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# Sino-Indian Border Infrastructure: Issues and Challenges*

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## Introduction

Asia has been at the centre of emerging global politics, for a variety of reasons. Some of the world's major military powers—India, China, Russia and the US—are in Asia; six of the nine nuclear powers are in Asia; some of the fastest growing economies are in Asia. Among these, China is an important country whose rise is inevitable but there is a need to recognize that the rise of any one power does not lead to a period of more insecurities and instability in the region. Since India, China and Japan are the rising powers in Asia they have to find ways of working with each other and not against each other. Each of the countries has a role in fostering an environment of cooperation in the Asian context.

As neighbours, there is a clear need for both India and China to engage in a manner that would contribute to peace and stability in the region and beyond. India-China relations have gone from one end of the spectrum to the other–"hindi-chini bhai bhai" to the 1962 border war to strenuous relations after India's Pokhran tests. In fact, the relations are at their best today—the economic content of the relationship has improved tremendously, with trade touching $50 billion. However, there is a lot that needs to be done in the politico-strategic arena, as tension and suspicion continue to strain bilateral relations. These tensions do manifest themselves, from time to time, on the border and at various diplomatic fora. India's border tension with China is only a symptom of the larger problem in the India-China equation. This is likely to continue until there is clarity on the Line of Actual Control (LAC). Despite the talks since 1981, the big push by successive Prime Ministers (Rajiv Gandhi during his visit in 1988, Atal Bihari Vajpayee during his visit in 2003, Manmohan Singh in his talks with Premier Wen Jiabao in 2005 and President Hu Jintao in 2006, Manmohan Singh's visit in January 2008) and various other channels like the Special Representatives talks, there has hardly been any progress on demarcation or delineation of the LAC on the ground or on military maps. LAC has become a matter of perception; the Indian side has a perception of where the Line of Actual Control runs and Indian military patrols/border police patrols patrol up to that perceived LAC whereas the Chinese have a different perception of where the LAC is and they patrol up to their perceived LAC. In between, there is a red zone which overlaps and this is where the patrol face-offs take place. Despite the ambiguities, there has been no incident of firing since the last major incident at Nathu La in 1967; however,

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there was a serious standoff at Sumdorong Chu valley in 1987.

On the Indian side, there are multiple authorities managing the border, including the Army, the Indo-Tibetan Border Police (ITBP), the Border Security Force and the Assam Rifles. On the Chinese side, there is a single unified commander who is in charge of the Tibetan Autonomous Region (TAR) forces. Thus, there is cohesiveness in China's management of its perceived LAC. On the Indian side, management becomes slightly inefficient because in some places the Ministry of Home Affairs is responsible through the ITBP and in other places the Ministry of Defence is responsible through the Indian Army. Hence, the need for unity of command on the Indian side is of utmost importance.

With the above background, this paper attempts to deal with the infrastructure on the Sino-Indian border. While border management and force structure along the border are important issues, they do not necessarily fall within the purview of this paper. The paper is broadly structured into three sections: The first section gives details of China's recent infrastructural developments along the Sino-Indian border. The focus is on the highways, road links and oil pipelines that improve its force deployment and sustenance capabilities. The second section looks at India's initiatives on the border front. The last section provides details of the Indian approach to infrastructure building, arguing that it is inadequate especially in light of the Chinese developments.

## Importance of Upgraded Infrastructure

Upgradation of infrastructure is critical for applying military power. In the case of China and India, there is a clear military imbalance in terms of equipments and units as well as the physical infrastructure. In the last few years, China has undertaken major infrastructural projects in the Tibet Autonomous Region as well as on the Sino-Indian border. It now has a 40,000-km road network in Tibet, apart from rail links like the 1,118-km link from Lhasa to Gormo in Qinghai province, which would enable it to mobilize large forces by train and by road in a short span of time. Earlier this exercise not only took a long time but was also impossible during winter. Similarly, shifting of huge quantum of war logistics material becomes easier. The new rail line into Tibet and the expressways have changed the scenario totally. China also has multiple air bases and forward airstrips near the border[1]. The speed with which it can move troops has thus increased dramatically. On the Indian side troop mobility and logistics supply in the forward areas are constrained, especially as some existing roads simply end 60 to 80 km from the LAC.

