

Chinese Aviation Hegemony Along India's Northern Borders

The Nine-Year Surge Since Doklam

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Chinese provincial-level administrative divisions of Tibet Autonomous Region (TAR) and Xinjiang Uyghur Autonomous Region (XUAR) have been in a state of infrastructure overdrive since the significant India–China relational threshold of Doklam. This standoff, which occurred in mid-2017, is one of the two contemporary thresholds (in addition to Galwan Valley 2020 standoff), which has had serious and severe impact and implications, as far as the infrastructure build-up facet goes, on the relational and security dynamics between India and China.

The infrastructure hegemony and overdrive include the oft-cited key dimension of aviation too. This includes airports, helibases (also termed as heliports) and the enhanced helistrips, all along the Indian northern borders. All these developments will necessarily benefit China economically and militarily and also provide the necessary foundation and boost to China's aggressive intent, in TAR and XUAR along India's northern borders. The PLA is also found to be investing significantly and heavily in dual-utility aviation infrastructure, in its western regions, opposite India's northern borders as part of its effective Military–Civil Fusion (MCF) strategy. This article analyses the Chinese aggressive, fast-paced aviation infrastructure build-up campaign, including the new developments and continued

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infrastructure enhancements, the obvious hegemonic and coercive intent and their implications on the security of India's northern borders.

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INTRODUCTION

'Political Power grows out of the barrel of a Gun'.¹ True to this oft-quoted aphorism from the late Mao Zedong, Chinese People's Liberation Army (PLA) invaded Xinjiang (in 1949) and Tibet (in 1950), soon after the formation of the People's Republic of China (PRC) on 1 October 1949. What has followed thereafter has been a continuum of infrastructure development—civil, military and dual-use—to strengthen the Chinese hold over the captured territories, i.e., the Tibet Autonomous Region (TAR) and Xinjiang Uyghur Autonomous Region (XUAR). India lost a peaceful border. All infrastructural development activities along the Indian frontier, opposite the northern borders (Shaksgam Valley in the north-west to India–China–Myanmar tri-junction, in the east), continue to have a direct impact on India–China political and security dynamics.

Infrastructure development commenced immediately after the annexation of East Turkestan (later renamed as XUAR) and Tibet (later renamed as TAR) to include both surface² (Chinese Surface Infrastructure Buildup, to include roads and railways) and aviation. Damshung airfield was the first airfield to get operationalised in Tibet in May 1956. The TAR government in the last decade also issued the 'Plan for construction of Well-off (Xioakang) villages in the border areas of the Tibet Autonomous Region', along India's northern borders (including disputed border areas), the implementation of which commenced in the year 2017.

The Communist Party of China (CPC) continues to invest heavily in developing an intricate, deliberate and coercive infrastructure architecture (or web) along India's northern borders. These projects are potential instruments of state power and serve as absolute and critical dual-use nodes that allow Beijing to pressure neighbours without triggering an open conflict, during the ever-existent grey-zone period, as is the case today. These developments continuing at a threatening pace, pose serious security threats along the Indian frontier. All these developments continue unabated, under the cloak and guise of economic development (trade and tourism) of Chinese border areas, increasing connectivity and integration of aforesaid occupied territories of XUAR and TAR with the mainland. The overall Chinese intent remains,

first, to connect the high, tough and rugged Himalayan region with mainland China (coastal and central regions) and second, to make the border regions, opposite India's northern borders more accessible.

India and China have had certain significant relational thresholds in the recent past. Two of these include the India–China standoff that happened in mid-2020 and the Doklam standoff in mid-2017. These instances have had long-lasting political and military fallouts, which continue to date. Due research and analysis (primarily based on a deliberate and detailed time-series study of open source imagery platforms) clearly indicate an 'infrastructure surge/continuum' which started after the Doklam standoff of mid-2017 (lasting 74 days; 16 June to 28 August 2017), and which continues to date. The pace of infrastructure development has accelerated and is in a state of overdrive, progressing at a threatening pace. It is seen in the domains of civil use (related to economic activities, trade and tourism), military utility and undoubtedly serves dual purpose at most times and places.

