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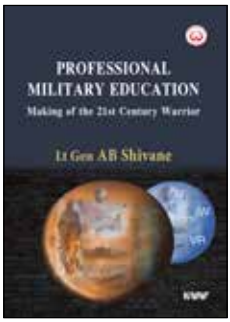

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Managing Editor's Note

It gives me immense pleasure to bring to you the Spring 2023 Edition of Scholar Warrior. The global pandemic, Russia-Ukraine war, failure of multilateral institutions in geo-economics are creating 'polycrises'. We seem to be heading towards turbulent times and that would be fraught with multiple challenges in every field. This Edition comprises 11 well-researched articles on National Security Strategy, Leadership, Technology, Logistics, Geopolitics, and two short reviews of recent books.

The article "Manoeuvre Warfare: A Critical Enabler in the 21st Century Battlespace" by Lt Gen AB Shivane (Retd) explains the challenges of multi-domain expansion of manoeuvre warfare in the modern battlespace, need for doctrinal understanding and of thoughtful leadership with scientific temper and manoeuvrist orientation.

Maj Gen Jagatbir Singh (Retd) in his article "Tanks Still Not Out of Place" analyses the performance of tanks in the ongoing Ukraine War and advocates the need for changes in design, tactics and techniques, in case they have to regain the centrality in the battlefield.

China as a nation is imbued with intense consciousness towards its historical legacy and has deep aversion to any rival power in the region. India's strategic location is a source of concern in China's power projection development. Maj Gen Vivek Sehgal (Retd) in his article "Northern Front Strategy: Dealing with Chinese Intent" analyses China's intent and India's options.

Col Amitabh Hoskote in "Intersectionality of Contemporary Statecraft—Attaining Geopolitical Coherence through the Prism of Kautilyan Rajamandalas" draws a parallel between the Kautilya's Arthashastra with India's current national interests and strategies, and elucidates how those 'timeless' principles can guide us during the challenging times of international entanglements.

China has adopted the "Three Warfares Strategy" and prioritised superiority in 'intelligentised conflicts'. Col Ajinkya Jadhav in "China's Foray into 'Unconventional Domains' and India's Short Term Threat Mitigation Strategies" analyses the Chinese capabilities in non-kinetic domains of cyber, information,

electronic warfare, space and psychology, and emphasizes the need for India to build capabilities and capacities in all these domains.

Information warfare using disruptive technologies have placed strategic communication as a distinct component of warfighting in Ukraine. Maj Gen Roopesh Mehta in "Strategic Communication by Services: Integration of Civil Military Assets—A Road Map" argues for a whole-of-nation approach in maintaining strategic communications, as a prime driver of national objectives.

Critical and Emerging Technologies (CET) and Big Data are bringing comprehensive disruption in the character of wars, the way they are being fought. Lt Col Akshat Upadhyay in "Absorbing Emerging Technologies into the Indian Army: Artificial Intelligence—As Case Study" argues on the urgent need for the Armed Forces to assimilate and integrate the CET and rethink our organisational structures.

The recent discovery of lithium reserves, a precious rare earth metal having multifarious applications and huge economic potential has capitulated India into a unique group of countries. Col Munish Tuli in his article "Lithium and its Geopolitical Implications for India" elucidates on the geo-politico-economics of 'Green Energy' including the challenges and concerns for India.

G-20 Presidency, G-7 invite and as member of groupings like BRICS, ASEAN, SCO, QUAD and IBSA, India needs to well promote its foreign policy and strategy. Ashu Mann in his article "QUAD-SCO: Is India the Swing State Everybody Wants" argues for India to 'reposition as a dominant actor, having a multilateral approach, as also playing a constructive role with like-minded countries'.

Maj Gen Mukesh Chadha in his article "Integrated Logistics Architecture for the Armed Forces in Light of Theaterisation, Envisioned Connectivity Contours and the Timelines", argues for whole-of-nation approach in creating an Integrated Logistics Architecture aligned to the PM Gati Shakti Yojna and the National Logistics Policy.

Ukraine war has reinforced the urgency of "Atmanirbharta" in defence echo system and the need to develop long endurance in manufacturing as well as supply chain management. Col Amit Baveja (Retd) in his article "Catalysing Atmanirbharta in Defence Industry" argues for a stronger handholding of the nascent indigenous defence industry ecosystem, for better inter-ministerial synergy and pragmatism in procurements. He also advocates a case for improved spending on Research and Development (R&D) as also better adoption of technology in trials.

This Edition also carries two Book Reviews, namely:

- *India's Pakistan Conundrum: Managing a Complex Relationship* by Sharat Sabharwal. The book has been reviewed by Col Arun Agarwal.
- *Command: The Politics of Military Operations from Korea to Ukraine* by Lawrence Freedman. The book has been reviewed by Dokku Nagamalleswara Rao.

We look forward to your feedback and suggestions.

Managing Editor

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SECTION I

NATIONAL SECURITY STRATEGY, DOCTRINE, BORDERS, STATECRAFT

CENTRE FOR LAND WARFARE STUDIES

Northern Front Strategy: Dealing with Chinese Intent

VIVEK SEHGAL

General

India and the People's Republic of China (PRC) emerged as independent entities in a near simultaneous time frame. Historically important States, both continue to aspire towards attaining their past glory in the emerging geopolitical environment. Being neighbours (a legacy of the Chinese occupation of Tibet), they cannot ignore each other. A positive engagement with due respect for each other's national interests would ensure that both continue to grow in their national strength. However, since the establishment of the PRC and the forceful occupation of Tibet by the Chinese, the two are mired in distrust, which continues to prevail and is heightened due to the unresolved borders between them. Efforts at managing the dispute while allowing greater collaboration on the economic front and presenting a common front on globally contentious issues have come to noughts with the Chinese propensity of increased incursions across the Line of Actual Control (LAC), and the ongoing ingress in Eastern Ladakh region of India.[1] The two armies continue to face off despite numerous rounds of talks between the military leadership on both sides.

China is a nation imbued with an intense consciousness towards its historical legacy. Devoid of democratic legitimacy, the Chinese Communist Party (CCP) has successfully internalised the narratives of ' the Middle Kingdom,' and 'the Mandate of Heaven,' implying an aversion to a rival power centre in the regional context and a contract of centrality of the economic and social wellbeing of the Chinese people for retention of power. Additionally, the PRC has

fostered a narrative of an aggrieved nation, having been deprived of its past glory by foreign powers in the mid-nineteenth century (western nations and Japan). This resulted in China being subjected to a 'century of humiliation' that still rankles in the country's psyche.[2] Forced to cede territory to foreigners in unequal treaties during the period, the Chinese have continued to convey 'historical losses' of territory through their maps and atlases. In fact, after the occupation of Tibet, Mao Tse Tung himself, described Tibet as China's palm with Nepal, Sikkim, Bhutan, Arunachal and Ladakh as its 'five fingers.' A few maps have even gone on to lay a claim on the entire state of Assam and the Andaman Islands.[3] Thus, in the Sino-Indian context, the PRC's intentions are clear, capability development and creating an advantageous strategic configuration is the inhibitor that is fast being overcome. India can ignore this at its own peril.

China's willingness to compromise in frontier disputes derived from perceptions of its own domestic vulnerabilities: when the regime in Beijing felt threatened internally, it has sought compromise externally.

The Sino-Indian Border

As geopolitical rivals, India and China face each other over a highly disputed border. Virtually the entire 4,000 km plus border is in dispute, without a mutually agreed line of control in the Himalayas separating the two countries.[4] It is apparent that in comparison with China's territorial disputes with other neighbours (Land disputes with 14 neighbours) now or in the past, the PRC's land disputes with India stand out both for their sheer size and for their importance to the region.[5]

China has been able to settle its disputes with all neighbours except India and Bhutan. According to Fravel, China's behaviour while settling disputes, did not reflect the external balance of power—a neighbour's manifest weakness did not elicit a forward Chinese policy. In effect, China's willingness to compromise in frontier disputes derived from perceptions of its own domestic vulnerabilities: when the regime in Beijing felt threatened internally, it has sought compromise externally.[6] However, Fravel also allowed, that the converse of his main point held as well: when China has felt secure internally, it has not hesitated to use force in international territorial disputes.[7] In the Sino-Indian context, the espousal of an acceptance of the McMahon Line as the border on the East with India relinquishing its claim on Aksai Chin have been made when the international and domestic situation demanded secure frontiers (Sino-US rivalry and the

Korean War in the 1950s, and the opening up to economic reforms by Deng in the 1980s). As the situation improved, the ratcheting up of demands has taken place.

Numerous rounds of talk have failed to bring the dispute any closer to resolution. Even the confidence-building measures and guiding principles for the settlement of the border dispute have been infringed upon at will by the Chinese, especially in the last decade. A probable reason for non-resolution of the dispute is that while India looks at the dispute being a bilateral issue and a hurdle in the development of mutually beneficial ties for the growing economies, the Chinese have looked at the dispute and its relations with India from the perspective of the prevailing regional and global environment of the time. Hence the frequently mentioned statement of letting the dispute fester for later generations to resolve, and in the interim, move forward with relations on the diplomatic and economic front.

In order to understand the Chinese intentions with respect to the border dispute, it may be prudent to put in perspective the importance of the border in their geopolitical and geostrategic calculus: (1) Aksai Chin provides an easy link between the Chinese province of Tibet and Xinjiang. The building of the national highway G219 during the 1950s is testimony to the importance of the region to China. (2) The border issue is linked to the Chinese sovereignty over Tibet. Acceptance of the McMahon Line, a treaty between British-India and Tibet may result in weakening its stand on sovereignty.[8] The current residence of the Dalai Lama and the Tibetan government in exile in India with suspicion of covert support by the Indian establishment is a catalyst. (3) The region to the West, affords access to Afghanistan, Pakistan and the Central Asian Republics. (4) The construction of the China-Pakistan Economic Corridor and its proximity to the Indian border in Eastern Ladakh increases its vulnerability. (5) The border affords China the raison-d'etre for ratcheting up tensions with India because of perceived intransigence by India on political, diplomatic, economic and military issues. (6) Keeping the dispute festering, ensures Indian sensitivity to a continental threat, resulting in disproportionate asset allocation, denying its orientation to the increasingly important maritime domain.

China's India Policy

China has traditionally looked at India, not as a peer competitor but in relation to the developing regional and global geopolitical dynamics. According to Xuecheng Liu, "the Sino-Indian border dispute has involved two big and two

small triangular security relationships in Central Asia."[9] Prior to 1945, the culmination of World War II, the big triangular relationship involved Britain, Russia and China, and the small triangular one involved British-India, Tibet and China. Consequent to the emergence of the PRC, the big triangular relationship has involved the United States, the Soviet Union (and now Russia) and China, and the small one has involved China, India and Pakistan.[10]

In a similar vein, Ambassador Gokhale, states that, "from the time of Mao's rise to the helm of the Chinese Communist Party (CCP) and the founding of the People's Republic of China in 1949, China's India policy has been shaped by its view of the larger great power strategic triangle of China, the Soviet Union (later Russia), and the United States."[11] According to him, for the last seventy-plus years of Sino-Indian relations, China being the weakest corner of the triangle and being driven by goals of security and status, has never looked at India as an Asian competitor.[12] A rather simplistic scan of evolution of Sino-Indian relations is tabulated below:

Period	Situation	Design
1949-1962	US the prime Adversary	Keep India neutral Use Indian Influence in developing world to build 'Asian solidarity' to stem US ingress into Asia
1962-1970s	Deteriorating Sino-Soviet relations Developing Indo-Russian Ties	Develop Sino-Pakistan friendship to counter India and wean it away from its friendship with Soviet Union.
1970s-1980s	Sino-Soviet split Improved relations with the US	Sino-Indian relations characterized with a desire to wean India away from the Soviets and China away from a US Pakistan axis. Hence a period of détente.
Post Cold War-2000s	Fears of a US endeavour at a regime change in China. Necessity of a secure periphery for sustained economic growth.	Engaging Indian neighbourhood to keep India hemmed within the Sub-continent. Engage India to portray a Common front on contentious issues.
2000s to 2013	Improving Sino-US relations and evolving Sino-Russian friendship.	Increasing friction along the Line of Actual Control (fast paced infrastructure development and force accretions).
2013 onwards	A more assertive China. US backlash.	Increased friction on the Sino-Indian Border. Attempts at coercion to keep India away from an alignment with the US.