While the PLA has set up equipped military camps close to the border (these are not cantonments) where its troops are acclimatized, on the Indian side, except for a few divisions on the border, the forces that are expected to man the border are located in the plains of Assam. Since these forces are virtually at sea level, several stages of acclimatization would be required before they could be deployed on the border.

It is estimated that China already has about 160,000 troops in Tibet (on border guard and law & order duties), and with the improved infrastructure, it would be able to amass another 100,000 troops from the central reserve in a short span of six weeks[2]. China has also improved capabilities to deploy heavy-lift planes in Tibet, though they may not be able to land and take-off fully loaded because of altitude and weight restrictions. Besides, the positioning of intermediate range ballistic missiles such as DF-4 and DF-21 in Tibet is significant. It is also reported that China could deploy DF-31 ICBMs at the Delingha base.

Another development in Chinese modernization that affects land warfare and is particularly relevant in the Indian context is the raising of the air mobile reserve forces, which can be flown in rapidly from the East to the Indian borders. In fact, PLA's mobile forces have rapid reaction forces which, when equipped with small arms and light weapons, are capable of being air-lifted[3] or sea-lifted to any terrain (desert, swamp, mountain) within 10 hours after an order is issued[4]. These forces significantly enhance the PLA's ability to engage in short and swift operations[5]. A modernized logistics system with digitized tracking of logistic assets and automated inventory control, which will also add to China's land warfare waging capability, has been tried out in exercises.

Tanks (armour) may not be very effective in the mountainous terrain. However, one cannot rule

these out especially in the Ladakh sector where once the mountains are crossed, it is like a high-altitude desert. Artillery (long distance heavy caliber guns firing up to about 40 km plus) and air power are also of concern to India. There have been several debates on the offensive use of air power in high altitude areas. Several analysts have rejected the use of air power for combat purposes in high altitude areas, but this has not stopped China from building airfields at high altitudes; India, on its part, fought a high altitude air war with Pakistan during the Kargil conflict[6].

The next section will detail the various border infrastructure projects undertaken by China and India in a comparative manner, highlighting the severity of the handicap that India faces. For a long time, the politicians, the bureaucracy and the military had been opposed to development/ upgrading of the border infrastructure, arguing that it would facilitate the Chinese. Recently, this was acknowledged by the Defence Minister, A.K. Antony. While addressing a function of the BRO, Antony said: "Earlier, the thinking was that inaccessibility in far-flung areas would be a deterrent to the enemies." Describing such thoughts as an "incorrect approach", he said the government is now taking a number of measures to upgrade roads, tunnels and airfields in the border areas[7]. Similarly, the Border Roads Organisation (BRO) Director General, Lt. Gen. A.K. Nanda, had stated that the infrastructure along the borders was not improved upon earlier by design. But now, he added, "our approach has changed and we are building it on our capacity, modern equipment and workforce[8]."

The Indian reluctance to undertake major infrastructure works on the border could also be understood through the significant demographic differences that exist on either side of the un-defined border[9]. When faced with heterogeneity, as India is, it arguably becomes harder to mobilize popular and political will to undertake significant border infrastructure projects.

Such a line of reasoning to explain India's lack of initiative is debatable; nonetheless, a more pressing fact remains: an under-developed border brings with it a number of disadvantages—the major one being the inability to deploy forces into the areas required, within an acceptable timeframe.

In the case of the PRC, the existing road, rail and air support networks provide it with the ability to amass forces quickly and effectively[10]. Given the comparatively poorly developed road and rail networks in India, the outcome of any future military engagement in the region would be less than favorable for the country.

