Infrastructure Voids on India's Northern Borders: Implications for India

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The ultimate yardstick of national power is the ability of a nation to deliver military capability[1] at a point of decision. There are four pillars of developing military capabilities: first, leverage of technology to create favourable conditions during war; second, military doctrine and concept of operations that define the broad principles of application of military power; third, modern military structures that are capable of dealing with threats in the full spectrum conflict; and fourth, military infrastructure that actually is responsible for delivery and sustaining combat power in the battle space. Delivery of combat power is dependent upon the availability of infrastructure. Post 1962 War with China, a general perception was created in the minds of the political and military leaders that the best way to avoid major loss of territory in the mountains is by denying the axis for developing operations to the adversaries. Thus, in certain areas, as part of the strategy, infrastructure development was delayed and deferred. But this strategy proved counter-productive and seriously affected India's preparation to build capability to defend and reverse the threat if forced to go to war. The biggest fallout was the creation of a defensive mindset, that too at a time when China on the other side was building infrastructure that could assist the People's Liberation of Army (PLA) in building up forces in an acceptable timeframe with a view to achieve a decisive military victory in a war scenario.

While India desisted from building infrastructure along the border, China invested heavily to develop communication infrastructure, billeting facilities

and logistic build-up to ensure strategic and tactical mobility for speedy concentration and build-up of forces and logistic support for sustaining the war efforts. China has developed rail, road and airfields to move formations directly up to the border areas. The Quinghai Tibet Railway (QTR) alone gives China the capability to mobilise up to 12 divisions in a month's timeframe.[2] If the road and air connectivity is also taken into consideration, especially from Chengdu and the Lanzhou military command, China is now in a position to build up almost 20 to 22 divisions in a month, ready to be launched for operations. Similarly, Nagqu, Tibet, is being developed as a logistics hub centre that can support almost 20 to 25 divisions for over six months even if the rail and road links are severed or cut off due to hostile actions or weather. In March 2011, Defence Minister A K Antony acknowledged in the Parliament that a road network stretching across 58,000 km, coupled with five operational airfields at Gongar, Pangta, Linchi, Hoping and Gar Gunsa, had come up in Tibet. Besides, extension of the QTR railway line to Xigaze, another line from Kashgar to Hotan in the Xinjiang Uighur Autonomous Region (XUAR), is also in progress.[3]

Earlier China suffered from lack of air support to its ground forces but that deficit has been overcome by the construction of five airfields that are capable of handling operations by transport and fighter aircraft. There are reports that the road and rail communications are in a position to side-step military formations, logistics support and long range vectors to execute war zone campaigns as part of local war under an informationalised environment. What is different that China has achieved? China has simultaneously put in measures to develop holistic military capabilities that include doctrinal and conceptual restructuring of the armed forces to execute the war zone campaign, absorption of technology and infrastructure development simultaneously. It is now in a position to execute operational plans for offensive and defensive operations in all sectors opposing India. The implications of the development of infrastructure are as under:

- The communication infrastructure build-up will assist China in concentrating full military capabilities in an acceptable timeframe to undertake operations with speed and momentum.
- It can concentrate a fully deployable military force even before India can adopt a balanced defensive posture.
- It allows the PLA to develop operations on multiple axes with the inherent capability to switch reserves at any stage of the conflict.

- It gives it the ability to maintain logistic balance at every stage of the conflict.
- It allows synergised employment of an integrated force to achieve superiority of force level in each stage of the theatre.
- It enables development of capability to deny a mobilisation differential to India.
- And, to deny and disrupt mobilisation and concentration of forces to India.

The newly emerging strategic infrastructure in terms of roads, railways and oil pipelines in Xinjiang and Tibet is like tentacles which would enable multiplication of China's military capabilities on its western frontiers.[4] China has laid emphasis on developing a robust fibre optic network to give its Army uninterrupted communications during both peace and war. Through infrastructure development, the objective of China is to deal with internal instability, external threats or for the use of the military for coercion/ deterrence against India, and for the economic integration of Tibet and Xinxiang with the mainland and Central Asia and the West.

Where to Start

A defensive mindset and the unwillingness of the politico-military leadership to develop axial and lateral communication was a bad idea to pursue. It has delayed and deferred the overall efforts of the war-waging capability of India. In fact, "military power expresses and implements the power of the state in a variety of ways within and beyond the state borders, and is also one of the instruments with which political power is originally created and made permanent".[5] The strategy of denial and avoidance deprived an opportunity to India to put robust military plans in place to secure the vital national strategic interests. Today, China has developed its infrastructure right up to the Line of Actual Control (LAC) and is now resisting Indian efforts to develop infrastructure along the northern borders so that India does not cause a military imbalance along the northern borders. The irony is that till the recent past, infrastructure was not considered as part of holistic military capabilities and the Indian Army concentrated only on accretion of forces and acquisition of weapons and equipment, while matching infrastructure was left to the government and political leadership to decide. Even if India has military parity to prevent being surprised or to maintain status quo along the northern borders, in the absence of infrastructure, deployment of the full potential of combat power is near impossible. Military capabilities stand displaced even before mobilisation.