Adapted from Xuecheng Liu, 'The Sino-Indian Border Dispute and Sino-Indian Relations'.

China's post-Cold War Policy has been to limit through containment and coercion India's capacity to interfere with its strategic goal of hegemony.

It is apparent from the above that, China always looked at India through the lens of its relations with the Soviet Union and the United States. However, the recent growth in India's economic and influence has resulted in the realisation that an alternative power centre may be taking shape within Asia. This is not palatable to a Chinese establishment seeking to create a hierarchical model based on the 'Middle or Central Kingdom.' Therefore, whilst the PRC's India policy through the Cold War was to keep India as neutral as possible, its post-Cold War policy has been to limit through containment and coercion India's capacity to interfere with China's strategic goal of hegemony.[13] China's post-Cold War Policy has been to limit through containment and coercion India's capacity to interfere with its strategic goal of hegemony.

It stands to reason therefore, that while looking for indicators of Chinese intent vis-à-vis India, a scan of the prevailing geopolitical environment at the regional and global levels as perceived by the Chinese, be analysed. Today, China has emerged as an economic powerhouse with a strong and rapidly modernising armed forces. In essence, it is well on the road towards achieving its mid-century goal of 'rejuvenation of the Chinese nation' to its past glory. However, the increased assertiveness on display by the Chinese in their foreign policy, especially during the Coronavirus Pandemic, has resulted in the regional countries hedging their bets through internal balancing (increased military preparedness) and external balancing (engagement with extra-regional powers). Globally, the US led backlash against Chinese aggression appears to have gathered momentum. This, along with the institutionalisation of the 'QUAD' is being perceived as a containment policy against China. Pakistan embroiled in its financial and jihadist vows has lost its attraction as a counter weight to Indian growth. India is recognised as a strategically located state that can add a fillip to the Chinese endeavours at expanding its reach into the Eurasian landmass to its west and securitising its access to the world in the maritime domain (Belt and Road Initiative). Its centrality within the Indian Ocean can also facilitate the 'QUAD,' in restricting PRC's manoeuvrability in the Indian Ocean.

Thus, there appears to be an increased sensitivity towards India and its actions regionally and globally. In the recently concluded meeting of the Chinese

national legislature, President Xi has vowed that he will build China's military into a 'Great Wall of Steel' to protect the PRC's sovereignty and development interests.[14] It is apparent from this that concerted Chinese attempts at regional hegemony and development of power projection capabilities, especially into the Indian Ocean are given. In its maritime orientation, the Chinese have been dealt a raw deal by their geography. Land borders with 14 neighbours, and access to the Indian Ocean constricted due to passage through choke points (Malacca dilemma) are a grave source of concern. Alfred Thayer Mahan, the founding exponent of Sea Power has said that, "a country's geography and its institutions can either help or impede a country that seeks to become a sea power."[15] For a Continental power, therefore, it is essential to become a regional hegemon before it can orient towards a more maritime bias.[16]

While the above necessitates a degree of acrimony vis-a-vis India, especially if India does not play second fiddle to China in the regional context, they are worried about an Indian alignment with the US in its policy of containment of China. Hence , a dichotomy appears to persist in the two foreign policy options within China, (1) its neighbourhood policy (securing a China-centred regional order with Beijing as the sole leader); and (2) its major power diplomacy (wooing India to hedge against the US Indo-Pacific strategy and make it a key partner in the Belt and Road Initiative).[17] Increased focus on one is liable to push India in a counterpoise to the other. Having said that, assertiveness with India is liable to stay, especially consequent to the Indian response of meeting aggression with aggression. Hence, exploitation of the grey zone to accentuate the persisting fissiparous tendencies within the country, and incursions/aggression along the Line of Actual Control will continue to manifest.

India's Response

Traditionally, the Indian armed forces have been following a policy of deterrence by denial by occupying important heights all along the LAC.[18] A defensive posture that made a contemplated offensive unviable due to the increased cost of launching and persisting with an attack. The efficacy of this policy has come under question as a consequence of the increased infrastructure development evinced on both sides of the border. This, coupled with the induction of long-range vectors, precision weapons, induction of advanced aircraft, and the inclusion of the maritime domain in the Sino-Indian context has resulted in an increased ability to mount an offensive by either side. Chinese asymmetry in the space, networks and electronic capabilities, and their propensity to use these

India needs to recognise that due to its strategic placement within the Indian Ocean and its growth as an important actor on the regional and global scene, it has leverages that it can exploit in dealing with China.

at will, add a degree of uncertainty to the management of the LAC.

The resultant shift to a strategy of deterrence by punishment (aimed at raising the costs for the adversary by taking the offensive to the enemy, destroying resources dear to the enemy, or reducing its war-making potential)[19] by India is therefore a step in the right direction. Creating options for offensive action, and adding credibility through induction of supportive weapons, equipment and training as evidence, is a necessity to make the Chinese conscious of the fact that a misadventure with India is liable to be costly, not only in the physical domain of attrition inflicted but also in the psychological domain of a loss of prestige and influence in the regional and global construct.

More importantly, India needs to recognise that due to its strategic placement within the Indian Ocean and its growth as an important actor on the regional and global scene, it has leverages that it can exploit in dealing with China. External balancing through the QUAD, closer ties with the US and proactive engagement with the ASEAN and East Asian nations need to be continued as a counter to the Chinese endeavours in the sub-continent.[20] However, over-reliance on external support in a conflict situation is liable to be disastrous and hence developing its Comprehensive National Power and modernisation of its armed forces is the prudent way to safeguard its strategic autonomy in the immediate and extended neighbourhood.

Conclusion

Different priorities have been governing Sino-Indian relations since the two countries became physical neighbours in the 1950s. While India accords utmost importance to its relations with China, China has only just started paying heed to India, especially so, after the recently increased bonhomie between the US and India. There are many irritants both old and new which inhibit a smooth growth based on mutual trust. From China's perspective, if India understands that China is the preeminent great power in Asia and keeps its place in the hierarchy, both will enjoy a mutually beneficial relationship. However, should India aspire to emerge as China's equal or peer competitor—and that too, with

help from the West, then the whole gamut of issues is open for review and recasting.

Major General **Vivek Sehgal**, VSM (Retd), held the COAS CoE 2020 at CLAWS. Views expressed are personal.

Notes

1. Vivek Sehgal, *'PLA Modernisation and Force Restructuring'* (CLAWS/KW Publishers, New Delhi, 2023), p. 273.
2. Ibid., pp. 20-21.
3. Gen VP Malik, in a 'Forward,' in Gurmeet Kanwal and Dhruv Katoch (ed), '*China's Defence Policy: Indian Perspective*,' (Centre for Land Warfare Studies, New Delhi,2011), p. x.
4. Brahma Chellaney, 'India's Intractable Border Dispute with China,' in Bruce A. Elleman, Stephen Kotkin, and Clive Schofield (ed), 'Beijing's Power & China's Borders.'(Pentagon Press, New Delhi, 2013), p. 47.
5. Ibid., p. 47.
6. Bruce A. Elleman, Stephen Kotkin, and Clive Schofield (ed), 'Beijing's Power & China's Borders.' (Pentagon Press, New Delhi, 2013), p. xii.
7. Ibid.
8. Xuecheng Liu, *'The Sino-Indian Border Dispute and Sino-Indian Relations,'* (University Press of America, Lanham, Maryland, 1994), p. 178.
9. Xuecheng Liu, *'The Sino-Indian Border Dispute and Sino-Indian Relations,'* (University Press of America, Lanham, Maryland, 1994), p. 5.
10. Ibid.
11. Vijay Gokhale, 'A Historical Evaluation of China's India Policy: Lessons for India-China Relations.' (Carnegie Paper, December 2022).
12. Ibid.
13. Ibid.
14. "Will Turn China into 'Great Wall of Steel:' Xi," *Times of India*, March 15, 2023.
15. Quoted in Bruce A. Elleman, Stephen Kotkin, and Clive Schofield (eds), '*Beijing's Power and China's Borders*.' (Pentagon Press, New Delhi, 2013), p. 326.
16. Ibid. p. 327.
17. Antara Ghosal Singh, 'China's Evolving Strategic Discourse on India: From Doklam to Galwan and Beyond,' (Stimson Centre, May 2022).
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19. Ibid.
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Manoeuvre Warfare: A Critical Enabler in the 21st Century Battlespace

AB SHIVANE

War has an enduring nature and an evolving character. Its character has evolved with its expanding domains, proliferating players, and emerging technological tools. This has opened new opportunities in the physical, cyber, space, informational, and cognitive domains to out manoeuvre and dislocate the adversary by targeting his critical vulnerabilities. The space for manoeuvre warfare has thus enlarged to a multi-domain application impacting cross-domain fallouts by its integrated joint force application.

Manoeuvre warfare acknowledges the chaotic nature of warfare, wherein the only certainty is uncertainty and the only clarity is ambiguity. In such an environment, to generate integrated advantage, it will have to shed its erstwhile cloak and build on new tools, evolved structures, redefined domains, and above all, adapt and evolve to prevail in the chaos. This warfighting philosophy must view the enemy as a system—an interconnected, multi-domain system, whose cohesion, if shattered, would lead to physical and psychological paralysis. The essence is in targeting the cross-domain vulnerabilities of the adversary through pre-emption, dislocation and disruption, thereby degrading his capabilities and sapping his will to resist. The contemporary battlespace thus requires an in-depth understanding of manoeuvre warfare as a philosophy, its redefined multi-domain application, and the need for future leaders with a manoeuvrist outlook to execute it.

The multi-domain expansion of manoeuvre warfare has also had the added advantage of lifting manoeuvre out of the exclusively tactical realm, making it applicable to challenges at the operational and strategic levels. This enhancement of manoeuvre warfare recognises that focusing on the physical domain alone is insufficient. The contemporary multi-domain manoeuvre warfare achieves its effects based on the ability to dynamically adapt and respond in a contested integrated operational and strategic environment. It thus targets an adversary's critical vulnerability through multiple redundant paths, including manoeuvre in the social and economic arenas. As war permeates from the battle space to society and all other elements of national power, so does the impact of strategic-level manoeuvre warfare. Economic sanctions and oil as a weapon are just a few examples of its strategic manifestation to target the adversaries will.

Multi-domain manoeuvre warfare achieves its effects based on the ability to dynamically adapt and respond in a contested integrated operational and strategic environment. It thus targets an adversary's critical vulnerability through multiple redundant paths, including manoeuvre in the social and economic arenas.