## Border Infrastructural Developments: A Comparison

Among the infrastructural developments that provide the PRC with strategic advantage, perhaps the most extensive work is being carried out in the Tibetan Autonomous Region[11]. The three major highways—the western highway, the central highway and the eastern highway—have undergone major improvements. Some of these developments are detailed below.

### Highways in the TAR:

### The Western highway

- Black topping from Lhasa to Lhatse Dz (490 km) completed
- Black topping up to Parkha in progress (510km)

### The Central highway

- Lhasa to Yangbajain (90 km), being developed as four-lane highway

### The Eastern highway

- Lhasa to Ngiti (400 kms) black topped

### Assessed Capacity of all Highways in the TAR by Weight:

- 7100 tonnes per day

The 1,086 km electrified Gormo-Lhasa railway line has been completed. This is a tremendous engineering and physical feat, given the high altitude of this region. More significantly, Beijing now plans to extend the line up to Xigaze, south of Lhasa and from there to Yatung, a traditional trading centre situated at the mouth of the Chumbi valley just a few kilometres away from the strategic Nathu La pass.

The Chinese also propose an extension of the Golmund-Lhasa line to Nyingchi–a major trading town north of Arunachal Pradesh, close to Myanmar. The goal is to extend the railway line to Dali in

Yunnan province. The Lhasa-Nyingchi-Dali route is significant as it runs in an east-west direction almost parallel and quite close to the Arunachal border; "it would enable the 14 Group of the Chinese Army located at Kunming, with its divisions at Dali, Kaiyuanand and Kunming, to rapidly move westwards from Yunnan to TAR by railway. Similarly, the 13 Group Army (Unit 56005) from its locations in the Sichuan province would be able to utilize this linked railway network to move to TAR[12]."

On the eastern front, China has also completed the 1,118 km (695 miles) Qinghai-Tibet railway line. Additionally, it has established four new airbases in Tibet and three in southern China. On the Indian side, the Government has sanctioned a proposal of rail link in Sikkim—a project long overdue. The project, expected to be finished by 2015-16, will connect Sikkim with the rest of India.

**Assessed capacity of the Qinghai-Tibet railway line**

- 8 trains (one way) per day
- Travelling time–2 days from mainland China to Lhasa
- Total tonnage–3200 tonnes per train

Similarly, the oil pipeline capacity (the Gormo-Lhasa oil pipeline) has also been increased. The pipeline can transport up to 5 million tons of oil per year, and currently transports 1.25 million tons per year, given the limited demand in TAR.

There have been parallel upgradation efforts on the western front–Karakoram Highway (KKH)–which are equally significant given the connectivity that it provides to both China and Pakistan. The KKH road link is already completed and Beijing is now planning a link by rail network. Both the KKH and the Chinese road running in Aksai Chin—China's major asset for amassing troops—are also famously known as the highway of nuclear & missile proliferation[13].

KKH, the highest paved international road, came up in 1986 after 20 yrs of construction. It connects Pakistan's Northern Areas to the ancient Silk Route–a road of 1,300 kms running from Kashgar in Xinjiang to Havelian in the Abbottabad district of Pakistan. Along the same route, China is now planning rail lines beyond the KKH in parts of Kashmir under the control of Pakistan. Expanding the Chinese railway network from the border town of Kashgar to Peshawar and Karachi is significant, since it would prove to be the shortest trading route as well as an alternative energy transportation link from Persian Gulf to Xinjiang[14].

What do these developments imply in military terms? The rationale is not hard to see. If Beijing seeks to use Tibet as a buffer as the British once did, such infrastructure would allow the PLA an enhanced force application and sustenance capability in the TAR (30-32 divisions including 5-6 rapid reaction divisions; up from the current 20-22 divisions), making any ground offensive undertaken from Arunachal Pradesh or Ladakh for instance, a harder and initially ineffective endeavor.

Furthermore, the infrastructure projects in the TAR provide the PRC with offensive capabilities. The increasing militarization taking place in the TAR region is noteworthy. The positioning of the intermediate range ballistic missiles such as DF-4 and DF-21 in Delingha near Tibet has the potential to target various population centres in northern India, including New Delhi. Additionally, China has around 1,200 missile targeted at Taiwan which can be shifted to the Tibetan theatre given the increased mobilization capability.