China has been innovative and is using its ingenuity extensively to overcome difficulties of challenging terrain and high altitudes, which is evident in the multi-modal infrastructure it has created even in the most difficult mountainous and desertified regions. The infrastructure surge includes an increased number of airports, helibases and enhanced helistrips.

This article seeks to provide an in-depth analysis of the new aviation infrastructure developments and enhancements to existing aviation infrastructure, opposite India's northern borders, post Doklam 2017. The article is divided into three parts. The first part highlights the aviation infrastructure objectives set out in the 'Chinese 14th Five-Year Plan (2021–2025)' and 'TAR General Aviation Development Plan (2021–2035)'. The second part analyses new developments and enhancements to the existing aviation infrastructure (airports, helibases and helistrips) opposite India's northern borders. The third part discusses the significance and implications of these developments in detail. All aviation infrastructure within the first 500 kms (first tier) only, along India's northern borders, is covered in the article. It analyses in detail the infrastructure hegemonic and coercive intent of China, as a nation, discussing thereto, the resulting strategic fallouts for India.

CHINA'S 14TH FIVE-YEAR PLAN (2021–2025): INFRASTRUCTURE OBJECTIVES³

China's 14th Five-Year Plan, covering the period 2021–2025 was approved by the National People's Congress (NPC) in March 2021. First published

by *Xinhua*, China's state-run press agency, on 13 March 2021, it earmarked US\$ 30 billion on infrastructure projects in Tibet alone.⁴ It differs from past plans in that it also includes a short section on 'long-range objectives' for 2035.

Chapter 11 of this five-year plan is devoted to infrastructure and is titled 'Building a Modern Infrastructure System'. It mentions 'coordinate and promote the construction of traditional infrastructure and new infrastructure and build a complete, efficient and practical, intelligent, green, safe and reliable modern infrastructure system'. Certain significant mentions and milestones in the planned infrastructure developments, as brought out in this plan document are as follows:

- Section 2: 'Accelerate Construction of a Transportation Powerhouse' (p. 27), states—'Build a modern comprehensive transportation system, promote the integrated development of various transportation modes and improve network effect and operational efficiency. Improve the comprehensive transportation channel, strengthen the construction of strategic backbone channels out of Xinjiang and into Tibet'.

Chapter 32, of this five-year plan is devoted to the 'In-depth Implementation of the Regional Coordinated Development Strategy', which mentions in its Section 5, Table 12:

- 'Promote Development Projects in Border Areas'. Details in the aforesaid table covering the border airports state—'We will build airports in Tashkurgan, Lhuntse and other airports and build about 20 general border airports'.

TAR GENERAL AVIATION DEVELOPMENT PLAN (2021–2035)⁵

It is equally pertinent to note this plan which was issued by the 'Development and Reform Commission of TAR' in December 2022. This document gives out the planning period as 2021–2035, including the near term to year 2025 and the mid-term to year 2030. This plan is an important basis for guiding the development of general aviation and the construction of general aviation airports in the 14th Five-Year Plan and medium- and long-term, and will be revised and adjusted (as said in the document) in the process of implementation according to the changes in internal and external conditions and environment for the development of general aviation in Tibet.

AVIATION INFRASTRUCTURE; NEW DEVELOPMENTS AND INFRASTRUCTURE ENHANCEMENTS

This section analyses all newly constructed airports, helibases and helistrips which are located within the first 500 kms along the Indian northern borders and the existing ones which have undergone infrastructure enhancements post Doklam 2017, till date. There are 18 such airports along India's northern borders. The aviation infrastructure is being covered geographically, commencing from the west, moving eastwards.

Airports

Twelve operational airports, within a distance of first 500 kms from India's northern borders, existed at Kashgar, Hotan (both in XUAR), Gargunsa, Shigatse, Lhasa, Damshung, Nyingchi, Qamdo (all in TAR), Daocheng Yading, Garze Kangding, Garze Gesar (all in Sichuan province) and Yushu Batang (in Qinghai province) before the Doklam 2017 standoff. These airports reportedly served dual purpose, i.e., civil and military. Amongst these, Hotan airport in 'XUAR', Shigatse and Lhasa Gonggar airports in 'TAR' have recorded the highest presence of military aerial assets and military-like aviation activity, in the past nine years. All existing airports, mentioned above (minus Garze Kangding) have seen considerable improvement and enhancements in allied and support infrastructure, in the last nine years, especially military-like, which is clearly evident from available satellite imagery, on various open source satellite imagery platforms.