At the tactical and operational level, achieving combat overmatch in the future battlespace would depend on four key constituents. First, an integrated cross-domain joint service manoeuvre by the employment of mutually supporting lethal and nonlethal combined arms joint force capabilities in multiple domains to create a synergistic effect. In essence, a degradation of capability in one domain could have a synergetic impact on the capability of another domain. For instance, cyber-attacks could degrade space-based C5ISR systems, thereby disrupting the decision cycle to execute kinetic or non-kinetic attacks. Second, dominating the OODA (Observe, Orient, Decide and Act) loop through situational superiority, decision dominance, and precision targeting by manned and unmanned systems. The challenge would remain to build resilience to disruptions and work through ambiguity. Third, a command and control structure that ensures centralised command, distributed control and decentralised execution. The challenge would be to balance the need for decentralisation with the need for coordination and synchronisation between units. Fourth, thought leader with a scientific temper and manoeuvrist orientation. A thought leader is a combination of an outstanding thinker (strategic, insightful and creative) and an outstanding leader (proactive, aggressive, inspiring and

Thought of leadership with a scientific temper and manoeuvrist orientation. A thought leader is a combination of an outstanding thinker (strategic, insightful and creative) and an outstanding leader (proactive, aggressive, inspiring and empowering).

empowering). The term scientific temper is broadly defined as "a modest open-minded temper—a temper ever ready to welcome new light, new knowledge, new experiments, even when their results are unfavourable to preconceived opinions and long-cherished theories."[1]

One of the key advantages of manoeuvre warfare in a technology-enabled battlespace would be the ability to generate dominant manoeuvre. With advanced C5ISR technologies, militaries would be able to collect vast amounts of data on the enemy's movements, capabilities, and vulnerabilities. This data could be used to identify key targets and address their vulnerabilities, through integrated sensor-shooter architecture and long-distance precision kinetic and non-kinetic strikes. Another advantage of manoeuvre warfare in a technology-enabled battlespace would be the ability to use speed and agility to outmanoeuvre the enemy. With unmanned aerial vehicles and other advanced mobility platforms, militaries would be able to move quickly and efficiently across the battlefield, making it difficult for the enemy to track and engage them. It thus presents new vistas of opportunities for targeting the adversary's vulnerabilities and sapping his will, while protecting one's capabilities and vulnerabilities. The aim will be to dislocate, disrupt, degrade, deny and dominate enemy forces by maintaining a definitive edge through multi-domain manoeuvre warfare with cross-domain effects.

The use of drones in future conflicts is also emerging as an important tool in manoeuvre warfare for a surface-to-space continuum. Drones can be used for ISR, allowing a force to gain a better understanding of the enemy's vulnerabilities and strengths. They can also be used for precision strikes from unforeseen approaches and trajectories. In addition, drones can be used for electronic warfare, disrupting the enemy's communications and computer systems and thereby facilitating manoeuvre. Manoeuvre warfare would thus take advantage of these technologies to achieve tactical and operational objectives.

Manoeuvre warfare empowered by the network-enabled architecture would be another critical enabler. By using networked systems, commanders would possess the ability to coordinate multi-domain manoeuvre operations in real-

time, thereby enhancing the tempo and effectiveness of their actions. They would have access to real-time information and situational awareness, which would enable them to make informed decisions and respond quickly to the fluidity of the battlespace. This would allow for the rapid deployment of kinetic and non-kinetic vectors to exploit enemy vulnerabilities and seize the initiative through coordinated actions across multiple domains.

Manoeuvre warfare in the non-kinetic domain refers to the use of tactics and strategies to outmanoeuvring an opponent in areas that do not involve direct physical force. Non-kinetic warfare can include a range of activities, such as information operations, psychological warfare, economic warfare, and cyber warfare. It requires a deep understanding of the opponent's vulnerabilities and a willingness to think creatively and adapt to changing circumstances. It is a complex and constantly evolving field that requires a mix of technical expertise, strategic thinking, and effective communication.

Cyber-attacks are increasing both in intensity and periodicity in the contemporary battlespace. Militaries are now using cyber as a tool of manoeuvre warfare. Cyber-attacks can disrupt the enemy's command and control, logistics, and communication systems, making it difficult for him to coordinate their actions. Cyber warfare can also be used to disrupt an enemy's critical infrastructure, such as power grids, water systems, financial systems, and communication networks, causing chaos and disruption behind enemy lines to sustain forces on the battlefront, besides the demoralising impact on the populace. AI-enabled capabilities will open up a new attack vector from cyberspace. However, the use of cyber-attacks in manoeuvre warfare and the resilience against them, require a high level of planning, investment and interoperability between the military, government agencies, and private industry partners. This can be challenging, given the complex nature of cyber operations and the need for close coordination between different stakeholders.

Similarly, Artificial Intelligence (AI) is transforming the way militaries operate and execute manoeuvre warfare. AI-enabled technologies would accelerate the so-called 'kill chain' by linking sensors and shooters in an internet of things or system of systems architecture. Armed forces would thus be able to analyse massive amounts of data using machine learning algorithms and advanced data analytics to identify patterns and make sound operational and strategic decisions. AI-enabled technologies will not only increase the pace of operations but simultaneously increase force survivability in future battlespaces.

Information in warfare and information warfare are also developing as weapons of manoeuvre warfare. They may be less destructive, yet more disruptive, and cheaper,

The advantages of AI-enabled technologies would however be evenly distributed between the attacker and defender, thereby opening up challenges for their competitive exploitation to seek an advantage.

Information in warfare and information warfare (IW) are also developing as weapons of manoeuvre warfare. They may be less destructive, yet more disruptive, and cheaper, and the probability of their use is much higher both in peace and war. Kinetic warfare superiority alone is no longer sufficient for military success or even a military advantage. The notion of victory in the information age is dominated by actions going viral in an instant by an adversary controlling the information domain. Information Warfare has thus become the new centre of gravity as well as a key vulnerability and the narrative's most powerful tool in perception management. Thus, dominating the strategic, operational and tactical information space has opened new vistas for manoeuvre warfare in the 21st century. The IW in ongoing Ukraine-Russia war is a testimony to the same, helping to shaping both domestic and international opinions irrespective of the realities.

Irrespective of the destruction and devastation attributed to attrition, manoeuvre warfare has found space in the ongoing Russia and Ukraine conflict. Disruption of key infrastructure, use of small teams, air and missile strikes, use of drones, and intelligence, surveillance, and reconnaissance (ISR) assets, have all been key elements in the manifestation of manoeuvre warfare in this conflict. Both sides have relied heavily on satellites, drones, and other sensors, to gain intelligence about enemy positions and movements. This has allowed for a more dominant manoeuvre of forces. Manoeuvre warfare in an urban environment, particularly in the city of Donetsk and the Kharkiv counter-offensive, are case studies that validate manoeuvre doctrine and challenge the argument that urban environments constraint manoeuvre, should be reconsidered. In such an environment, both sides have relied on small teams to conduct operations in urban areas, including raids and ambushes, besides degrading the power grids and other essential support requirements. As part of the operational design, the Ukrainian forces have focused on degrading the adversary's morale, disrupting their lines of communication and logistics, thereby dislocating the defensive planning of the Russian forces.

Irrespective of the multiple domains and technological manifestation, the key to the success of manoeuvre warfare will be its doctrinal understanding and leadership adaption. Manoeuvre Warfare theory emphasises the centrality of the human element in warfare including leadership, organisation, cohesion and morale. Its core lies in defeating the enemy's will to fight by destroying the enemy's plan rather than destroying his forces. The primary means of defeat are pre-emption, dislocation (physical, functional, temporal and moral) and disruption of enemy forces. Manoeuvre thus draws its power primarily from opportunism by taking calculated risks, thereby opening windows of opportunity leading to the exploitation of changed circumstances. In the context of multi-domain manoeuvre warfare, these opportunities have only multiplied with the emergence of new cross-domain vulnerabilities.

At the doctrinal level, the present force posturing and application reflect an attrition-centric, force-on-force doctrinal focus, with a reactive, defensive and ground-holding psyche. The imperative is for a manoeuvre-centric focus with a proactive, pre-emptive, denial and domination psyche. This would require bold and aggressive leadership, particularly at the operational and strategic levels. The need is to move beyond understanding manoeuvre warfare through classroom learning to its practical application during training, exercises and wargames against an equally empowered opposition force.

Further, to execute manoeuvre warfare, the need is for a force to be agile, flexible, aggressive, and most importantly proactive, even while maintaining protection. The future restructuring philosophy will thus need to focus on a 'capability-based approach with deterrence based on a denial strategy'. Capabilities must optimise future technology exploitation in all domains and agile force structures must deny future threats through superior operational orientation.

In summation, what do we need to do to empower manoeuvre warfare in the future battlespace? The need is to transform our military for multidomain manoeuvre warfare capability, through superior technology, doctrinal reorientation, adaptive force structuring, and above all, empowered human capital. The following areas thus merit focus:

- Increase the tempo and velocity of Combined Arms Forces. To enhance the rapid deployability, combat readiness and operational effectiveness for future manoeuvres, it is necessary to shift to a lean, versatile, mobile, technology-enabled Integrated Battle Groups structure.

- Acquire, adopt, and exploit technology. Generate multi-domain manoeuvre capability, including cyber and space, in a surface-to-space-to-cyber-to-cognitive domain continuum.
- Establish a 24×7 "Unblinking Eye" over the battlespace. C5ISR remains essential for knowledge-based, decision-oriented, dominant manoeuvre and precision operational fires.
- Adopt a centralised command, distributed control, and decentralised execution, network-enabled command and control architecture. Proliferate precision and distribute it downward. The lowest tactical level must be given the same relative advantage and decentralisation in superior situational awareness and precision firepower.
- Supplement manned with unmanned systems and integrate kinetic by non-kinetic strike capabilities. Proliferate from the operational level to the tactical level.
- Move beyond jointness to true interdependence of services. Integrate both kinetic and non-kinetic capabilities in a joint force application and elevate to a new dimension of integrated command and control through empowered tri-service theatre commands.
- Invest in joint capabilities that emphasise "payloads over platforms" and "software over payloads," in a value, vulnerability and risk analysis. Ironically, the baseline will be dictated by fiscal budgeting, which requires both reforms and enhanced allocation.
- Invest in human capital through a transformed Joint Professional Military Education. Leadership, particularly at the operational and strategic levels needs better understanding and superior orientation in executing multi-domain manoeuvre warfare. The need is for creating and nurturing strategically minded intellectual warriors, with a scientific temper as thought leaders, who demonstrate critical thinking, creative skills and technology adaption embedded in ethical military character.
- Review legacy doctrines and force structuring philosophies, with focus on 'capability-based approach with deterrence based on denial strategy'. Move from an attrition-centric orientation to a manoeuvre-centric orientation.

To conclude, manoeuvre warfare will be a critical enabler for prevailing in the future battlespace. As technologies evolve and new threats emerge, manoeuvre

warfare in a multi-domain operational environment with cross-domain effects will adapt, evolve, and expand, making it a key warfighting philosophy.

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Notes

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2. Lt Gen AB Shivane, "Distance Punishment versus Adaptive Manoeuvre", December 2021, Reminiscences CLAWS Compendium, pp. 81-87.
3. Col William J. Harkin, "Maneuver Warfare in the 21st Century", August 16, 2019, Marine Corps Association, at https://mca-marines.org/blog/gazette/maneuver-warfare-in-the-21st-century/
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5. Franz-Stefan Gady, "What does AI mean for the future of manoeuvre warfare?", May 2020, at https://www.iiss.org/blogs/analysis/2020/05/csfc-ai-manoeuvre-warfare
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7. Maj Frank Zachar, "Strategic Maneuver: Defined for the Future Army", May 2009, School of Advanced Military Studies U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, https://apps.dtic.mil/sti/pdfs/ADA381854.pdf

Intersectionality of Contemporary Statecraft—Attaining Geopolitical Coherence Through the Prism of Kautilyan *Rajamandalas*

AMITABH HOSKOTE

> "Study of Chanakya's Arthashastra, an ancient Indian treatise on statecraft, economic policy and military strategy, is one of the significant ways to understand the country's strategic culture"
>
> – Shiv Shankar Menon[1]

Indian national security studies have largely relied on Eurocentric histories of wars/battles, biographies/case studies inherited from the West. Barring a few exceptions, the rich body of knowledge that can be gleaned from Indian wars through ancient and medieval history remains an enigma with less formalised research. Similarly, statecraft studies are restricted to Westphalian templates or teachings emanating Plato, Thucydides, Sun Tzu, and Machiavelli. While there is no denying the learning value of realist theories accrued from other states, it is pertinent to look inwards and assimilate inherited Indian lessons.