Regarding the infrastructure projects on the Sino-Indian border, of significance is the stark difference in the development of roads in the middle and eastern sectors. The following data shows that many roads on the Indian side of the border terminate far before the LAC unlike those of the Chinese, which in some cases even extend well into the Indian side of the border.

| New Chinese Road | Chinese Road Head and Distance from LAC | Indian Road Head and Distance from LAC |
|---|---|---|
| Chip Chang Trig Heights | 04 km on our side of LAC | Up to Indian perception of LAC (local road) |
| Mabdola-Kongka La | 500 metres short of LAC | Just short of Kongka La |
| Sirijap – Pt 4576 | 4.5 km on our side of LAC | Nanglung Lungpa 15 km (being extended to Point 4433) |
| Chutichanla–Area Bush | 100 metres inside our perception of LAC | Point 4715 02 km |
| Setting Imisla | 50 metres short of Imisla Pass | Zursar 10 km |

It is also worth mentioning that the Aksai Chin area continues to be completely air-maintained.

Not a single road has come up here in the last 58 years since the 1962 war, which explains the vulnerability on our side.

### Middle Sector: Opposite Himachal Pradesh

| New Chinese Road | Chinese Road Head and Distance from LAC | Indian Road Head and Distance from LAC |
|---|---|---|
| Manza-Churup | Churup 03 km short of LAC (construction of road ahead of Churup in progress) | Sugar 04 km |
| Tayak-Shipki | Shipki 06 kms short of LAC (construction of road ahead of Shipki in progress) | Chuppan 05 km |

### The Middle Sector: Opposite Uttaranchal

| New Chinese Road | Chinese Road Head and Distance from LAC | Indian Road Head and Distance from LAC |
|---|---|---|
| Bobra-Mana Pass | 01 km short of Mana Pass | Musapani (35 kms) (being extended to Ghastoli) |
| Lungi-Jindu-Niti | 02 kms short of Niti | Malari (50 kms) |
| Lungi-Tunjun La | Tunjun La up to LAC | KM 16 (33 kms) |
| Pulan-Lipulekh | 700 mts short of Lipulekh | Jibti (80 kms) (being extended) |

### The Eastern Sector: Opposite East Sikkim

| New Chinese Road | Chinese Road Head and Distance from LAC | Indian Road Head and Distance from LAC |
|---|---|---|
| Asam-Jhandori<br>Post-Dongchuila<br>Sinchella-Batangla | 700 mts short of Dongchuila<br>75 mts short of Batangla | TR JUNC 03 km<br>Bheem Base 03 kms (being extended to Dokala) |
| Sinchella-Dokala | 250 mts short of Dokala | Bheem Base 03 kms (being extended to Dokala) |

### The Eastern Sector: Opposite Tawang

| New Chinese Road | Chinese Road Head and Distance from LAC | Indian Road Head and Distance from LAC |
|---|---|---|
| Gordong-Broken Hut | 500 mts from Gordong Camp | Nelya 04 kms |
| Le Camp-Wangdung | 600 mts from Wangdung | Lungrola 03 kms |
| Kechen Tso-Kerothang | 500 mts from Kerothang | Lungrola 03 kms |
| Nangdoh-Kharsang La | 200 mts from Kharsang La | Sungetsar 07 kms |

### The Eastern Sector: Opposite Eastern Arunachal Pradesh[15]

| New Chinese Road | Chinese Road Head and Distance from LAC | Indian Road Head and Distance from LAC |
|---|---|---|
| Chayal dz-Lung | Lung 12 Kms | Lemikeng 65 Kms (Being extended to Taksing) |
| Tadang- Purang Yumjo | 04 Kms Short of LAC | Lemikeng 65 Kms (Being extended to Taksing) |
| Bipung-Shirang | Shirang | Tuting 20 km (being extended to Bona) |

The information above clearly shows the advantage the PLA would have in any conflict against India.