New Airport Construction, Infrastructure Developments & Enhancements

- *Kashgar (Kashgar Laining) Airport*, in XUAR, has been operational since October 1954. It witnessed construction of 14 'Hardened Air Shelters' (HAS), work on which started in mid-2020 (open source satellite imagery platforms). These HAS were completed by late 2021 and have the ability to provide more robust protection to the fighter aircraft and other high-value military aerial assets. In addition to these HAS, infrastructure enhancements in terms of dispersal, apron and various other allied facilities have undergone significant capability enhancements.
- *Tashkurgan (Tashkurgan Khunjerab) Airport*, in XUAR, construction of which commenced in early 2020 (open source satellite imagery platforms), was declared operational on 23 December 2022.⁶ This is located alongside national highway G-314 (Urumqi to Kashgar to

Khunjerab Pass) at a distance of 350 kms northwest of 'DBO, India'. Assessing the initial infrastructure signatures here, the airport appeared to serve a civil purpose, but given its strategic location (proximity and approach to Shaksgam Valley), a quick transition to dual utility was always expected. This airport since mid-2024 has seen the development of a new dispersal area and apron, at the southern end of the existing runway. In addition, new maintenance and equipment shelters are seen to be under construction, alongside the new dispersal area. Both these developments are in progress as on date. The signatures and layout of the new construction are indicative of the Chinese intent to position military assets here permanently.

- *Sache (Yarkant) Airport*, in XUAR, was declared operational in August 2017. Since early 2024, this airport has seen the development of two new dispersal areas and aprons, at both ends of the existing runway. In addition, new maintenance and equipment shelters are seen to be under construction, on the southern end of the runway. Fresh construction of a Parallel Taxi Track (PTT) and the necessary Link Taxi Track (LTT) and Rapid Exit Track (RXT) has also been observed from mid-2025 onwards. All these developments are in progress at a fast pace. Signatures and layout of the new construction activities is indicative of the Chinese intent to position military assets here permanently.
- *Yecheng (Kashgar Kargilik Mirdei) Airport*, in XUAR, witnessed construction of a new airport early 2023. This airport is located astride national highway G-315 (Xining in Qinghai province, to Kashgar in XUAR) and the Taklamakan railway loop line. Construction activity commenced here early-2023 and this airport was declared operational on 28 November 2024.⁷ Improvements and capability enhancements to the allied and support infrastructure at this airport continue till date. The development of an airport at this location will further increase the existing aviation infrastructure density, opposite Ladakh.
- *Pishan Airport* (North West of Hotan) in XUAR, which is also located astride national highway G-315 and the Taklamakan railway line loop. Construction of this airport was first detected as also announced in February 2023.⁸ Miscellaneous construction activity continues till date, albeit slow, possibly nearing completion. Development of an airport at this location will again, further increase the aviation infrastructure density, opposite Ladakh.
- *Hotan (Hotan Kungang) Airport*, in XUAR, has been operational since 1957. It witnessed construction of a new longer runway, immediately

south of the already existing one. Work on this new runway commenced in mid-2020 and was seen operational in early 2024. This runway is 800 meters longer than the existing one, with the allied and support infrastructure signatures around it strongly suggesting it to be a dedicated military purpose runway. Capability enhancement and developments to the existing support and allied infrastructure at the airport site continue till date. This airport, along with Shigatse and Lhasa Gonggar airports in Lhasa, TAR, has witnessed and reported maximum presence of military aerial assets and military-like aviation activity, in the past nine years.