Apart from the literal learning that research of Indian scholars would provide, it is also an undeniable source of national pride, not to mention the respect it garners from students of strategy and statecraft across the globe. To that end, the Government of India has put its weight behind this renaissance of indigenous historical knowledge, and there has been a surge of interest in the writings of ancient Indian texts from Manu, Vishalaksha, and Bharadwaja, to name a few. Amongst these scholars, the name of Kautilya stands tallest, widely recognised as being omniscient in his *weltanschauung* for matters of international relations and strategy, military power, governance and statecraft.

Kautilya's *Arthashastra* cannot be overlooked even today. Realism theorists/ strategic culture scholars are enamoured by the timeless quality of his conceptualisations, which are germane in the 21st century complexities.

Written more than 2000 years ago, relevance of Kautilya's *Arthashastra* cannot be overlooked even today. Realism theorists/strategic culture scholars are enamoured by the timeless quality of his conceptualisations, which are germane in the 21st century complexities.[2]

Indeed, the contemporary Russian approach to warfare finds its roots in Kautilyan precepts of concurrent application of different forms of warfare and fusion of hard and soft power across numerous domains.

Analyses of Kautilya's vocabularies of power, order, and morality as encapsulated in his treatise *Arthashastra*, lead the author to focus on the framework of *Rajamandalas* which Kautilya enunciates, laying emphasis on its practical incorporation in order to achieve India's geopolitical aims in the evolving postulates of this century. Indian foreign policy and strategy need to be highly nimble-footed, to put it mildly. Its objectives are attainable with the archetypes articulated by Kautilya; it thus becomes imperative to make these principles an integral part of the strategic culture and statecraft lending agility and skill that is a prerequisite of great power competition.

Conceptual Continuity

Kautilya's *Arthashastra* encompassed disciplines of strategy and diplomacy based on realistic principles. Political realism as known today was integral to Kautilya's arguments more than 2000 years ago. Detractors of his work argues that it was not the work of a single author, but rather a compilation of works over a period of time.[3] Indian scholars Shamasastry, Kangle, and L.N. Rangarajan have

conducted extensive analyses of the treatise to conclude that the work predates Western concepts, what emerged later in individual and/or single premises by realists such as Machiavelli, Clausewitz, and Morgenthau.[4]

On the other hand, it is natural to compare other great strategist, Sun Tzu, with Kautilya. The two have much in common, not least their reliance on realism and the importance of pragmatism in employing warfighting as a means of furthering politics. Sun Tzu concentrated on aspects of military strategy while Kautilya brought together the diplomatic, economic, military, and political realms.

Most Western scholars have their world-view of a strategy centred on their own histories; Morgenthau's approaches to maintaining the balance of power between states include alliances, divide and rule, compensations, and armaments; these resonate from the four *Upayas* suggested by Kautilya, namely *Sama, Dama, Danda*, and *Bheda*. *Sama* entails conciliation (or alliances), *Dama* means employing gifts (or compensations), *Danda* is the usage of force (or armaments), and *Bheda* refers to using trickery or creating dissension in the enemy camp (or divide and rule). His work also emphasises the importance of ethics and morality, which again found replication in Morgenthau's essays.[5] It is therefore reasonable to assume that he found inspiration from Kautilyan precepts.

The modern acronym DIME covers instruments of national power standing for Diplomatic, Information, Military, and Economics; These instruments also form the crux of Kautilya's thesis, wherein he lays due importance to each of these tenets in pursuance of power and enhancing the ability of the state to secure its own interests. The growing interest in Kautilyan theories and their acceptance in India and beyond, brings in a level of decolonisation and interrogation for (the so-far relatively insular) Eurocentric realism and puts paid the (false) notion that strategic culture emanated from the West or that it did not exist in the east, especially India. That said, it also has its share of criticism; for instance, Kautilya's conceptualisation is ostensibly against the idea of integration in international politics.[6] As events bear testimony, integration is becoming an increasingly difficult proposition in an era of hyper-nationalism.

Rajamandalas and Indian Strategic Realities

Rajamandalas (or the circle of kings) was the articulation of strategic equations between states, defined by their inter-se relationships of geography, power (military strength), internal stability and security, all ascribed to a diagrammatic

representation by concentric circles with the centre denoting the king (or the state) in question. Though consecutive circles were used to denote enemies and friends (roughly as per geographical proximity or shared borders), *Rajamandalas* or simply *Mandalas* were not just meant to theorise war; they theorised statecraft instead. Within the broad contours of the *Mandalas*, Kautilya advocated six policies of co-existence, alliances, neutrality, double policy, march (posturing or preparing for war), and war. Tactics for achieving objectives included diplomacy (conciliation), compensations (gifts or bribes), deceit (intelligence operation), and actual war. Using war to attain political aims, he followed a harsh regimen which could make use of spies/secret agents, women, sowing of dissent/discord among the enemy's civilian population, and superstition to demoralise enemy troops; however, his emphasis on ethics and morality reflected how defeated enemies/troops were treated, winning over civilians after subjugating the enemy, and in the value of neutral states. He proposed the doctrine of *matsya-nyaya*, or law of the jungle (in other words, anarchy) which ruled the international order, and continues to do so even today.

Post-colonial India is replete with examples of being the archetypal *Vijigishu*, in Kautilyan terms. Indian decision to stay the course of non-alignment stems from a Kautilyan base of self-interest, in order to keep foreign powers out of South Asia, simultaneously retaining its dominant position rather than committing to permanent alliances.[7] Though then Prime Minister Nehru faced criticism for some of his policy decisions, it is reasonable to argue that the course charted by him was logical, given the colonial history of the sub-continent. India faced a huge setback in its 1962 war with China; in the aftermath, some changes were adopted based on the realpolitik requirements of the times. As such, Prime Minister Indira Gandhi's actions on the dismemberment of Pakistan, and formation of Bangladesh, and achieving nuclear power status underline the reliance on Kautilyan diplomacy. Even though India continued to be part of the non-aligned bloc, its symbiotic relationship with the erstwhile USSR to play off against the US-China-Pakistan trio paid off dividends as desired.[8]

The end of the Cold War coincided roughly with India undertaking reforms and opening itself to the world. With increasing credence to realism, India has asserted itself in South Asia to pursue its own interests. Its growing economic clout has helped to cement these assertions. In the 21st century, the world order has seen rapid changes towards multi-polarity; China is arguably a superpower, challenging the existing hegemon, viz., the US. As a nation on the cusp of attaining this status in its independent right, India finds its strengths faced with a

plethora of challenges. Kautilya's *Mandalas* thus provide insights to dealing with the entanglements in these times.

Strategic positions for India can be outlined in three broad blocs: immediate/near (first *Mandala*/circle viz., in close proximity/shared borders), extended neighbourhood/intermediate (second concentric circle viz., connected contextually), and strategic (outer circle viz., relationships based on shared commonalities/interests in a larger global milieu). These intersect with the imperatives for securing interests in territorial and maritime domains.

The first bloc comprises the immediate neighbourhood, including two hostiles, namely China and Pakistan, apart from Bangladesh, Sri Lanka, Nepal, Myanmar, and Bhutan. China's rise to superpower status is challenged by India's ascendance. In the last few years, it has kept issues on the land borders alive, e.g., Doklam (2017), and Galwan (2020) and its actions aim at keeping India hedged in from all sides. Accordingly, the extension of its footprint in the Indian Ocean region, its Belt and Road Initiative including Pakistan and parts of Gilgit-Baltistan despite knowing its disputed status, the so-called 'salami slicing' methods employed along the LAC, and covert support to inimical groups to exploit political fault lines, are meant to engage India at varying intensities and levels.[9] India in turn has embarked on a military modernisation and self-reliance initiative (*Atmanirbharta*) under the present dispensation, trying to shore up its strengths rather than confront, in the medium term. It is an astute move, and perfectly aligned with the *Mandala* theory, where Kautilya advises against confrontation with a stronger enemy, instead build on own capabilities to be able to reach that point. Having joined the QUAD alliance with the US, Australia, and Japan, it is also prudently being precautious by enlarging the scope of any possible conflict, especially in the Indian Ocean Region (IOR) and beyond.

Pakistan is the second nuclear and hostile state in the near bloc. Having gradually lost support and trust from the US, Pakistan continues with China as its all-weather ally. Its hydra-like creation of terrorism is also posing a substantial challenge to Pakistan internally.[10] Along with its economic struggles, proliferation of terrorism inside Pakistan and loss of state control over terror groups, thus becomes a 'known-unknown' for India.[11] The threat of two-front operations will need to be assessed, re-assessed, and addressed in terms of not only numerical superiority but the various hybrid threat actors employed by both China and Pakistan. As such, the requirement of agile diplomacy cannot be ignored.

Indian foreign policy towards the smaller states in the sub-continent matches Kautilya's concept of favouring two vectors viz., Goodwill and Cooperation. India's

benevolence is acknowledged in the region. Even though some inroads have been made by China (e.g., port projects in Sri Lanka and Myanmar), India is still de facto first responder in times of crisis. Indian humanitarian assistance such as economic aid to Sri Lanka or wheat to Afghanistan is preferred for the course in the region. The government's 'Neighbourhood First' and 'Act East' policies clearly enunciate the value India imparts to its neighbours, and in typically Kautilyan terms, it intends to foster stability in the region, in its own interests, and as a counter to Chinese focus on these countries. To that end, Prime Minister Modi's initial overtures towards the heads of state (inviting them to his swearing-in), or the first few (and followed up regularly) visits abroad to neighbouring states, are acceptably based on the *Mandala* framework, with India as the *Vijigishu* at the centre of the circles.[12]

The second bloc comprises countries further afield where no direct conflicts exist, such as Middle Eastern/West Asian countries, Indian Ocean littoral states, Central Asian republics, South East Asia and Japan, and African republics. These share deep historical, ideological, trade and commerce, and religious ties with India. Most are post-colonial states, which then followed India on a path of non-alignment during the Cold War. India's dependence on West Asian countries, especially Saudi Arabia and Iran, for its energy requirements led to trade ties that have stood the test of time. These countries also have large populations of Indian expatriates. India's growing military ties with these countries reflect in the exercises with them, apart from a common religious heritage of Hinduism and Buddhism, find the goodwill and cooperation vectors of Indian foreign policy supportive in fending off China. They also benefit from increasing commerce and tourism. Vietnam, South Korea, Taiwan, and Japan share and respect healthy competition with India in technology and related sectors. The huge Indian market is a major attraction for these countries. In addition, the trepidation of having a belligerent China overshadowing them lends a common cause with India. In Kautilyan terms thus, these relationships are based on mutual interests, and the enemy becomes the common denominator; accordingly, the dual policy or *Dwaidbhava* recommended by him is being practiced.