### India's Infrastructural Initiatives

A 20-hour, 500 km (300 mile) drive from Guwahati to Tawang shows the paucity of roads in border areas. The status of India's infrastructural initiatives is detailed below.

- In 2006, the government gave the green signal for a host of road and other infrastructure projects in border areas–building of 72 roads, three airstrips and numerous bridges in the border areas along the undefined LAC that would enable the Indian military to "swiftly move forces into the region and sustain them logistically in the event of any untoward trouble or emergency[16]." Only nine of the 72 roads earmarked for construction along the Sino-Indian border have been built till now[17]. There are huge delays due to pending mandatory clearances from the ministry of environment and forests as well as inadequate funding.
- In May 2010, the BRO undertook the building of 61 roads near the India-China border, with a total length of 3,429 km. It also plans to construct 285 roads with a total length of over 4,890 km and an all-weather road to Ladakh. Despite these initiatives, the pace of infrastructure building has been alarmingly slow. The BRO, in particular, has been directed to complete construction of the roads stretching from Ladakh to Diphu La in Arunachal, about 608-km at a cost of Rs. 992 crore (203 million USD), by 2010[18]. However, it is nowhere near completion. Meanwhile, the government has also approved the construction of four strategic roads in Ladakh–part of the wider infrastructure-building effort across the Himalayas.
- In 2009, the government announced an investment of US$3 billion for road building in border areas. There are reports suggesting that upgradation of advance landing grounds, airfields and construction of border roads, are now being open to the private sector so as to enable speedy implementation of some of these critical border infrastructure projects. These tasks were until recently done solely by engineers of the IAF or the BRO[19].
- In June 2009, the Ministry of Road Transport and Highways, while announcing its 100-day agenda,

stated that it had allocated Rs. 13,397.2 crore ($2.8 billion) for road development in Jammu and Kashmir and the Northeast. The ministry also set a timeframe for 30 projects so that they are implemented on a fast track basis. As per the agenda, the ministry plans to construct 7,000 km of road every year. The projects to enhance road connectivity in Jammu and Kashmir include the four-laning of the Jammu-Srinagar national highway at an estimated cost of Rs. 9,628.82 crore. The plan also includes improving the national highway 1D (Zozila-Kargil-Leh road) and construction of a 3 km two-lane road at national highway-1B (Batote-Kishtwar). BRO is executing these projects at an estimated cost of Rs.100 crore. The ministry also cleared two more projects worth Rs. 768 crore for the state[20].

- India's initiatives on its eastern borders have been slow. In January 2008, Prime Minister Manmohan Singh announced a package to construct a rail link between Harmuti (a small town in Assam, located 33 kms south of Itanagar) and Itanagar[21].
- Important road projects in the Northeast include two-laning of trans-Arunachal highway from Nechipu to Hoj and Potin to Pangin at an estimated cost of Rs. 2,738.75 crore; upgradation of Stillwell road in Arunachal Pradesh at a cost of Rs. 91.25 crore; and investment of Rs. 71 crore for the two-laning of the national highway-154 in Assam[22]. All these Northeast projects were expected to be completed by August 2009. Additionally, the ministry is planning to construct new two-lane highways and improve existing national highways in Dibrugarh and Tinsukhia districts of Assam[23].
- The situation in Sikkim is quite pathetic, with just one road linking Gangtok and Nathu La and one landslide-prone road, about five meters wide, connecting the state with the rest of the country. The road density for Sikkim is 28.45 kilometers per 100 square kilometers whereas the national average is 84 kilometers. Road density in Arunachal Pradesh is shocking with just 18.65 kilometers per 100 square kilometers. Additionally, there are no trains running to the border-states of Sikkim, Tripura, Meghalaya, Mizoram and Arunachal Pradesh[24]. While Chinese military personnel will have road and rail access to the Sino-Indian border in a few years, Indian soldiers may still have to trek 10-15kms to get there.
- In September 2009, the Cabinet Committee on Security (CCS) cleared a few projects—to build a more reliable second approach to Ladakh with the upgrading of the Manali-Leh road; to construct the 8.8 km Rohtang tunnel (which had been waiting for CCS approval since 2002; Rohtang Pass at a height of 13,050 feet remains unconnected by road linking Leh-Himachal almost the entire winter season due to heavy snowfall); to develop railway networks in border areas of Jammu & Kashmir and linking them with other parts of the nation (Kashmir valley with the Himalayan foothills, originally planned by 2009, but only the lines in the plains are operational so far). Additionally, the government plans a new railway project to link Ladakh to the rest of India (Bilaspur in HP).
- In April 2010, 35 projects in Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh and Jammu and Kashmir got environmental clearance after the Supreme Court's central empowered committee (CEC) completed its report and submitted it before the bench[25]. According to the report, the proposed roads pass through high altitude alpine areas and would involve felling 3,042 trees, 9,769 shrubs, 14,018 herbs and 5,000 bamboos (army has been waiting for this approval since 2005).