- *Keriya (Yutian Wanfang) Airport*, in XUAR, also falling astride national highway G-315 and the Taklamakan railway loop line, was declared operational on 26 December 2020.⁹ This airport is located east of Hotan. The airport has till recently, reportedly served a civil purpose, but given its strategic location astride G-315 and proximity to Ladakh region, quick transition to dual utility was always in the offing. Now this airport too, with effect from early 2024, has witnessed development of two new dispersal areas and aprons at both ends of the existing runway. In addition, new maintenance and equipment shelters are seen to be under construction, opposite the western end of the runway. Fresh construction of a PTT and the necessary LTTs are also observed mid-2025 onwards. All these developments are in progress at a fast pace. Signatures and layout of the new construction is indicative of the Chinese intent to position military aerial assets here permanently.
- *Gargunsa (Ngari Gunsai Ali Kunsai) Airport*, in TAR, which falls astride national highway G-219 (Western Highway), has been operational since July 2010. It witnessed construction of 16 new HAS, work on which commenced in mid-2020. These were seen completed by late 2022. These HAS have been built to provide more robust protection to fighter aircraft and other high-value military aerial assets. In addition, the airport has seen an overall improvement and capability enhancement in allied and support infrastructure, especially military-like, which continues till date.
- *Purang (Ngari Burang/ Ngari Pulan/ Ali Pulan) Airport*, in TAR, construction of which commenced in early 2021, was declared operational on 27 December 2023. The civil terminal has been functional since early 2024. In addition, since late 2024, massive infrastructure enhancement is still in progress, towards the northern end of the runway, in terms of '18 New Aircraft Hangars', dispersals and aprons, maintenance and equipment shelters. Signatures and layout of the new construction is indicative of the Chinese intent to position military aerial assets here

permanently. This airport is 22 kms north of the India–China–Nepal trijunction. This airport when fully operational for military aerial assets and platforms, will be the second closest to India's northern borders, the closest being Nyingchi Mainling (Linzhi) airport, which is less than 15 kms from the Indian border at Arunachal Pradesh.

- *Tingri Airport*, in TAR, construction of which commenced in early 2021, was declared operational on 24 December 2022. This airport too, with effect from mid-2024, has witnessed development of new dispersal area and apron, at the eastern end of the existing runway. In addition '18 New Aircraft Hangars' are seen to be under construction since mid-2025. New maintenance and equipment shelters are also seen to be under construction, immediately south of this area under enhancement. These infrastructure enhancements are in progress as on date. Signatures and layout of the new construction is indicative of the Chinese intent to position military aerial assets here permanently.
- *Shigatse (Heping) Airport*, in TAR, has been operational since 1973. This airport has seen massive infrastructure enhancements from mid-2017. The period from mid-2017 to end-2018 witnessed construction of a secondary 3,000-metre runway, aprons, helipads and various other allied facilities. The year 2019 saw the construction of new Unmanned Aerial Vehicle (UAV) hangars on to the eastern edge of the existing runway. As on date, the Shigatse airport has one of the heaviest complement of UAVs among all airports opposite the Indian northern borders. The year 2020 saw the construction of a new and enhanced Surface-to-Air Missiles (SAM) site with all its necessary allied infrastructure, on to the western edge of the existing runway. In 2020, major expansion of the existing solar farm immediately south of this airport was witnessed. Since mid-2024, the eastern end of the existing runway has witnessed the development of new dispersal area and apron. In addition, new maintenance and equipment shelters are seen to be under construction, immediately south of this area under development. Both these developments are progressing at a fast pace, as on date. The signatures and layout of the new construction is clearly indicative of this being a military utility area. This airport along with Hotan airport (XUAR) and Lhasa Gonggar Airport in Lhasa, TAR, has witnessed and reported maximum presence of military aerial assets and military-like aviation activity, in the past nine years.
- *Lhasa (Gonggar) Airport*, in TAR has been operational since 1966. Construction of 30 HAS (largest in numbers of HAS along India's

northern borders) began here in mid-2020, which were seen complete by early 2023. Between the period mid-2020 to mid-2022, major enhancements and expansion were seen to have been carried out to the existing dispersal area and aprons. In addition, new maintenance and equipment shelters have been constructed during this period. These enhancements, as per the signatures and layout are military utility in nature. Construction of a new secondary runway began in April 2022 and was declared operational on 26 December 2023. Multiple other infrastructure enhancements to the existing allied infrastructure continue at this airport, as on date.