The outer or strategic bloc includes the US, Russia, the EU, and Australia. India is one of the largest importers of military hardware from both Russia and the US. Prospects of Chinese hegemony in the global order have prompted the QUAD agreement between the US, Australia, Japan, and India. An indicator of the importance being accorded to India is the change in usage from the Indian Ocean and Pacific regions (as separate entities) to the Indo-Pacific, which has

Kautilya's *Rajamandalas* described the relationship of states with their neighbours on the basis of geographical proximity, shared culture and values, and most importantly, national interest.

purposely enlarged the scope of Indian presence against a looming Chinese threat; this acceptance of the top table is the coming-of-age of Indian geopolitical strategy. It is also symbolic of the *Mandalas*, albeit in the maritime domain.[13] With the Indo-Pacific at the hub of about 65 per cent of global trade, Indian steps in this direction have a direct bearing on the prosperity and growth of its own people; what was termed as *Yogakshema*, or security and well-being of the people by Kautilya.[14]

Conclusion

Kautilya was the original realist, and his *Arthashastra* was a treatise based on structural realities. The text has been timeless in nature, and has found application across ages, covering not only war, but also the primacy of national interest which must guide the formulation of foreign policy. It also addresses the importance of economic foundations, diplomacy, formation of alliances, and maintaining equilibrium in international relations. It is an accurate statement of the strategic culture in India since ancient times, and sets the normative basis for the welfare and security of the citizen, termed as *Yogakshema*, hence all actions on the global stage need to be tempered with this as the primary aim of the ruler. Foreign policy was guided by four *Upayas* and six *Shadgunyas*, likely the first conceptualisation of diplomacy in the international order.

Kautilya's *Rajamandalas* described the relationship of states with their neighbours on the basis of geographical proximity, shared culture and values, and most importantly, national interest.

According to him, the execution of a state's foreign policy depended upon its capabilities and advised courses of action based on its strengths, relative to that of its adversaries. These were by far pragmatic representations which find resonance in contemporary statecraft and modern international relation theories.

A resurgent India has effectively planned and implemented its foreign policy, including through the turmoil of 21st century complexities on the basis of Kautilya's *Rajamandala* postulates. Its utilisation of this indigenous historical knowledge has yielded it the position of eminence in the international order, and the seeking of its alliance by major powers across the world. It would hold India in good stead to exercise its rights on a global scale guided by the principles

enunciated by Kautilya, which continue to stand the test of time as a unique engagement of realist theory, rationality, and national interest.

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Notes

1. Shiv Shankar Menon, former National Security Advisor of India, speaking at IDSA-ICSSR joint seminar '*Developing Indigenous Concepts and Vocabulary: Kautilya's Arthashastra*', in November 2013. The NSA pointed out the similarities of Kautilyan analysis with the nuclear policy followed by India with regard to Pakistan, and how thinking on IR is influenced by the same principles. See also https://www.indiatoday.in/india/north/story/chanakya-arthashastra-relevant-to-understand-strategic-culture-shivshankar-menon-213738-2013-10-08
2. Comment on the relevance of Kautilyan theory by Henry Kissinger in his book *World Order*; the former Secretary of State of the US appreciates the realism in Kautilya's theories, which according to him are 'a combination of Machiavelli and Clausewitz'.
3. For more on these arguments favoured by western scholars such as T.R. Trautman, see Rangarajan's *Kautilya—The Arthashastra*.
4. Refer to Note 1 above, for Kissinger's acceptance and appreciation of the range of concepts covered by *Arthashastra*.
5. Morgenthau's *Politics among Nations: The Struggle for Power and Peace* is found using similar basis of realist theory as Kautilya. However, he restricted himself to maximisation of power by nations, attendant to their national interests. It took John Mearsheimer (in *The Tragedy of Great Power Politics*) to highlight another aspect of Kautilyan thought, viz., anarchy being the reason propelling nations to pursue power acquisition or maximisation of power being intrinsic to survival of nations in the international order.
6. See Mishra (2012).
7. See Pant (2019).
8. See Hagerty (1991).
9. See Dar (2021) and Shankar (2022).
10. See Verma (2023).
11. See Freier (2008).
12. See Mishra (2016).
13. Indian External Affairs Minister S. Jaishankar described the QUAD in these terms: 'emergence of multi-polarity', 'benefits of rebalancing', and 'a return of history', alluding to Kautilyan concepts and phraseology. In this regard, see Kamal and Sahni (2022).
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SCHOLAR WARRIOR

SECTION II

TECHNOLOGY, WEAPONS, DEFENCE ACQUISITION

CENTRE FOR LAND WARFARE STUDIES

Absorbing Emerging Technologies into the Indian Army: Artificial Intelligence—As Case Study

AKSHAT UPADHYAY

Introduction

Technologies, especially data-driven ones, have gradually occupied a central spot in everyday life. This effect has also percolated into the military with organisations attempting to acquire and absorb technologies to improve on a number of parameters such as speed, coordination, mobility, etc. But what does absorbing any technology into an organisation mean and what does it entail? Using a hypothetical examination of the absorption of Artificial Intelligence (AI) within the Indian Army, this paper attempts to eke out certain pragmatic policy lessons that may be utilised for a more clearer and robust understanding of the several issues that need to be addressed while absorbing technology within the military.

What are Critical and Emerging Technologies (CET)?

Despite the worldwide buzz around the term critical and emerging technologies (CET) or more commonly disruptive or niche technologies, there is, unfortunately, no real consensus on what exactly are these technologies. Several definitions abound for the term. While a section of academia defines CETs in terms of their characteristics i.e radical novelty, relatively fast growth, coherence, prominent

impact, uncertainty and ambiguity,[1] some categorise CETs as those information and communication technologies (ICTs) that have the potential to gain social relevance within the next 10 to 15 years.[2] Some refer to the S curve when talking about the various categories of technologies where a technology undergoes a cycle called the technology cycle.[3] As per this cycle, emerging technology can be defined as any technology that shows high potential but hasn't demonstrated its value. This technology then morphs successively into "leading edge technology" (adequate market potential but not enough customer base to market), "prevalent technology" (consensus amongst customers that the technology is right for them), "dated technology" (useful and sometimes implemented but replacement leading edge technology available) and finally "obsolete technology" (superseded by the state of the art technology).[4] On the extreme end, some have criticised the United States government for creating the category of CETs out of the list compiled by the National Science and Technology Council (NSTC) and subsuming every form of ICT such as AI, 5G, cloud computing and quantum computing within the rubric of CET and securitising it in such a manner that all conceivable technologies are covered under technology exports and foreign investment and therefore subject to national security clauses.[5] For the purpose of this paper, CETs can be defined as a set of technologies that depend on data and high-performance computing, which are in the process of being experimented upon in various organisations and whose market value, commercial viability and societal utility are not yet defined.

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CETs in India's Context

There is no single document within the Indian government that spells out in entirety India's view on CETs. However, through a study of important bilateral and multilateral agreements, ongoing procurements and speeches and statements of decision-makers in the country, a clearer picture emerges. The recent agreement between India and the US on the Initiative for Critical and Emerging Technologies (iCET), signed between the National Security Advisors (NSAs) of both countries on 31 January 2023 identifies areas of cooperation in co-development and

co-production namely, semiconductor manufacturing, next-generation telecommunications including 5G and 6G, AI, quantum technologies, defence innovation and space.[6] India and the European Union (EU) established a Trade and Technology Council (TTC) on 6 February 2023 with a focus on AI, 5G/6G, high performance and quantum computing, semiconductors, cloud systems, cybersecurity, digital skills and digital platforms, apart from resilient supply chains and green and clean energy technologies.[7] A Quad Joint Leaders' Statement in 2022 emphasised the relevance of 5G and beyond 5G communication, space, global semiconductor supply chains, biotechnology, quantum technologies and other emerging technologies.[8] Niti Aayog, the government's think tank, released its own National Strategy for AI (NSAI) in June 2018.[9] In its 2020 Budget, the government also announced a National Mission on Quantum Technologies & Applications (NM-QTA) with a budget outlay of Rs 8,000 crore for a period of five years to be implemented by the Department of Science and Technology (DST).[10] In her speech announcing the mission, the Finance Minister mentioned that CETs such as AI, internet-of-things (IoT), 3D printing, drones, DNA data storage were rewriting the world economic order.[11] In the military domain, all three services i.e. the Indian Army, Air Force and the Navy have created organisations for encouraging innovation and collaborating with the private sector, especially startups in the fields of unmanned systems,[12] AI,[13] quantum computing,[14] military IoT,[15] 5G communications[16] and 3D printing,[17] among others. Collating data from the above, it is clear that for India, AI, quantum computing, 5G communications, digital security and semiconductors are a high priority in CETs while the military additionally considers unmanned systems, additive manufacturing and military IoT as high priority technology areas for acquisition and absorption.

Absorbing Technology within the Armed Forces

Any new or emerging technology with latent potential for disruption in the military domain has to be absorbed within the organisation. This entails a number of sequential steps. Initially, the technology has to be examined and observed, either in labs, academic studies or use cases in other conflicts. This helps in deciding the potential of that technology in terms of increasing the effectiveness or potency of the military force. After a decision has been made in favour of absorption, acquisition needs to be examined from the point of view of its constituent parts such as hardware, software, etc. Finally, the most crucial decision needs to be taken: whether the technology can be absorbed within the current organisational structures or doctrines or whether is there a

need for either an overhaul of structures or a rewriting of doctrines. This dilemma derives straight from a very economic way of thinking—in terms of input and output—whether the application of the technology results in a significant improvement in the output—military effectiveness in this case. Absorption is also affected by ambient factors such as organisational culture or how prone the organisation is to change.[18] The dictum that large organisations are resistant to change discards the sub-cultures within a perceived monolithic organisation. Some may approach change more favourably than others. Another factor is the quality of the military leadership which steers the change. This author has previously argued for the creation of a tech-enabled leadership that looks at emerging security challenges through a non-templated lens, understands the potential of CETs and provides adequate latitude to junior leaders for operations while continuously keeping the strategic mandate at the centre.[19] External shocks is another factor that forces a military organisation to look for technological changes for increasing its effectiveness.[20] There are certain calibrations to how technology is absorbed within military organisations. While absorption may depend on internal research and development (R&D) and organisational decisions on investments in technologies,[21] it can also be linked to project-based initial use as well as longer-term use.[22] Absorption of CETs also requires generating associated knowledge regimes[23] as well as changes in practices, action patterns and resource use.[24] Overall, the successful absorption of technology within a military organisation is as incidental as it is deliberate and planned. Still, military planners need to look at any CET, break it down into its constituent parts and then weigh the internal and external factors to see if a coherent and emergent strategy is required from scratch or can certain existing models be used as foundations for building up.

A tech-enabled leadership that looks at emerging security challenges through a non-templated lens, understands the potential of CETs and provides adequate latitude to junior leaders for operations while continuously keeping the strategic mandate at the centre.

