). The numbers held is however very small (15-20).

3. The combat radii (range to fly out with full payload and return without refuelling) of the these aircrafts ranges from 600 km to 3500 km (J7- 850 Km, J-8 600Km, H6 strategic bomber -3500km, Q5–600km, J11-1500Km, SU 27-1500km, JF 17-1200 km, JH 7-900 km, SU 30-3000km, J 10-1000km and J 20- 1200-2700km).

4. With these combat radii, even if 30-50% is lost due to take off restrictions from high altitude airfields opposite India (covered later), most of the aircrafts will have the capability to reach and strike deep into the Indian hinterland. A rough estimation of this fact can be made by having a look

at the airfield-to-airfield distance between the air bases of the two adversaries (Srinagar – Kashgar -625 km, Leh to Kashgar-615 km, Ambala- Shiquanhe-363 km, Hashimara-Shigaste -293 km, Tezpur – Nyngchi -324 km, Chabua to Bangda -393 km).

5. The combat aircraft fleet is duly supported by other aerial platforms like the AWACS, EW dedicated aircrafts, air-to-air refuelling aircrafts and the transport fleet.

6. PLAAF also possesses state-of-the art attack helicopters, cruise missiles and anti-radiation missiles.

7. As to munitions, besides the conventional arsenal of rockets, missiles and guided bombs, PLAAF has a strong muscle in smart intelligent and precision guided munitions besides having limited quantities of laser-guided weapons, BVRAAMS and loiter ammunition.

8. PLAAF has a full-spectrum UAS capability spanning the MALE and HALE domain and capable of taking the ISTAR missions, as well as, limited MUM-T functions.

9. These are early days of China building the swarm drone capability. With helicopter drones already a reality, a full-fledged capability of AI enabled swarm drones is not far into the future (1-2 years).

10. China is among the front-ranking nations as regards the development of hypersonic weapons. It possesses capability in both class of hypersonic weapons, namely HGVs and HCMs. These are currently in the development phase and are not yet 'threat-ready'. Also, such threat is unlikely to

unfold in the India-China matrix in the foreseeable future.

11. Chinese muscle in the area of ballistic missiles is fully matured. It has missiles from 500km to 14000 km range capable of carrying conventional, as well as, unconventional payloads from a few hundred kgs to several magnitudes of Kiloton of nuclear weapons.

12. Open sources report that the three pillars of the strategic capability to execute the ballistic missile threat, namely, (a) Warheads (b) Delivery means on land, sea and air and (c) Associated Command and Control structures complete with codes, authorisation, chain of succession etc. are in place.

13. That said, the Chinese have a No First Use policy which undertakes not to use or threaten to use nuclear weapons against non-nuclear weapon states and apledge to use nuclear weapons only in self-defence. How much of it is actually meant and adhered to is a matter of a huge debate. Thisis not taken any further.

Employment of the Capability

How much of the capability of the arsenal as enumerated above will actually be executable will depend on the deployment of this capability in the battlefield and the impact of multiple factors thereupon, as stated earlier. This is further enumerated.

Major Re-organisation

In February 2016, a major reorganisation in the Chinese military set up took place. In that the following two aspects are highlighted.

1. In a major force re-structuring, the erstwhile seven Military Regions (MRs) of China have been re-organised into five Theatre commands with an aim to conduct joint operations in a more effective manner.

2. This jointness was not fully achieved in the MRs which enjoyed certain degree of independence amongst them. The Theatre Commands have been placed directly under the Central Military Commission (CMC) of China. CMC is the military branch of the national Government exercising apex level command and control on the armed forces.

3. As to the Theatre Commands, the Northern Command with its HQ at Shenyang faces the border with Russia, Mongolia and North Korea. The Eastern Command headquartered at Nanjing is Taiwan-centric. The Southern Command with its HQ at Guangzhou will deal with Vietnam, Laos and Myanmar. Central Command is at Beijing while the Western Command being the largest Theatre Command faces the border with India, Nepal, Bhutan, Pakistan, and Afghanistan, Kyrgyzstan, Tajikistan and a portion of Southern Mongolia.