- *Damshung (Damxung) Airport*, in TAR, was the first airport in Tibet, which was made operational in May 1956.¹⁰ However it was in a state of disuse since 1965 (with the commissioning of Lhasa Gonggar airport in vicinity). This airport, with effect from late-2020, is seen to be constructed afresh. As on date, it is seen to be in its advanced stages of construction.
- *Lhuntse (Shannan Longzi) Airport*, in TAR, construction of which commenced in early 2021, was declared operational on 23 December 2022. This airport too, with effect from late-2023, has seen the development of a new Parallel Taxi Track (PTT), new dispersal areas and aprons towards both ends of the existing runway. In addition, '36 New Aircraft Hangars' are seen to be under construction since late-2024. New maintenance and equipment shelters are also seen to be under construction, towards the eastern side of the existing runway. All these infrastructure enhancements are in progress as on date. The signatures and layout of this new and ongoing construction activity is clearly indicative of this being a military utility area. It also exhibits the Chinese intent to position military aerial assets here permanently.
- *Nyingchi Mainling (Linzhi Milin) Airport*, in TAR, has been operational since 1 September 2006. From early-2020, construction of a new PTT and dispersal area began here. The PTT was declared open on 20 March 2021. Also during the same period (between January 2020, up to January 2021), the SAM site co-located with this airport, was constructed with an aim to provide Air Defence (AD) protection to this airport and the assets positioned at this airport.
- *Qamdo Bamda (Changdu Bangda) Airport*, in TAR, has been operational since 1978. This was initially utilised as a military airport. It is the second highest airport in the world. A new runway was constructed here in 2017–2018. From late-2020 up to 2023, construction of a new PTT, dispersal

areas and aprons (on to the southern edge of the existing runway) was seen. During this period, various support and allied infrastructure at the airport was developed and improved. Major infrastructure enhancement in terms of maintenance shelters and allied infrastructure commenced in late-2023 and has been going on till date, on to the north and south alongside the existing runway. Overall infrastructure enhancement at this airport continues as on date.

- *Garze Gesar Airport*, in Sichuan province, construction of which commenced in June 2017, was declared operational in September 2019. The airport has reportedly served a civil purpose, but given its strategic location astride national highway G-317 (Chengdu in Sichuan province to Shiquanhe in TAR, moving east to west) and being 450 kms from the Indian border, quick transition to dual-utility cannot be ruled out. Activities here need to be tracked regularly.
- *Yushu Batang Airport*, in Qinghai province, has been operational since mid-2009. Commencing late-2021, the airport witnessed enhancement to the existing dispersal area and various other support and allied infrastructure. It seems to have been completed by mid-2023. The airport has reportedly served a civil purpose, but given its strategic location astride national highway G-214 (Xining in Qinghai province to Jinghong in Yunnan province, moving north to south), at a distance of 400 kms from the Indian border and with the G-214 passing close east of the Eastern Sector, opposite the northern border, a quick transition to dual-utility cannot be ruled out. Activities here need to be tracked regularly.

Helibases (also termed Heliports)

Helibases play a crucial role in providing opportunities for quicker and multi-modal means for troop and equipment mobilisation. They afford essential support for military operations, especially in areas with challenging terrain, by enabling timely transportation of troops, equipment and supplies. Only three operational helibases existed, before the Doklam 2017 standoff (open source satellite imagery platforms) within a distance of 500 kms from India's northern border. These were located at Shule (in XUAR), Nyingchi (in TAR) and Xinduqiaozen (in Sichuan province). Shule helibase amongst these three, has undergone major infrastructure improvements and enhancements in allied and support infrastructure and the adjoining garrison, which is clearly evident from available satellite imagery, on open source satellite imagery platforms. Utility of these helibases for UAV/drone operations cannot be ruled out and needs necessary surveillance.