## India's Approach to Border Infrastructure

The lack of border infrastructure has been blamed on several factors, including the lack of funding. However, the recent report of the Comptroller and Auditor General (CAG) sheds new light. CAG review of grants to the Home Ministry for infrastructure development along the China border has revealed that "large provisions persistently remained unutilized during the period 2006-09 and were surrendered, defeating the purpose for which the budget provisions were passed by Parliament." The CAG report submitted in Parliament on May 7, 2010, says the unspent amount on capital expenditure—that includes development of infrastructure along the border and other security-related spending—was as high as 58% in 2008-09 while allocation for this purpose had been hiked from Rs. 2,000 crore in 2006-07 to Rs. 5,300 crore in 2008-09[26]. Additionally, not only were the supplementary grants unspent, but 97% of regular funds for the period between 2006 and 2009 were not used and

returned by the Home Ministry at the end of the financial year.

The CAG report also brought out that "the home ministry failed to execute road projects resulting in non-expenditure of 91% of the allocated funds in 2006-07 and 97% each in 2007-08 and 2008-09[27]." The lack of environmental or inter-ministerial clearances for border projects has often been blamed for the paucity of infrastructural projects, although the report does not mention this as a problem at all. The report focused on blaming "administrative failure in allocating works, non-demarcation of border areas and local protests" as some issues in delaying or even commencing these projects. BRO, however, argues that clearances by the forest department and acquisition of land are the major hurdles in executing these projects. Other problem include staff deficiency and lack of modern equipments. BRO Director General Lt. General Badhani had recently said, "With a budget of over Rs. 6,000 crore, the BRO is working on nearly 700 roads of 28,000-km length as well as seven airfields in border areas. The force of nearly 36,000 men and women is also battling the odds—staff deficiency (15%) and lack of modern equipment–high-lifting helicopters like MI-17 class for transporting men and material to difficult areas[28]." The approved strength of BRO personnel is estimated to be around 43,000.

So, contrary, to a widely held opinion, funding is not the core issue impeding progress. The government could set up a multi-party parliamentary committee that would constantly monitor and do the follow up vis-a-vis other departments and ministries, which the BRO and the Home Ministry fail to.

## Conclusion

India has to recognize that border infrastructure remains a critical element in regional integration. In the age of globalization and increasing economic interdependence, connectivity is of critical importance. India cannot afford to have poor border networks of rail & road and energy transportation linkages, which can slow down the pace of economic integration and prove to be a disadvantage for the country.

An enhanced network of linkages will reduce transportation costs while facilitating intraregional and interstate trade and service networks. This will go a long way in reducing, for instance, the alienation that the North Eastern region has been sensing vis-a-vis the rest of India. This is in addition to the military and strategic benefits that improved infrastructure can accrue for India.