4. Looking at the layout of theatre Commands, it becomes clear that India has to confront the air-land threat from Western Theatre Command and maritime threat from Southern Theatre Command

5. Another major aspect of reorganisation has been the creation of three new Services. Under the new dispensation, PLA Army (PLAA) represents the land (Army) component of the force. PLA Rocket Force (PLARF) is the new designation of the erstwhile Second Artillery which is in command of

all strategic forces (rocket force, ballistic missiles and so on) and PLA Strategic Support Forces (PLASSF) would be responsible for aspects related to information warfare, cyber war, war in outer space etc. (further aspects on the rationale and impact of this re-organisation are not covered.

Focus on Western Theatre Command (WTC).

Source: https://www.straitstimes.com/sites/default/files/st_20160203_china03a_2039823.jpg

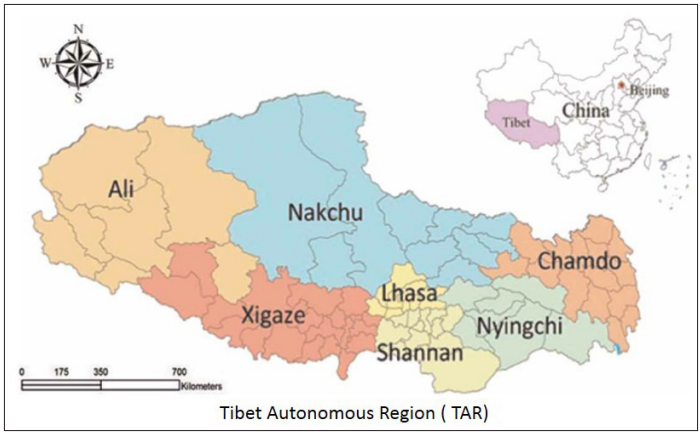
Directing focus on the WTC, following points are stated:-

1. Western Theatre Command, which actually occupies more than half the country has been created by merging the erstwhile Chengdu and Lanzhou MRs. Chengdu is opposite the Sino-Indian border while Lanzhou oversees the Aksai-chin.

2. Of special significance in the WTC is the Tibet Military Command (TMC) headquartered in the Tibet Autonomous

Region (TAR). This Command is responsible for operations against India. TMC enjoys a special status is well known.

3. In July 2018 China elevated the rank of the TMC command one level higher than the provincial level military commands and placed the TMC directly under PLAA while other Military Commands come under CMC. This shows a degree of autonomy and the primacy of PLAA in conduct of ground operations with swiftness into India.



Source: https://www.researchgate.net/profile/Xuan_Wang22/publication/267755448/figure/fig1/AS:295556321693700@1447477526632/The-administrative-map-of-the-Tibet-Autonomous-Region-China.png

Deployment of Air Power in TAR

The details of deployment of air power resources in TAR and the impact of terrain, altitude and weather thereon is elaborated:-

1. WTC has four fighter divisions (6,33,37,44) one Transport division (4) and one bomber division and one UAS Division.

2. Different types of aircrafts are deployed in the TAR. These J 7 and its variants, J 8 J 10, J 11 (and its variants), J 16, SU 27 etc.

3. It was reported in 2018 that a significant increase in the number of aircraft deployments has taken place in TAR. Most importantly SU 27 and J 10 which only used to be deployed in TAR during summer months have now been deployed in TAR for round the year operation.

Chinese Provinces closer to the border

Source: https://www.orfonline.org/wp-content /uploads /2020/02/ ORF_ Occasional Paper_238_PLA-Tibet.pdf

4. Apart from a full-fledged nuclear missile base in Qinghai province which is India-centric five fully operational air bases have come up over time. These include Gonggar, Pangta, Linchi, Hoping and Gar Gunsa.

5. To sustain these air bases there is a fully operational rail network connecting Lhasa to Golmud and over 96000kms of roads in TAR built over the years with huge investments.[22]China is reportedly building a railway line from Lhasa to Nyingchi all along Arunachal Pradesh. The same is likely to be completed by 2021.

6. In addition to the above bases, another full-fledged air base at Kashgar located 600 Km north of Srinagar became operational in 2015-16.

Source: https://cenjows.gov.in/pdf/CHINAs_INFRASTRUCTURE_IN_TIBET_Inside_Layout.pdf

7. Nyingchi civil airport at is just 30 kms from Arunachal Pradesh has been made capable of dual use. This airfield has one of the most challenging instrument approaches in the world being located in a winding valley.