Helibases Construction, Infrastructure Developments and Enhancements

- *Shule Helibase*, in XUAR, was first discerned as constructed in mid-2012 (open source satellite imagery platforms). Post Doklam 2017 standoff till date, this helibase has undergone major infrastructure improvements and enhancements to the adjoining helibase garrison, supporting this helibase. These infrastructure enhancements took place from mid-2020 up to end-2021.
- *Tashkurgan Helibase*, in XUAR, was first discerned to be under construction in mid-2016. Limited available satellite imagery indicates that it was incomplete and not operational in mid-2017. It is therefore assessed, that this helibase was possibly operationalised in late 2017.
- *Xaidullah Helibase*, in XUAR, construction of which commenced in early-2016 was operationalised in late-2017. Tremendous infrastructure expansion and enhancements to the military camps, immediately around this helibase, has been seen. These activities continue as on date.
- *Hotan Helibase*, in XUAR, was first seen constructed and operational in late-2017. From 2020 onwards, it has witnessed major infrastructure expansion and enhancements to the military garrison, immediately around this helibase. The helibase has also undergone infrastructure enhancement in terms of expansion of the existing dispersal.
- *Tianshuihai Helibase* (Aksai Chin, along national highway G-219), in XUAR, has seen development of a new helibase, work on which commenced in early-2020. The helibase and the garrison are possibly in their final stages of development.
- *Domar Helibase* (along national highway G-219), in TAR, has witnessed development of a new helibase, work on which commenced in early-2020. The helibase and the garrison are possibly in their final stages of development.
- *Shiquanhe Helibase*, in TAR, construction of which is observed in the year 2016, was operationalised by mid-2017. Since then, it has witnessed tremendous infrastructure expansion and enhancements to the military camps, immediately west to the helibase. These activities continue as on date.
- *Gerze Helibase*, in TAR (along national highway G-317; Chengdu in Sichuan province to Gar in TAR), has witnessed development of a new helibase, work on which commenced in early-2020. The helibase and the garrison are possibly in their final stages of development.
- *Nyima Helibase*, in TAR (along national highway G-317), has witnessed development of a new helibase, work on which commenced in

early-2020. The helibase and the garrison are possibly in their final stages of development.

- *Nagqu Helibase*, in TAR (along national highway G-109; Beijing to Lhasa), in TAR, has witnessed development of a new helibase, work on which commenced in early-2020. The helibase and the garrison are possibly in their final stages of development.
- *Kalashahr Helibase*, in TAR (along national highway 'G-694'; Jiru to Yatung, both in TAR) saw the development of a new helibase, work on which commenced in early-2020. The helibase and the garrison are possibly in their final stages of development.
- *Lhasa (Gongka Dzong) Helibase* is the largest helibase in TAR. This was first discerned to be under construction in late-2016. It was seen as operational by mid-2018. Major infrastructure enhancements were observed at this helibase commencing late-2020 in terms of extension of the existing helicopter runway, extension of the dispersal area and addition to the total number of hangars at this helibase. This continued till mid-2022. Simultaneously major infrastructure enhancements have been carried out at the helibase garrison too, during this period.
- *Lhasa (Yijiaolin) Helibase* is located astride the national highway G-318, along Lhasa river, immediately east of the Lhasa town. This was first discerned to be under construction in early-2017, and as operational by late-2017.
- *Lhasa Dazi (Tsolung) Helibase* is also located astride the national highway G-318, along the Lhasa river, close east of the Lhasa Yijiaolin helibase. First signatures of construction of a helibase were discerned in late-2020. This was seen operationalised by mid-2021.
- *Tsona Dzong Helibase*, in TAR, is now witnessing the construction of a new helibase. Work here commenced in mid-2025 and continues at a fast pace, as on date.
- *Mugu (Chayu) Helibase*, in TAR, witnesses the construction of a new helibase since mid-2024. This is located astride national highway G-219. Construction here began in early-2024. The helibase is under construction and work here continues at a fast pace, as on date.
- *Yinjiang Helibase*, in Yunnan province, construction of which was first discerned in late-2020, was seen operational by late-2024. This is located 310 kms east of the Indian northern border at Arunachal Pradesh.

Helistrips

China, alongside the additions and enhancements to its airports and helibases, is also developing enhanced (longer and larger in size) helistrips opposite the Indian border. This is a new development. Such construction activity is seen to have commenced post mid-2021 (during the India–China standoff of mid-2020). Most of these helistrips have been constructed opposite the Ladakh border and the Central Sector. A total of more than 30 helistrips have come up in the last five years. These helistrips lack the elaborate and deliberate allied and support infrastructure, that exists at a helibase. These helistrips have immense military value, as they can support and facilitate helicopter operations at high altitudes, in terms of faster troops, equipment and logistic inductions at a sustained pace, without any elaborate arrangements or infrastructure in place. These are all concretised with most of them having very basic helicopter landing aids and markings. These helistrips, with limited infrastructure support requirements, increase the aviation density opposite India's northern border. Utility of these helistrips for UAV/drone operations cannot be ruled out and needs necessary surveillance.