AI in the Indian Army: A case study

The Indian Army has long expressed interest in acquiring and finally absorbing AI into its tactics, techniques and procedures (TTPs) and this is in line with parallel efforts undertaken by the Ministry of Defence (MoD) and the Services headquarters. These efforts are guided by two reports. The first chaired by

Professor V Kamakoti called the AI Task Force for India's Economic Transformation, submitted its findings to the government on 19 January 2018 and hinted at certain uses of AI for national security purposes such as autonomous surveillance and combat systems, adaptive communication systems, cyber attack and mitigation systems and multi-sensor data fusion based decision-making systems.[25] The report identified a number of ministries that would need to be involved in using AI-based systems for national security such as the Ministry of Power, Ministry of External Affairs (MEA), MoD, Ministry of Shipping, Ministry of Road Transportation and Highways (MoRTH), Ministry of Home Affairs (MHA) and the National Security Council Secretariat (NSCS), among others.[26] This implied a whole-of-government approach and a rather holistic view of national security, as argued by multiple scholars.[27]

The MoD instituted a multi-stakeholder AI Task Force under Shri N Chandrasekaran, Chairman, Tata Sons. This report recommended the setting up of a high-level Defence AI Council (DAIC) under the chairmanship of the Raksha Mantri (RM) and a Defence AI Project Agency (DAIPA) under Secretary (Defence Production). Additionally, the report called for the integration and embedding of AI strategy for defence with the Services' defence strategy, development of a data management framework, establishing of a data management office and appointing a data management officer.[28] It also called for scaling the existing capability of data centres and establishing a centrally facilitated network of test beds, apart from organising AI training courses for defence personnel and creating a framework to work with the industry.[29] Based on the recommendations of the report, an AI Road Map for Defence PSUs was formulated in August 2019 which introduced AI-based systems in Defence Research and Development Organisation (DRDO) labs and enabled defence startups to start conceptualising projects based on the requirement of the defence forces.[30] This effort has been supplemented by the Department of Defence Production which organises the Innovations in Defence Excellence (IDEX) on an annual basis and provided financial support and assured orders to defence startups based on the requirement of the forces.[31]

Additionally, the individual services also have separate departments which put out their problem statements on the Internet and invite companies to design workable prototypes which can then be supported further. In the latest Problem Statement given by the Army Design Bureau (ADB), out of 110 problem statements, nine are purely AI while 32 have elements of AI and are spread across fields as diverse as training in the metaverse, fake news detection,

forensic analysis of drone data, logistics robotic mules, language translator and automated warehousing, among several others.[32] This reflects both the opportunities and challenges posed to the organisation when conceiving of AI as a technological solution. Since a majority of the technologies deemed to be CET are data-dominant, they also affect each other and in certain cases, it is difficult to segregate them, even for labelling or identification. For example, an IoT device will be based on advanced semiconductors, have a high-performance computing chip, will host a number of AI applications or have sensors that will collect certain data for big data analysis (BDA) later at a cloud computing centre. AI itself has myriad forms. The one with which everyone is so familiar is machine learning (ML) and its subset deep learning (DL) which employs the use of an algorithm known as the neural network with a number of layers and lets data, labelled or unlabelled, 'flow' through the software and letting it 'learn' through either repeated prompts or optimising a particular value. By training the algorithm or model as it is colloquially known, the intention is to make it predictive so that it can respond with an answer even if it encounters data on which it has not been trained. There are other variants of AI such as computer vision, natural language processing (NLP) and Explainable AI. The requirement of logistics mules and language translators necessitates the use of AI in the form of computer vision and NLP respectively.

When visualising the use of AI within the Army, the first question to ask is: what functions will it help optimise in the current setup? There is a need to broadly list the tasks which when performed by AI-based systems, will improve the cognitive capacity of the human, either by shifting a certain quantum of cognitive load from the machine to the human, performing a physically difficult job in a superlative manner or undertaking repetitive, monotonous or even heavily calculative tasks. After this list is prepared, tasks need to be prioritised. For the Indian Army, AI-based systems can perform the following tasks optimally: multi-sensor data aggregation, fusion and generation of courses of action, deconfliction (convoy movement, ammunition collection, noisy signals in operational areas, etc.), human-machine teaming, instant language translation using NLP, counter disinformation, information warfare (IW), training, inventory management, office process management, healthcare assistance and administrative efficiency. Though some analysts have criticised the approach of the Indian Army in harnessing technology by implying that it doesn't understand the evolutionary nature of AI,[33] this analysis misses the point completely. The Indian Army's land warfare doctrine has adequate latitude to encompass the entire gamut of

CET when used in enhancing its existing war-waging potential or operational efficiency. The nature of tasks that can be optimised using AI and similar CETs in the current setup have already been mentioned. It is in the emergent tasks such as the use of generative AI or its counter i.e. preventing disinformation campaigns using deepfakes or large language models (LLMs),[34] swarm drones,[35] cognitive warfare[36] and fully autonomous systems[37] that there is a need for updating the Army's doctrine, in accordance with a more comprehensive joint doctrine for the Indian Armed Forces, which again needs to be updated, reflecting the potential of CETs as a separate warfighting tool. The new tasks envisaged for CETs also need to reflect the usage of ethical AI, responsible AI and proactive reduction of biases within the collected data.

Once the tasks have been decided, data standards need to be set. These should be promulgated by the Department of Military Affairs in accordance with the parameters given by the government i.e. the Open Government Data (OGD) Platform,[38] to enable cross-compatibility with other government departments, as recommended by the V Kamakoti Task Force. Certain confidential metrics of the personnel and equipment can be adequately firewalled for security reasons. Additionally, the collection, collation and cleaning of data should conform with the National Data Governance Framework Policy.[39] The type of data to be collected will dictate the equipment to be used for the collection. This also needs to be standardised and indigenised. Simultaneously, high-performance data storage and cloud computing centres need to be designated, cyber and physical security measures built in. For test-bedding in the current context, the Indian government's cloud service i.e. Meghraj can be utilised.[40] This author had previously recommended the creation of BADAL (Bulk Accumulation of Data for Automation and Learning) for the Armed Forces.[41] nodes of which can be spread out across the country. Once these are in place, the pipeline for the transfer of data needs to be created. The upcoming Network for Spectrum (NFS) project can be used for this purpose. Project Linchpin for the US Army also envisages a near-similar model where AI services can be delivered to the Army by decoupling the AI from software and integrating AI developers, engineers, testers and security teams into workflows governed by the US Department of Defence (DoD) and where cybersecurity measures can be built upfront.[42] One of the more important yet intangible jobs in absorbing AI is the back end i.e. the training of personnel on AI development, recruitment of civilian teams, and collection of data which is a huge manpower challenge and which needs to be looked at creatively. Once the system and personnel are in place and there is

relative trust over the nature of output generated by the AI system(s) on non-lethal and less sensitive tasks, more kinetic ones can be experimented on and TTPs adjusted based on the test results.

Conclusion

It is a foregone conclusion that the Indian Armed Forces have to look seriously at absorbing CETs for future warfare. As the case study in this paper demonstrates, instead of going for a sudden overhaul of organisations and structures, there is a need to study the requirement of matching the machine with the task currently being undertaken by a human. Once the need has been identified, the constituent parts of the technology need to be broken down, the requirements understood and finally, after thorough vetting and analysis using initially, non-lethal requirements followed by kinetic and lethal ones, should the system be deployed. It is not a dichotomy between evolutionary and revolutionary but even revolutionary technologies require evolutionary preparatory steps to be successful.

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China's Foray into 'Unconventional Domains' and India's Short Term Threat Mitigation Strategies

AJINKYA JADHAV

> "To win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill"
>
> – Sun Tzu

Introduction

'Circa 21st century this theory of Sun Tzu has been blended by the adaption of technology by the People's Liberation Army (PLA). What is the Chinese notion of a 'Military Victory' in this digital era? The PLA now prioritises winning what it refers to as "informationised conflicts," by preparing to engage in simultaneous operations across all traditional and unconventional domains, and bases operational planning on information superiority.[1]

Xi Jinping in his address to the 20th Party Congress on October 2022 stated that "China wants to win local & regional wars in an intelligentised battlefield".[2] Chinese PLA has been at the forefront of a blending of disruptive technologies in

unconventional domains, employing media or public opinion worldfare, psychological warfare and legal warfare.

China's three warfare strategy[3] is an official political, information and non-kinetic warfare strategies of the PLA employing media or public opinion warfare, psychological warfare, and legal warfare. This article will analyse the emergence of the unconventional domains, Chinese capabilities in these domains, the Chinese strategy of fusion of technology in these domains to gain a decisive advantage in the grey zone, implications for India, challenges and recommendations for short-term mitigation.

Chinese PLA has been at the forefront of a blending of disruptive technologies in unconventional domains, employing media or public opinion worldfare, psychological warfare and legal warfare.

Emergence of 'Unconventional Domains' and its Impact on Warfare

It has become more challenging for the military to operate in the unquestionably dominant sphere in every conflict as the arena of war has grown to include the political, economic, diplomatic, cultural, and psychological realms in addition to the land, sea, air, and domains. There will be conflict in non-conflict areas.[4] The modern-day conflict has added new dimensions to the traditional domains of land, air and sea. Information, space, cyber, electronic and human cognitive are the new unconventional domains which have emerged in the past one decade. Modern militaries are building capabilities to contest in these domains. The USA's concept of Multi Domain Operations[5] (MDO) is a joint war-fighting concept in the seamless, transparent and overlapping emerging conventional and unconventional domains.

China's Three Warfare Strategy

The military strategists of People's Republic of China (PRC) refer to the three-warfare strategy to include Psychological, Public Opinion and Legal warfare as its main components. The Science of Military Strategy, 2001 edition, addresses psychological warfare which not only targets the enemy soldiers but also all citizens of the hostile nation. In the meanwhile, it takes on the responsibility of instructing and educating its own soldiers and civilians who are vulnerable to the enemy's psy warfare.[6] In the pre-conflict space, the three warfares create a favourable strategic and operational climate, which shapes the battlespace. One

The PLA SSF plays a vital role in the unconventional domain wherein it integrates PLA's tech apparatus with its communication, cyber, space and network forces in order to support the conventional offensive and defensive operations.

PLA researcher described the interactive nature of the three forms of warfare: legal warfare, which serves as a justification for an attack, public opinion warfare, which seeks to delegitimise the enemy, and psychological warfare, which seeks to demoralise the enemy.[7]

Chinese Foray into Unconventional Domains

China has been instrumental in implementing the theory of "modified combined war that goes beyond limits" which essentially implies the employment of all resources in a combined form across all domains.[8] The formulation of theatre commands and the PLA Special Strategic Force (SSF) are important steps towards orchestrating integrated battles in the conventional and the unconventional domains. The organisation of SSF as a whole reflects an integrated approach to information operations, conceptually and practically connecting purely military aspects like electronic warfare to aspects like cyber and psychological warfare, which can also have political, economic, and intelligence dimensions. The PLA SSF plays a vital role in the unconventional domain wherein it integrates PLA's technology apparatus with its communication, cyber, space and network forces in order to support the conventional offensive and defensive operations in the Grey Zone.

Chinese PLA has been at the forefront of building capabilities in these unconventional domains. Its a concept of 'Intelligentised warfare' that has been at the forefront of its reforms to exploit the space of unconventional domains or in the current context the grey zone. Intelligentised warfare employs emerging technologies such as AI, 5G networks and quantum computing to disrupt an adversary.[9]

Chinas Capabilities in each Domain

Cyber. The PLA seeks to use offensive cyber operations to interfere with, undermine, or harm enemy systems, including vital infrastructure, before, during, and after conflicts, as well as in a variety of conflict and peacetime scenarios. It also seeks to use defensive cyber operations to thwart an enemy's use of the same capability. PLA is using cyber reconnaissance techniques to espionage against military, civilian, or commercial targets as well as theft of intellectual property

even during peacetime as part of its 'Grey zone warfare strategy".[10] Chinese cyber warfare troops are divided into two professional groups: "professional hackers" within the PLA and "patriotic hackers," who support the government's various cyberspace operations against enemy states. There have been cyber-attacks on the Indian civilian infrastructure namely Central Depository Services Limited (CSDL), AIIMS, and Air India systems. In the span of three years of 2018-22, the govt reported 248 successful data breaches in the financial sector whose causes are yet to be ascertained.

Information Operations. The focus of the PLA's information warfare strategy is to defeat military opponents by taking advantage of their reliance on key nodes in the electronic, space, cyber, and psychological realms. The PLA promotes the use of several information operations in peacetime, acknowledging how modern "informatized" war blurs the line between peace and kinetic battle.[11] In training exercises and drills, the PLA has been emphasising on employment of information operations.