8. Construction of new airfields and up-gradation of Advance Landing Ground (ALG) is a continuous process in TAR[23].

9. TAR being the roof of the world with an average altitude of 15000 ft (Mount Everest – 29030ft) is a matter of great

disadvantage to China as combat aircrafts taking off from such high altitudes have to compromise on the total all-up weight they can carry. This compromise shows up either in carrying lesser fuel or lesser payload which respectively means lesser combat radius or lesser lethality. Besides this, due to lower atmospheric pressure and lower air density the aircrafts require much longer runways in order to develop the required thrust to take off.

10. That the above problem is very serious can be seen from the altitudes where these airfields are located and how Chinese have gone in for long runways at each of these (Xigatse – altitude 12408 ft runway length 5km, Gonggar-Lhasa altitude 11710 ft runway length 4 km, Shiquane -altitude 16,500 ft runway length 5km, Hoping altitude 12,497ft runway length 5 Km, Bangda altitude 14219 ft runway length 5.5 km, Nyingchi altitude 9675 ft runway length 3 km, Jeykundo, Gargunsa-altitude 14,022 ft runway length 4.5 km [24]

11. Another problem with the airfields in Northern TAR is that they are far apart and not mutually supporting. For airfields to be mutually supporting for fighter operations, these need to be located within 200-300 km. By that yardstick Hotan, Kashgar, Korla and Gargunsa located in northern part of TAR are not mutually supporting. (Hotan-Kashgar 450 km, Hotan-Korla- 750 km , Hotan-Gargunsa 550 km) [25]

12. In the western part of TAR there is only one airfield Gargunsa . If this airfield is made non-operational, there will be a gap of about 1500 kms between Hoping and Hotan, severely impacting PLAAF operations in Western TAR.

13. Having fully realised the shortfalls in the airfields located in the northern and western portion of TAR, which besides everything else will amount to aircrafts losing as much as half to three fourths of their combat radii in reaching up to the Indian border, the Chinese single-minded effort has been to develop more and more air bases close to Indian borders especially in southern and SW portion of TAR all within 200-300 km of the Indian border. Hoping, Shigaste, Gonggar, Linzhi, Panta are cases in point. Hoping and Gonggar are mutually supporting being separated by only 150 km.

14. It is reported that China is building three more airfields at Shannan, Xigaze and at Ali in Burrang county. All these airfields are above the altitude of 12800 ft and are at close distance to the Indian border. Shannan lies opposite the Subansiri district of Arunachal Pradesh, Burrang is just 60 kms from the Line of Actual Control (LAC) near the tri-junction of Nepal, Uttrakhand and Tibet. It also provides mutual support to Gargunsa located 220 kms from it[26].

15. While it is easy to state that air-to-air refuelling will be a solution to the combat aircraft loosing operational range due to altitude, it is a cumbersome and time consuming operation coming in the way of free flow of combat missions. Also the AAR resources are limited. As of Nov 2019, PLAAF had a tanker fleet of 13 aircrafts. This included 10 of H6 class and another three IL 78. In addition there is Y20 which is a heavy lift transport aircraft converted to tanker role[27].

16. Another major issue relates to the safety of the Chinese aircrafts against counter air operations undertaken by the

IAF. Mainly due to terrain and altitude restrictions in such remote areas where operational air bases are located, it has not been possible to create blast pens to park the aircrafts safely. Except for blast pens created by digging out tunnels in the mountains that can park up to 36 aircrafts at Gonggar (Lhasa) air base, most of the others do not have any blast pens. This increases the vulnerability of the Chinese aircrafts on the air bases, manifold.

Source: https://upload.wikimedia.org/wikipedia/commons/thumb/1/14/Lhasa_Gonggar_Airport_-_01.jpg/1200px-Lhasa_Gonggar_Airport_-_01.jpg

Impact on operations

Despite every preparation done by the PLAAF, the operation of air power from TAR will be impacted by terrain altitude and environment conditions Some points which emerge from the above analysis are as under:-

1. There are alarge numbers of airbases that have come up in TAR all along the border with India which will support air operations deep into Indian territory.

2. That said, the aircrafts will suffer in terms of combat radii and payload carrying capability having to take off from altitudes of more than 12,500 ft.