As China becomes economically and militarily stronger, and exercises greater influence in the Asian neighbourhood, India, on its part, must develop and upgrade its capabilities–military and infrastructure–and simultaneously initiate pro-active diplomacy for peace in the region and beyond.

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**Appendix 1**

**Military Measures Undertaken by India on the India-China Border**

- India has about twelve mountain divisions. Two of these were created in February 2008, specifically for combat purposes in Arunachal Pradesh. These divisions are capable of swift, offensive operations in the mountainous areas[29]. There have also been reports of India's plans to procure 140 ultra-light artillery pieces, as well as a large number of heavy lift and combat ready helicopters, all of which would have significant utility in mountain warfare. In June 2009, Government of India approved the deployment of two additional army divisions and two air force squadrons (each squadron has 18-20 aircrafts) near its border with China, sparking new tensions between the two countries, with Beijing reiterating yet again that a large stretch of the state of Arunachal Pradesh belongs to them. With this new deployment in Assam, India's troop strength in the region will cross more than one hundred thousand.
- These will be reinforced by significant amount of air power, including Airborne Warning and Control Systems (AWACS) and fighter jets. India has acquired three AWACS, which potentially has use on the Eastern border. Deployment of AWACS to the northeast would be significant as it is a potent force multiplier, capable of monitoring the movement of aircraft on the Chinese side.
- Additionally, the Indian Air Force (IAF) has deployed two squadrons of advanced Sukhoi-30 MKI aircraft in Tezpur, Assam (June 2009)[30]. In June 2009, the IAF also proposed to station more Sukhois in the nearby Chabua air force base. Though only four fighters are deployed now, there are plans to increase it to its full complement in a gradual manner.
- Regarding airfields, in July 2008, India approved improving its defenses in the western sector of the Sino-Indian border, by reopening airfields in Daulat Beg Oldi and Fukche in Ladakh in Jammu and Kashmir, a stone's throw from Aksai Chin. In September 2009, the

government re-opened the Nyoma Advanced Landing Ground (ALG) (23 kms from the border) for IAF operations (for fixed-wing aircrafts; earlier, only helicopters were possible). The IAF has been reopening airfields to strengthen its air maintenance operations as well as promotion of tourism in the region[31], which is the gateway to the highest battlefield, the Siachen Glacier. However, the IAF's plans to reopen the Chu Shul ALG in the region have been shelved for the moment, but could be revived later.

- In addition, India is undertaking upgradation of airstrips and advanced landing stations along the Northeast, including at Tezpur (Assam), Chabua (Assam), Jorhat (Assam), Panagarh (West Bengal), and Purnea (Bihar) (upgradation will include expanding the length of the runway from 9,000 feet to 11,000 feet).
- Arunachal Pradesh and Sikkim are also planning to raise a 5,000-strong force, comprising of local populace, to supplement Indian Army efforts during a crisis. This is being modeled on Ladakh Scouts that proved useful during the 1999 Kargil War with Pakistan. The Indian moves have clearly irked the Chinese leadership as reflected in several editorials in the PLA mouthpiece People's Daily. One editorial said that "China won't make any compromises in its border disputes with India[32]."
- Lastly, while India has tested a number of intermediate-range missiles, including the Agni-3, capable of hitting both Beijing and Shanghai, these missiles are still not operational. Agni-5 is scheduled to be tested next year. DRDO is also developing MIRV (multiple independently targetable reentry vehicle) warheads for these missiles, with a payload capability to carry several nuclear warheads that can be programmed to hit several different targets.