Prominent and the larger/more significant ones amongst these are located at:-

- Boksumbulaq (astride national highway G-695, north of Karakoram Pass).
- Piue (along Qizil Jilga–Tienweindien road).
- Krymgo Traggar (along G-695, opposite Gogra/Kongka La in Ladakh region).
- North of Moldo garrison (opposite Chushul in Ladakh region).
- Gegyai (on G-317, east of Shiquanhe).
- Tholing (South West of the Xiaokang of Tholing, South of Satluj river).
- Shiquanhe (12 kms southeast of the main town). This helistrip has now been reported in the open source as being an 'High Altitude UAV training and trials base' which was inaugurated on 28 September 2025.

SIGNIFICANCE AND IMPLICATIONS

Amongst the quantum, acceleration and momentum/pace of military infrastructure developments and enhancements, opposite India's northern borders, aviation infrastructure (airpower) has been one of the biggest elements, since 2017. Aviation infrastructure enhancement activities have picked up significant and noticeable pace, since mid-2017.

China today has 18 operational airports, within the first 500 kms of the Indian northern borders, located at Kashgar, Tashkurgan, Sache, Yecheng, Hotan, Keriya, Gargunsa, Purang, Tingri, Shigatse, Lhasa Gonggar, Lhuntse, Nyingchi, Qamdo, Daocheng Yading, Garze Gesar, Garze Kangding and Yushu Batang. In addition to the above, the under-construction airports at Pishan and Damshung (two more) are likely to be operational by end-2026. That takes the total count to 20 operational airports, within the first 500 kms of the Indian northern borders.

China today has 11 operational helibases, within the first 500 kms of the Indian northern borders, located at Shule, Tashkurgan, Xaidullah, Hotan, Shiquanhe, Lhasa Gongka Dzong, Lhasa Yijiaolin, Lhasa Dazi, Nyingchi, Yinjiang and Xinduqiaozhen. In addition to these, the under-construction helibases at Tianshuihai, Domar, Gerze, Nyima, Nagqu, Kalashahr, Tsona Dzong and Mugu (eight more) are seemingly in their final stages of construction and likely to be operational soon, possibly by the end of 2026. That takes the total count to 19 operational helibases, within the first 500 kms of the Indian northern borders.

New runways and PTTs freshly constructed or being constructed at the airfields will certainly expand the overall capacity for the PLAAF to operate in these strategic and highly sensitive border regions. Construction of new HAS and associated facilities at various airports will also increase the survivability of military aerial assets deployed at these sites. Expansions and enlargements of allied and support facilities are bound to boost readiness levels and potential sustainability of PLAAF air operations along and opposite the Indian northern borders.

China's known intent to ensure dual use of aviation infrastructure especially along the Indian border in XUAR, TAR, Qinghai, Sichuan or Yunnan is a given. *Xinhua*, the Chinese official mouthpiece, in an article dated 29 July 2015 states: 'According to a joint statement from the country's Air Force and Aviation authority, China will advance integration of civil-military airports to strengthen aviation safety and combat support capabilities'.¹¹ Even the famed Tibetologist Claude Arpi in his article mentions that 'Dual-use airports is a win-win move for China'.¹²

The increased density of the aforesaid aviation infrastructure will undoubtedly enable and improve the PLA's capabilities to mobilise and induct larger forces and logistic complements, in a relatively quicker timeframe. This includes personnel, equipment and logistics of varied types and purpose. Reinforcements, relief and rotation vide aerial mode, from the distant mainland, over longer distances will also be facilitated by this

rapid improvement of aviation infrastructure, further widening the military balance in Beijing's favour.

Building up more airports and helibases opposite the Indian northern borders also enables China to disperse its military aerial assets, improve their existing radius of action and neutralise to whatever extent possible, the shortcomings of performance penalties imposed on its aerial assets, due to the higher altitudes in TAR.