Strategy of denial and avoidance led to slow development of India's border infrastructure.

The big question is, where to start? There is a time differential and China has already achieved a head-start of close to two decades in infrastructure development. India faces a financial resource limitation, a land acquisition problem, especially in the tribal areas, and the predicament of *inter se* priority between building military capabilities and infrastructure development. The challenge is not only creation of communications infrastructure but even the logistics build-up, secured storage facilities, underground missiles storage and silos and long range vectors locations, optic fibre communication, befitting capability to accommodate field formations to maintain them fully, acclimatised troops for rapid deployment, and construction of permanent defence works.

Unlike the Tibet Plateau, terrain south of the Himalayas is extremely difficult and criss-crossed by rivers. Weather plays an important role, and the winter and rainy seasons leave a window of just about four to five months in a year for development of infrastructure and operations. Whereas, China does not face this predicament in Tibet. Another major problem being faced by India is that existing communication arteries are along with the valleys and running almost parallel to the perennial rivers. As a result, the roads are susceptible to landslides and floods. A major task post winter and monsoon is to first restore the communications and then move men and machines to develop the border areas. That leaves very little time to the Border Roads Organisation (BRO) and other agencies to execute new work. As a result, the pace of progress of development is painfully slow. The geologists are of the view that the landmass along the river lines (where there are melting glaciers on the higher reaches) remains in a state of motion due to the seeping water underneath. Therefore, the roads along a valley can never be stable and will always suffer from interruption during and post the wet and dry seasons. Such cardinal mistakes have also made the development of roads a huge challenge and since so much money has already been put into these failed arteries, no one wants to bell the cat to suggest that the roads should be realigned and constructed along the higher reaches or the middle of the mountain ranges.

Development of road infrastructure is essential for holistic capability to support military operations in all seasons. The biggest limitation is imposed by the terrain and lack of contiguity of the forward line with Bhutan and Nepal. The development of communications itself has created isolation since the road axes are axial and there are no forward / interim laterals connecting the sectors. As a case in point, the aerial distance between Pulam Sumda in the central sector

to Shipki La in Himachal Pradesh is approximately 50 km. But the shortest road connectivity from Pulam Sumda to Shipki La is approximately 800 km and, thus, no side-stepping of forces or resources is possible in an acceptable timeframe. Similarly, even within the sector, the aerial distance from Pulam Sumda in the Harsil sector to Mana Pass is approximately 35 km but by road, it is approximately 450 km and considering the terrain and road conditions, it takes two full days, whereas the same distance should be covered in a couple of hours. The aerial distance from the Kazaa forward area in Himachal Pradesh to Demchowk is approximately 90 km but on the ground one has to traverse the entire Ladakh to reach Demchowk, taking almost three to four days. Whereas there is a case for a forward lateral to remove the isolation of these geographically contiguous areas. On the other side, the PLA has interior and exterior communication lines to fight a coordinated battle but on the Indian side, each sector is isolated, since the logistics and reserves cannot be side-stepped in a given timeframe. The overall scenario in the eastern and northern theatres is the same. An infrastructure vacuum requires India to employ additional resources to support military operations. The PLA is developing one logistics centre at Naqu, whereas India would need multiple logistics hubs and a separate set of transport and befitting capability in each theatre. Even within a theatre, there may be a requirement to have multiple logistic hubs since the communication arteries right up to the borders/ LAC are yet to come up. It is estimated that by 2022, all Border Out Posts (BOPs) and forward areas are expected to be linked by road. The forward and interim laterals will, realistically, take an additional decade or so.

To make up the communication gap, there is a requirement to build additional Advanced Landing Grounds (ALGs), a network of helipads and dedicated fixed and rotary wing aircraft to support military operations. At the moment, this luxury does not exist, though efforts are being made to make up the deficiency. To fill the infrastructure void, India will have to consider construction of rail and road links, axial and laterals, to achieve contiguity, removal of the isolation of sectors, and all weather access. There is need to consider construction of an underground command and control infrastructure, logistics storage facilities and secure locations of missile/long range vectors. In addition, the defence works assume significance since it is near impossible to regain control of lost territory.