Electronic Warfare. The PLA through the SSF intends to combine its EW capabilities more extensively with cyber warfare, which involves a range of capabilities involving tampering with or disrupting electronic and communications equipment, with a concentration on jamming and anti-jamming.[12]

Space Domain. The leadership of China believes that by controlling space, it will be able to safeguard its own economic, geopolitical, and security interests and thwart military assault from possible enemies. China is developing capabilities in both the space and the counter space domain. The indigenous space-based capabilities are critical to PLA's C4ISR networks. In addition to cyber and electronic warfare capabilities against space targets, the PLA is developing counter-space capabilities to attack enemy space assets, including direct-ascent anti-satellite missiles, ground-based lasers, and co-orbital space weapons.[13]

Spy Balloons. The most recent advent in the realms of deniability is the application of Spy Balloons by China to enhance its reach and execute strategic aerial surveillance perfectly fitting the Chinese theory of deception. The slow-moving feature of the balloons closer to the earth's orbit equipped with electronic signal intelligence equipment facilitates deep surveillance of military targets and installations.[14]

Militia. Militia is an armed and assistant backup force of the PLA. It's tasking is to enhance combat support operations under the larger umbrella of winning local wars under informationised conditions.[15]

Infusion of Technology into Unconventional Domains. The PLA SSF under the larger umbrella of the Science and Military Commission controlled by the Central Military Commission (CMC) is leveraging key disruptive dual use technologies such as AI, Quantum, robotics, hypersonics, and unmanned systems. Chinese rapid fusion of disruptive technologies in the military domain spans over a variety of fields including cyberattacks, unmanned combat aerial vehicles (UCAVs), drone swarms, and fire-and-forget missile launcher modes. Additionally, the PLA is deploying AI to help system-of-systems warfare and intelligent operations.

Implications for India

China and India are possibly building capabilities in two separate domains. The Chinese have achieved significant military modernisation in the conventional domain are now focusing on building capacities in the unconventional domain with the fusion of the two in consonance with its strategy of 'Winning without Fighting'. India is still following a platform-centric approach focusing on conventional capabilities. However, the question arises that how will China fight the next war? Will the application of its superior technology in the unconventional domain be enough to humiliate its opponent and satisfy its notion of victory? How will it justify its claims along the Northern borders without the application of conventional forces to ascertain its hegemony? The long-drawn Russia-Ukraine war has proved that Conventional wars are not history and the theory of annexation of land, war-waging material, and economical assets is still relevant. India needs to carefully watch how the Chinese apply its strategy in Taiwan.

The cyber threat is omnipresent and disruptive, especially in the grey zone. Its predictive employment before the onset of a conflict will be a major cause of concern as any failure of the cyber networks will disrupt the command and control mechanism of the national security apparatus and will impact military decision-making.

The nationalism expressed by the countrymen on social media post-Galwan, Pulwama or even Yangtse border clashes are double-edged weapons. China which is known for its Info Warfare will leverage the natural sentiments of the Indians to exploit a particular situation and cause hysteria with a misinformation campaign.

The advent of Spy balloons for strategic surveillance could well snoop into the Indian military systems and assets in the near future. Chinese foray into

counter space adds a new dimension to warfare. Indian military space program is still at a nascent stage, its dependence on foreign satellites for military communication and navigation will be a cause of concern in conflict, especially with the Chinese developing counter-space capabilities. India needs to closely monitor the operational capabilities and employment of PLA Militia as it falls in the gambit of deniability.

Recommendations

It is certain that China will apply its prowess in the unconventional domain in the grey zone and in the pre-conflict space before the application of its conventional might. Hence to counter the threat of the dragon, India needs to simultaneously build capacities and capabilities across all spectrums and all domains. Focus on the unconventional domain should be immediate as the threat is currently in the Grey Zone.

Strategy, Doctrine and Structures. There is a definite need to frame the National Security Strategy which is inclusive of all domains. A joint warfighting doctrine which incorporates the methodology of fighting in the Grey Zone (unconventional domains) and the overlapping capabilities required, leading into the conventional domain needs to be framed. While the theaterisation process is making progress, there is a need to fuse the elements which would build the capabilities in the unconventional domain both at the strategic and operational levels.

Atmanirbharta. India needs to build indigenous capacities and capabilities in cyber and information security infrastructures, especially in light of the rapid digitisation and the surge in the information technology domain. Baby steps have been taken by the establishment of the Defence Cyber Agency. Indigenous development of semi-conductors to secure the cyber infrastructure is the way ahead.

Civil-Military Fusion. India has a huge talent pool, especially in the IT field. There is an urgent need for infusion of this workforce through innovative means such as raising IT Territorial Army (TA) companies on a contractual basis. China despite having a huge drawback of strict Mandarin language enforcement in the country has managed to cultivate a large force which can break into cyber and info networks which are largely in English/Hindi etc. India needs to build a similar workforce trained in Mandarin, capable of offensive cyber and IW capabilities.

Space. India needs to build its own indigenous military satellite capabilities in the next five years. It also needs to focus on the counter space domain.

Disruptive Technologies. Harnessing disruptive technologies through indigenous development is the way ahead. R&D is a major bane for the Indian defence sector. The starting point is quality research work in disruptive technologies in the academic field supported by integrated defence labs to produce prototypes in conjunction with field formations. Rich investment in the private defence sector should be promoted. Infusion of disruptive technologies across the spectrum in unconventional domains is the need of the hour.

Jointness and Integrated Multi-Domain units. Russia has reorganised its Battle Tactical Groups into homogenous Assault Units at the tactical level. The units have integrated elements of firepower, surveillance, EW, medical evacuation, tanks, air defence, artillery and logistics.[16] India needs to build similar capabilities at the operational level which has integrated units focusing on unconventional domains and integrated units at the tactical level structured for conventional conflicts with the infusion of unconventional capabilities such as EW, Cyber and IW.

Conclusion

According to Chinese strategists, Shen Shoulin and Zhang Guoning "brain supremacy" (the capacity to obstruct or impair the enemy's intellect) would replace older ideas of warfare that sought military domination over land, sea, and air, and more recently, space and cyber domains.[17] According to this strategy, dominance over other domains becomes useless once intellectual supremacy supported by superior disruptive technologies is attained over adversaries in the information arena. Indian military minds need to fathom this thought process. India currently is in a very good diplomatic position in the current world order. It must leverage this to build strategic partnerships towards achieving deterrence in the region against the dragon. The Atmanirbhar initiative will need a whole nation approach and support from the strategic partners to invest in India. India has a competent IT talent. India is a significant conventional power capable to protect and deter external aggression. A convergence of multi-domains, technology enablement, and whole government effort will ensure the Indian security mechanism gearing up for the threat in the unconventional domains.

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Tanks Still Not Out of Place

JAGATBIR SINGH

Introduction

Two paradoxically opposite statements, one by a professional soldier and another by a religious leader, highlights the debate on the role of the tank; "when tanks succeed, victory follows" is what General Heinz Guderian said in the 1940s. Contrarily, at start of the Ukrainian War the Pope, in an interview with an Italian newspaper, stated that 'tanks were useless'.

The possible reasons for the pendulum to have swung for the second statement was probably the performance of tanks both in the Nagorno- Karabakh clashes between Azerbaijan and Armenia and during the opening days of the Ukrainian conflict. High Russian tank losses in the war as evidence tanks have become obsolete on modern battlefields have attracted debate. David Willey, the curator of the Tank Museum at Bovington said; "because the tank is such a symbol of power, when its defeated people jump to the conclusion that it's the end of the tank".

In fact, there were many analysts questioning the centrality of the tank on the battlefield in view of the successes of drones and precision-guided weapons to include the Javelin, Next Genetaion Light Armoured Weapons (NLAWS) and more lately HIMARs.

During the Gulf Wars and the war in Libya, the destruction of Iraqi and Libyan armour took place mostly from the sky. Smart weapons had not become ubiquitous and the tank versus tank battles were limited.

Because the tank is such a symbol of power, when its defeated people jump to the conclusion that it's the end of the tank.

While there is no doubt regarding the change in the nature of war which includes the innovative use of new and emerging technology and the prominent role played by sensors and precision weapons it does not obviate the necessity of opposing forces to meet face to face on the battlespace. The fundamentals of shaping the battlefield, manoeuvring troops to a point of advantage and then inflicting shock and causing destruction on the enemy remain.

Armoured Fighting Vehicle (AFV) Evolution

The development of the tanks since they first appeared in battle in Somme in 1916 has been driven by three critical design requirements; firepower, mobility and protection and this triad had remained more or less unchallenged. However, tank design is now evolving in keeping with contemporary threats to lethality, agility, survivability, reliability, and adaptability.[1]

From the day the tank was introduced, its utility has been questioned. A platform that is heavy, difficult to design and produce, and needs highly skilled manpower to operate. It has had the unique ability of spurring advancements in weaponry used to defeat it, be it anti-tank weapons, missiles including the new top attack missiles, mines, attack helicopters and aircraft. In addition, technology has developed reliable and robust command and communications which has ushered in a new era of destruction from drones, sensors and EW.

The 1970s saw the broaching of many limitations that had plagued AFV development since the beginning of World War II. The primary factors included: safe, reliable high energy density diesel power plants, improvements in fast-track layer reliability and ride, laser range finding integrated with computerised and stabilised fire control, passive array night vision, composite armour, and long rod penetrator munitions. The major challenge remaining was the lack of onboard computing power, including digital communications and precision munitions.

The enhanced M1 tank exemplifies technical incrementalism. The new hybrid drive, defensive aids systems, remotely operated turret, autoloaded muzzled-braked 120 mm gun, and reduced weight and fuel consumption are impressive. Yet these improvements are incremental, and like a customised classic car, the original chassis' limitations (and advantages) are inherent.[2]

The physical issues associated with moving beyond existing large calibre weapon systems (i.e., above 120 mm) that use solid propellants remain tenuous,

untested in practice, and beyond proof of concept. European main battle tank (MBT) increments are perhaps slightly less innovative than the M1, but they follow the same paradigm. Yet, it is widely apparent that today's battlefield is different from that which drove the original MBT concept.[3]

Soviet designers exhibited a preference for making tanks relatively small, low-profile, and not too heavy. The T-72s are significantly smaller, lower, and lighter than their Western counterparts. This has some advantages, insofar as the T-72s are significantly cheaper to produce and cost less to maintain. This also resulted in reduction of the crew to three and the advent of the auto loader, which is now been portrayed as a weakness by Western media and the Washington Post called it a 'Jack in the Box Design Flaw'.[4] "For a Russian crew, if the ammo storage compartment is hit, everyone is dead," said Robert E Hamilton, a Professor at the US Army War College.[5]

The Soviets also recognised that tank-versus-tank combat is not that common, and that a tank had to be armed with a gun firing a useful high explosive round to deal with antitank guns, enemy infantry and other typical targets. This attitude stands in contrast to several armies (notably the British) which often built designs stressing one firepower capability to the exclusion of the other.

It is also important to note that over the past half-century, there have been very few clashes between Western and Eastern tanks of the same generation, or between those upgraded to a similar standard. With the possible exception of several tank battles during the Iran-Iraq war, there seem to be almost no examples of significant numbers of tanks of a similar standard clashing in combat.

The Ukrainian Conflict has now brought its role as the lead actor on the modern battlefield back in the spotlight. Is the war underlining a fundamental shift in warfare driven by technology with heavy, expensive and difficult-to-maintain and sustain platforms that formed the foundations of the industrial age acceding their space to smarter and nimbler systems.

Tanks in Ukraine

The beginning of the Ukrainian Conflict saw the internet being flooded with a variety of images and videos of Russian tanks being 'ripped into pieces' and 'shot apart'. Critics spoke of an existential threat being faced with the new tools of warfare which were easier to use being nimbler, lighter, cheaper and more flexible.[6]

The Ukrainian military was deploying a variety of new weapons to destroy the Russian tanks including land mines, Stunga P guided missiles, shoulder-fired Javelins and Next Generation Light Armoured Weapons (NLAWS), AT2 anti-tank mines delivered by HIMAR rockets as well as drones. Were these weapons fundamentally changing the manner in which tanks were employed and pushing them towards 'obsolescence'?

Tanks were then seen sporting cage-like structures on top of their turrets to supplement the ERA panels that completely changed the dynamics of the low silhouette which was a principle of Soviet tank design. The answer no doubt lies in the more expensive Active Protection Systems (APS) such as the Russian Shotora-1 (Curtain) and Israeli Trophy.