3. Keeping in mind the limitations of high altitude operations with combat aircrafts of yester years (J7, J 8, H6, Q5) reliance will be placed on modern combat aircrafts with longer ranges such as SU 27, J 11, JF17, JH 7, J 10, J 20 and more, along AHs like WZ-10, WZ-9 and Z-11 and the UAS fleet Wing long, GJ 11 etc. Even then, the major handicap of terrain and altitude can be overcome by a limited extent only.

4. China has only a finite air-to-air refuelling (AAR) capability. Owing to the logistics involved in making AAR possible, its employment for every combat mission will be problematic and cumbersome.

5. The Chinese aircrafts will be highlyvulnerable to CAO operations by the IAF due to lack of bomb protection at most of the airfields in TAR.

6. Besides combat aircrafts, the supporting resources required for the prosecution of air threat such as AWACs, ballistic missiles, cruise missiles, attack helicopters and UAS etc. will be so deployed at the forward air bases (ab-initio deployment or staged forward) as to get maximum useful range into India keeping the anticipated flow of ground operations in mind.

7. The sensor effort will be so deployed and integrated across ground/shore/space mediums as to provide a capability of effective surveillance of the TAR region resulting in a comprehensive air situation picture.

8. The above will be duly backed with a seamless Battle Management System anchored on auto/real-time data transmission on satellite media with due redundancy.

PLA Joint Exercises in Tibet

It has been reported by open sources time and again that there has been a concerted increase in the joint exercises being done by the Chinese military in the TAR region especially in the last 3-4 years[28]. Some points worthy of note are summarised.

1. China has been upgrading its ballistic missile bases to accommodate a larger range and reach of BM arsenal. For instance the BM base at Delingha which was only for DF 4 (5500 km) has been upgraded to accommodate other BMs such as DF 21 (1750 km) DF 21 A (2150 km). It could also be accommodating DF 31A (12000 km) in future.

2. Deployment of these missiles in the TAR region gives a capability to China to strike deep inside Indianterritory. In addition to Delingha, and Quinghi there are five other bases for missiles at Kongpo, Nytri, Powo Tamo, Rudok, Golmud and Nagchuka. As per an open source there are 8 ICBMs, 20 IRBMs and 70 SRBMs deployed in TAR.[29]

3. It is reported that an optical fibre network going by the name of Advanced Info-Optical Network (CAINONET) has been made operational which links TAR with mainland through optical fibre cables. Also, a Very Small Aperture Terminal (VSAT) satellite station provides for the SATCOM link in TAR providing broadband and secure communications.

4. Joint exercises in TAR have been a regular feature whose frequency and quantum of participation is steadily rising eversince 2015-16 and continuing till date. The latest high altitude military drill took place in June 2020 amid Sino-Indian border dispute imbroglio[30].

5. A variety of aerial threat vehicles have been taking part in the joint exercises. These besides the fighter and multi-role aircrafts like J 10, J11, J 7, J 7A SU 27, included AWACS KJ 500, helicopter platforms, UAS, tanker aircrafts etc.

Bottom Line

Some bottomline observations are made.

1. There is no denying the facts that there are comprehensive and steadily growing strengths of China in air power, ballistic missile power and soft power but there are restrictions in application of that power into India given the terrain, altitude and environment conditions obtaining in TAR.

2. Every possible effort is being made by China to overcome the above limitations to the extent feasible.

3. Should the push come to the shovel, China will be able to launch an effective air and missile attack into Indian territory which could possibly unfold as under:-

    a. Information offensive by PLASSF in the domain of information warfare, cyber warfare, computer network attacks, electronic deception and more, all aimed to achieve a degree of information superiority and information dominance (not explained further,

being a huge subject in itself). This will be a continuous and an ongoing operation.

b. A surprise and debilitating pre-emptive strike by multiple air threat vehicles (SU 27, J10, J11, J 7,J 8, JH 7, SU 30, J 20, Q5, H6 and more) taking on IAF bases in the CAO mode besides striking key installations, strategic assets, command control and communication centres, missile bases, key sensor establishments and later standing by to provide close and offensive air support to the ground forces.

c. PLARF using their strategic missile force to take on pre-selected targets in support of air and ground offensive.

d. Continuing an offensive air campaign with an aim to seize either air superiority or favourable air situation besides standing in support of ground operations.

So that is the power on which is based all the arrogance and all the aggressive behaviour, belligerence and more. How is India prepared to counter it will be the topic of the next research work?

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