Military Capabilities and Infrastructure Development

In the last 100 years, infrastructure has become a significant factor to support the war efforts of a nation. It was proved beyond doubt during World War II that

one of the major factors for the rise of Germany was the development of military infrastructure. On the contrary, Germany lost the Russian campaign because it could not support its Army in the winter, that proved critical. Infrastructure is a pivot around which military power revolves. It is a platform for projection of power and the fulcrum of delivery of combat power in a conflict scenario; at the same time, infrastructure development is a tool of deterrence and a threat in being. In the light of the above, absence of infrastructure can become vulnerability itself. All-weather holistic communication is imperative, so is logistics sustenance of military formations during a conflict and in the post conflict scenario. Infrastructure must meet the military objective and enable the achievement of the desired end state. If the objective is to make a military statement and launch an offensive through a sector, the infrastructure must support the operations, including the possibility of employment of all that is needed to launch a successful campaign. If the road communication is fragile, the road space is restricted, and the deployment space of the long range vector is not available, to aspire to achieve success is an over-ambitious and tactical/operational overreach. Most of the roads leading to the forward areas in the central sector are not even fit to take heavy artillery, including long range vectors, due to road and bridge classification. Therefore, there is a need to match operational planning parameters, equipment profile and road/bridge classifications for operational deployment of the full combat potential of a formation.

Implications of Infrastructure Void

Infrastructure gives four capabilities to convert resources into military power.

- Providing the flexibility to apply force.
- Providing the option for deployment and sustaining of military capabilities.
- Securing the battle space and denying opportunity to the adversary.
- Achieving superiority at a point of decision.

The threat from China is real considering the aggressive policy adopted by it in the South China Sea and the border transgression along the LAC. In the backdrop of the above, lack of infrastructure will impact development of force levels and planning of operations. It will have serious operational and strategic implications, as given below:

- **Tactical and Strategic Mobility:** Lack of infrastructure impedes tactical and strategic mobility. As a result, the operations become predictable.

- **Operational Window:** China has, willy-nilly, an eight months' window to build and launch operations across the Himalayas whereas India has only about four to five months. Thus, in the absence of all-weather road connectivity, logistics development and war preparations are impacted. This window gets further reduced since the communication lines are vulnerable to disruption due to weather.
- **Speedy Mobilisation of Formations During a Crisis:** The road and rail networks do not connect all the key defended localities and forward defence lines. Thus, the build-up may not be smooth and holistic in nature. It would require multiple transportation systems to mobilise and support the formations once mobilised.
- **Employment of Heavy Artillery and Long Range Vectors:** The current road infrastructure does not supporting induction of heavy artillery and long range vectors due to a variety of reasons. Firstly, the matching road classification precludes employment of such force multipliers for operations at this juncture. In addition, the logistic train required to support equipment intensive units is beyond the available road space.
- **Predictable Mobilisation and Deployment Areas:** The communication arteries and limited befitting infrastructure lends itself for predictable deployment that may come under heavy attrition from long range artillery and air strikes. It becomes more vulnerable in the absence of forward and interim laterals and adversaries may even interdict such units/ formations from induction and deployment.
- In the mountains, since the communication lines are along the valleys, the **survival of the command and control** elements may become a big challenge. Until or unless the critical logistic hubs, command and control elements and missile units are secured by establishing underground/infrastructure, success in operations may be difficult.
- Employment and sustaining of offensive formations for restoration of status quo or recapture of lost territory would need adequate road space to support offensive operations.
- **Dedicated Reserves Required in Each Sector:** Since there are no forward or interim laterals, side-stepping is neither feasible nor possible due to the time penalty and likely friction due to enemy actions. Therefore, there is a compulsion that each sector and theatre would need dedicated reserves.
- **Seizing the Initiative:** India may not have the capability to seize the initiative by denial of space to adversaries by beating them in time and space. Thus,

the adversary may be able to retain the initiative and occupy the passes before the Indian Army can do so. That would give the adversary an advantage to hold on to the launch pad.

Infrastructure is significant factor for supporting war effort.

Whatever the logic, an underdeveloped border region has serious consequences for India, the primary one being the inability to deploy forces in time.[6] This is a serious vulnerability that India allowed to take place due to a defensive mindset. The advantage of development of infrastructure is to enhance own ability to apply combat power at a decisive point and, at the same time, it prevents the enemy from gaining an unexpected advantage.

Conclusion

Infrastructure is needed for development of holistic military capabilities. It enhances the efficiency flexibility and multiple options to fight both conventional and sub-conventional wars. Infrastructure development cannot be delayed and deferred since it is now impacting the security of India from external threats. The government must lay down timelines, with accountability and coordination, so that it may meet the operational parameter. Hard decisions are required to realign the road network to avoid river lines and valley floors. Classification of roads must be in consonance with the operational requirements rather than a contractual obligation.

To achieve operational results, commanders seek operational advantages of position before combat begins through developed infrastructure. Ideally, operational manoeuvre secures positional advantage before an enemy can act and either preempts the enemy manoeuvres or ensures his destruction if he moves. Operational movements and manoeuvres allow commanders to create the conditions they desire for the battle and take full advantage of tactical actions.[7] In fact, infrastructure the enhances the limit of manoeuvre, and defines the ultimate limit of operations.

The art of war has certain elements and fixed principles. We must acquire that theory, and lodge it in our heads—otherwise; we will never get very far.

Frederick the Great

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Notes

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