China's heavy investments in these airpower-related aviation facilities is already being leveraged by PLAAF. This is evident in the increased aerial activity along and opposite the Indian northern borders. Presence of military aerial assets of varied types and possibly for varied purpose and also the military-like aviation activities at these aviation hubs highlight the strategic motivations that underpin these developments, making them critical components of China's military strategy *vis-à-vis* India, along its northern borders.

Possibility of the PLA using this improved and enhanced aviation infrastructure coupled with their now well practiced territorial grey zone tactics, to de facto occupy or attempt to deploy military assets under the pretext of civilian activity, cannot be ruled out.

Improved aviation infrastructure undoubtedly aims at consolidating PLA's grip over restive TAR and XUAR. It will also facilitate and assist in unprecedented tourism boom, expanding mining of precious and rare resources of TAR and XUAR, to name a few.

CONCLUSION

In an era of multi-domain conflicts, conflicts will be won not merely on the fighting prowess of the armed forces on the battlefield, but also on the infrastructural capabilities, prowess and might of the two antagonists in the area of operations. Multi-dimensional infrastructural capabilities remain an essential element in winning any future conflict or war.

China, in the overall sense, exhibits a clear intent to use infrastructure as a tool of hegemony and coercion. The acceleration of aviation infrastructure development and enhancement over the past few years is indeed linked to the rising geopolitical friction between India and China. As the aviation infrastructure along the Indian border continues to expand, China is systematically positioning itself for potential future border conflicts with India. China's strategic aviation construction patterns as part of the overall multi-modal transportation networks, extend past economic and political

integration of their restive areas of TAR and XUAR. These developments serve as a crucial component of Chinese broader military and geopolitical ambitions to deter, compel or coerce India. By embedding the well-known concept of dual-use infrastructure, China strengthens its ability to mobilise military assets and all necessary components at a quick pace, reinforcing its dominance in the region, while posing a direct challenge to India along the Line of Actual Control (LAC). Strategic use of upgraded and enhanced aviation networks will further improve in the foreseeable future, facilitating military logistics and support, thereby underscoring China's hegemonic ambitions in the region. These developments demonstrate and confirm that Chinese infrastructure projects are intended to strengthen their military and coercive goals.

China has shown a clear intent to further widen the 'aviation infrastructure differential' opposite India's northern borders. The new and improved aviation infrastructure further enhances China's ability to mobilise and project strategic and military assets up to and within the two autonomous regions of TAR and XUAR. Such extensive new-age aviation infrastructure development coupled with an intensified Military–Civil Fusion (MCF) national strategy, will certainly aid China to deploy forces to forward positions for extended periods and mobilise reinforcing units and elements relatively quickly from the mainland, if and when required. Put simply, such developments could provide China with an operational advantage over India, in forthcoming times.

Recommendations for India

China's intensified and continued development of its dual-use aviation infrastructure opposite the Indian northern borders suggests a shift in its approach to territorial disputes, which should force India to rethink and review its national security preparedness and posture. The new strategic dynamics created by China's unabated infrastructure surge will nonetheless compel India to shape its future defence posture around a long-term outlook on China's growing aviation capabilities in regions opposite Indian northern borders. This aviation infrastructure expansion and enhancement along the Indian northern borders remains an ever-increasing threat and military enabler.

While China's extensive, deliberately developed and rapidly evolving aviation infrastructure offers China significant military and operational advantages, India needs to equally accelerate its efforts in enhancing its own pace of aviation infrastructure development, to ensure and enable a credible

posture along the northern borders. This needs to be done at both scale and with speed.

As aviation infrastructure becomes a strategic enabler of deterrence and compellence, India must re-frame how it assesses and responds to such actions by China. Failing to do so, on India's part, will leave the borders vulnerable to incremental gains, that will add up to irreversible strategic shifts.

This article, vide available satellite imagery on varied OSINT platforms and a detailed and deliberate time-series analysis of the general Chinese infrastructure development patterns and behaviour, over the last nine years, has attempted to understand the breathtaking and bewildering scale of aviation infrastructure enhancements, opposite the Indian northern borders. But this only conveys to us the story so far. This cannot be the endpoint of China's expanded infrastructure (more so military) ambitions. A more deliberate and detailed investigative analysis of developments across various types of infrastructure will further assist in lifting the veil on China's true intent and capabilities, over time.

NOTES

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