**Ends Note:**

1. Hari Sud, "China's Designs on India's Northeast," *UPI Asia*, March 25, 2008, available at http://www.upiasia.com/Security/2008/03/25/chinas_designs_on_indias_northeast/7412/.
2. Hari Sud, "China's Designs on India's Northeast," *UPI Asia*, March 25, 2008, available at http://www.upiasia.com/Security/2008/03/25/chinas_designs_on_indias_northeast/7412/.
3. China's air lift capabilities are not exactly adequate, given the small number of IL-76s that they have; PLAAF has 18 of them and have placed an order for another 30. Each IL-76MD is capable of carrying 190 troops, or three armoured vehicles, over a distance of 6,100km, and dropping them directly to enemy zone. The aircraft's airdrop and cargo handing equipment allows it to load, unload and air drop paratroopers, materiel and cargo quickly. Additionally, the onboard avionics can execute airlift and airdrop missions day and night, in VFR (visual flight rules) and IFR (instrument flight rules) weather conditions, as well as under hostile air defence conditions. These are decisive advantages. For details on their transport inventory, see IISS *Military Balance* and "Il-76 MD Transport Aircraft," SinoDefence, available at http://www.sinodefence.com/airforce/airlift/il76.asp. The high altitude is an issue and is being addressed and can be overcome by lengthening their runways. It is also reported that the PLAAF has placed possibly the largest order for Y-8C transport aircrafts to meet the shortage issues. See, "Review of Chinese Aviation Industry in 2009," China-PLA Blogpage, January 01, 2010, available at http://china-pla.blogspot.com/2010/01/review-of-chinese-aviation-industry-in.html.
4. Klimenko AF, "The Evolution of China's Military Policy and Military Doctrine," *Military Thought*, January 04, 2005, available at www.freelibrary.com/The+evolution+of+China's+military+policy+and+military+doctrine-a0135818480.
5. India can expect some of these kinds of quick, short military adventures by China, in its effort to send out a clear directive, while continuing to make political assertions on Arunachal Pradesh.
6. Additionally, the recent induction of C-130 J heavy transport aircrafts has augmented India's strategic airlift capability in the border region.
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13. Few years back, American satellites detected the movement of 12 consignments of Chinese missiles to Pakistan via Karakoram highway. The silkworm missiles that China got in trouble for selling to Pakistan came only through Karakoram route, whose bridges are reconstructed to handle heavy freights. Also, North Korea received Uranium enrichment equipment from the A Q Khan network through this route only. See, Pak-Iran nuclear nexus : UN confirmation , *India News Online*, 1 September 2003, available at http://74.125.153.132/search?q=cache:2gpAqLjg5LMJ:news.indiamart.com/news -analysis/pak-irannuclear-nex-874.html+Karakoram+highway,+Missile,+proliferation&cd=11&hl=en &ct=clnk&gl=in; Karakoram Highway In China , available at http://factsanddetails.com/china.php?itemid=441&catid=15&subcatid=104; and Richard Bond, The Proliferation Security Initiatives: Targeting Iran and North Korea , Occasional Paper on International Security Policy, Number 53, January 2003, British American Security Council.
14. Energy security continues to be a major factor driving China's foreign and security policies. Accordingly, China's new railway links to Pakistan which could then potentially take China to Chabhar in Iran is significant. Reports have suggested that China is considering a "rail link from the northwestern city of Mashhad along Iran's eastern border to the port of Chabahar." For details, see, "Chinese May Build Railway Line from Mashhad to Chabahar," September 10, 2009, available at http://www.steelguru.com/middle_east_news/Chinese_may_build_railway_line_from_Mashhad_to_Chabahar/111068.html.
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17. 27 fall in Arunachal Pradesh, 19 in Uttarakhand, 14 in Jammu & Kashmir, seven in Himachal Pradesh and six in Sikkim. While 27 of these roads are being constructed under the aegis of the home ministry, 15 are with BRO. The remaining 12 are to be constructed by CPWD or state PWDs. The plan is to construct the 72 roads in a time-bound manner by 2012 to counter the rapid pace of military development in the Tibetan Autonomous Region (TAR).
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29. The two additional mountain divisions are estimated to be operational by 2015-16, at a cost of around INR 14 billion (USD 358 million).
30. While the deployment of Su-30 MKI in Chabua and Tezpur was not aimed at tilting the military balance in India's favour, it has had the effect of strengthening our defences against China.
31. Increasing tourism in this region has its positive spin-off effects for India.
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