The APS is designed to prevent anti-armour line-of-sight weapons from acquiring and/or destroying a target and comprises both soft-kill electronic counter measures and hard-kill measures. The Trophy emerged after extensive research in Israel after their tanks suffered heavy casualties against the IED's and anti-tank missiles used by Hezbollah in Lebanon in 2006. Other systems include the Russian Arena and Afganit a complex radio-electronic system that combines active electronically scanned array (ASEA) radars, a computer sub-system and dischargers firing special rounds whose fragments destroy incoming projectiles.

Now the lens is on the induction of modern Western tanks with their protection and rapid offensive capabilities. Tanks are being perceived as the weapon needed to produce a decisive outcome. Until now, Ukraine has relied primarily on the Soviet-era T-72 tanks with a 125mm smoothbore gun. These also included T-72 tanks given by NATO countries that were members of the Warsaw Pact. In fact, Poland has given them 260 T-72 tanks with various upgrades. Under the so-called "Ringtausch," a swap scheme Eastern NATO partners supplied the Ukrainian Army with Soviet-era tanks like the T-72 in exchange for the Leopard 2 from Germany.

In Ukraine, officials say Armoured Fighting Vehicles will play a key role in battles for control of the fiercely contested towns and cities in the Eastern provinces. Ukraine's, General Valery Zaluzhny, said 'it needs some 300 Western tanks and about 600 Western Armoured Fighting Vehicles to make a difference'.[7]

After UK's decision to give Ukraine 14 Challengers 2's both the US has agreed to send 31 M1A2 Abrams and Germany 14 Leopard 2's and they have permitted Poland to give another 14 Leopard 2's also. This move signifies a major step as for the first time the West will now be equipping Ukrainian forces with major offensive capabilities. However, a discerning observer will realise that

this decision is merely a gesture and these numbers are only symbolic and will not make a major difference in the outcome and will take time to deliver. The challenges of the diverse composition of equipment and that too in insufficient numbers is complex.

The Ukrainians will find themselves saddled with a collection of equipment of various origins, with many different spare parts and ammunition. Their supply and maintenance will be a logistical nightmare. Compounding this problem will be training both technical skills and tactical employment at individual, crew, and various tactical levels and to fight in an integrated manner. A tank crew possesses a unique skill set and the drills are precise but the direction in which the control switch comes on differs from Western to Russian equipment and unless there has been extensive training the crew can instinctively make a mistake. It will take time to master the operational technicalities of each tank.

Inadequacies of Russian Tactics

Little doubt exists on serious mistakes in Russian armour tactics. Tank columns choked highways moving in line ahead without any tactical groupings and distances, enabling Ukrainian forces to pick them off. The timing of the initial operation in the post-winter wet season, when mud makes armoured movement difficult compounded their woes. The Russians should have known this, since the Nazi offensive on Moscow in 1941 stalled for just this reason.

The bulk of Russian ground forces were composed of Battle Tactical Groups (BTGs), Combined Arms Units drawn from Companies and Battalions in existing Brigades. The structure of BTGs varies based on operational needs and available personnel. They are generally Mechanised Battalions, with two to four Tank or Mechanised Infantry Companies and attached Artillery, Reconnaissance, Engineer, Electronic Warfare, and Rear Support Platoons. The BTGs were however understrength and lacked sufficient infantry.

Russian forces failed to conduct basic manoeuvre warfare against Ukrainian forces, preferring instead to bombard Ukrainian cities and villages in a war of attrition. Problems on the ground were complicated by Russia's broader failure to conduct an effective combined arms campaign and to synchronise effects. Russia's challenges raised serious questions about its competence in fire and manoeuvre.

Ukrainian attacks during Russia's initial advance also made the Russians unwilling to push sensitive electronic warfare and Air-Defence systems into Ukraine in case they were captured. Consequently, Russia had to back off on its

Russian forces are revamping their assault tactics and are creating Assault Units specifically designed to perform assaults in fortified tree-lined areas and in urban areas.

electronic suppression of Ukrainian radar and communications.

However, as per the latest unconfirmed reports Russian forces are revamping their assault tactics and are creating Assault Units specifically designed to perform assaults in fortified tree-lined areas and in urban areas.

Apparently, these consist of two to three Assault Companies, tanks, artillery, reconnaissance, command and control elements and EW, AD, UAV Engineer support, Flame Throwing and Recovery Detachments etc.

The Russians faced significant logistical and maintenance challenges operating in contested areas inside Ukraine. Their approach was generally to hammer Ukrainian positions with artillery and other stand-off weapons and then to send armoured vehicles forward on a manoeuvre termed "reconnaissance to contact," designed to overwhelm what remained of Ukrainian defensive lines.

But because of the Ukrainian military's effective use of anti-armour munitions, such as anti-tank guided missiles and loitering munitions, Russian ground forces had difficulty advancing and seizing ground. A large number of Russian tanks estimated to have been lost were captured or abandoned—a sign that poor logistics left crews without fuel or spares.

Latest reports indicate that Russia lost at least 130 tanks and armoured personnel carriers in a three-week battle in Ukraine's Southern town of Vuhledar. The New York Times said that it was the "biggest tank battle of the war so far, and a stinging setback for the Russians". The report claimed that the large-scale defeat was caused by a lack of expertise as "many of their most elite units had been left in shambles from earlier fighting."[8]

The implications for the current situation in Ukraine are obvious. Neither army has demonstrated even a rudimentary grasp of armoured doctrine.[9]Hence it will be wrong to write the obituary of the tank based on Russia's lack of sophistication in the Ukrainian Conflict.

Tanks Dominating the Battlespace

The last decisive tank battle in which Armoured formations of two countries manoeuvred against each other supported by artillery and air took place in 1973. This was a battle in which tanks in combat formation were the deciding factor.

In the Indian context, the famed 1 Armoured Division was only launched in 1965 in the Shakargarh Bulge where it was responsible for the destruction of Pakistani armour but failed to achieve a strategic objective. In 1971, the Armoured Division remained on a tight leash uncommitted in battle in Southern Punjab whereas armour was used in an extremely innovative manner by mixing both T-55s and PT-76s in a manner to exploit the capabilities of each in East Pakistan and led the offensive on all thrust lines and the major tank battle was fought once again in Shakargarh by 16 (Independent) Armoured Brigade spearheaded by Hodson's Horse and Poona Horse. The 1971 War was a historic military victory where most battles were fought with integrated battle groupings comprising all arms with armour significantly playing a leading role.[10]

General Rupert Smith, the last man to command British armour in combat at a Division strength has stated that;" the use of the tank as a machine of war organized in formation to do battle and attain a definitive result has not occurred during the last five decades. Nor for that matter, is it ever likely to occur again".[11]

Most analysts believe that success or failure on the battlefield this year will hinge on Ukraine's ability to build up an Armoured Strike Force without getting it sucked into defensive operations. However, if the Russians succeed in forcing the Ukrainians to commit their reserves, then their offensive would be pre-empted.

Lessons for India

The ever-increasing multifarious security threats on our Northern and Western land borders make it imperative for the Army to be prepared to suitably address these security challenges. Coupled with this is the changing nature of war and advancements in technology that demands a critical appraisal of the employment of armour. There is no doubt that this involves expanding its operational capability in synergy with other combat forces.

While manoeuvre in the classic sense may hold good in the Desert Sector and to a degree in the semi-developed Sector, armour needs to be effective even in areas of restricted battle spaces in the fast-expanding built-up areas in our developed terrain which has now expanded from the Chenab all the way to Ganganagar and also be effective in High Altitude Areas.

The flexibility of the tank allows this, across all types of terrain, in all spectrums of warfare and in both an offensive and defensive role. Tanks were used effectively as a deterrent during the standoff in Eastern Ladakh by both

sides. However, you will need different tanks as per the terrain and the acquisition of Light tanks for HAA is a step in the right direction. The unvarnished truth is that in spite of all the high-tech sophistication of modern warfare, sheer force on the ground still counts.

However, the essence lies in integration of armour and mechanised troops as central proponents of an all-arms team specially structured to prosecute all arms operations. Greater integration by combined Tactical Training Centres and Directorates at Army Headquarters is a way forward.

The challenge of fighting through built-up areas needs to be addressed. This can be overcome by specially structured Combat Groups and Teams and by tweaking tactics. While we may argue that decisions will be sought in the Deserts and Hill Sectors, we have to have the ability to prosecute effective operations in the developed terrain, which can be achieved by focusing on precision-guided weapons, enhancing ISR capability, EW and secure communications.

As far as the design goes the frontal arc of the tank with the glass plate was always the strongest to take on a long rod penetrator at over 1,600 metres per second, however, the weakness due to top attack munitions now stands exposed. Though an aerial threat has been catered for to an extent with the APS and ERA a design review is necessary.

Keeping future threats and desired capabilities borne out of the requirement of continued 'operational readiness' and 'combat superiority' over the adversary, there is a need for a modern Tank platform which is superior and incorporates niche technologies i.e. Artificial Intelligence, and the ability to operate in a network-centric & EW environment

Conclusion

The tank remains one of the defining symbols of modern warfare even though it has its critics. While there have been narratives regarding the future of war based on the emergence of high-technology weapon systems and futuristic visions of battles contested in cyberspace and by other non-kinetic means, it is unlikely that an outcome of a conflict can be controlled without the use of force.[12] However, it is imperative that the chinks in the armour which have emerged be addressed both from the design point of view and in the form of the tactics and techniques by those operating these machines.

As long as the adage 'only movement brings victory' remains, the tank with its ability to seize and hold ground in an era where the dominant language is still

violent, will continue to remain relevant. This is an important lesson from the conflict even though it involves taking the clock back to a point in warfare when the tank dominated. Ultimately, wars are won by achieving the right balance of priorities.

The sign as you enter Ahmed Nagar, the mecca of tankmen probably sums up the tank best; "Deterrence in Peace and Destruction in War." But there is no doubt that the tank needs to adapt to ensure it remains firmly in place.

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SCHOLAR WARRIOR

SECTION III

GEOPOLITICS

CENTRE FOR LAND WARFARE STUDIES

QUAD-SCO: Is India the Swing State Everybody Wants

ASHU MAAN

Introduction

The concept of swing states is fairly new in International Relations (IR). Swing States is an American term that has historically been used during the United States (US) Presidential elections to define states which do not always vote for the same party and can tilt the elections in favour of the candidate they choose to vote. Swing states in the IR context was first used by Daniel M. Kliman and Richard Fontaine during the 2012 US Presidential elections. According to them, global swing states are "Nations that possess large and growing economies, occupy central positions in a region or stand at the hinge of multiple regions, and embrace democratic government".[1]

Theoretically, on the basis of definition, India is a classic swing state but there are other variables that make up a global swing state like territorial integrity, national interests, market access, and access to resources.

The purpose of this paper is to determine whether India is the global swing state that everybody wants. The post-Cold War period ushered in a unipolar movement. However, the rise of China has brought forth a 'Great Power Rivalry' between the US and China that has left both countries scrambling for allies. The US has followed a modular approach to gather allies. It is reinvigorating old multilateral alliances like NATO, while also focusing on bilateral alliances like expanding its military presence in the Philippines.[2] Apart from that it is also engaging in new alliances and partnerships like Australia-United Kingdom-

United States (AUKUS), Quadrilateral Security Dialogue (Quad), and India, Israel, United Arab Emirates, and United States (I2U2). China on the other hand is forming alliances and partnerships with mainly anti-US countries like Russia, Iran, and North Korea. Amidst all this India is the country that can tilt the balance of power in the favour of the side it chooses to ally with. While it has not explicitly joined any side, its interest-based foreign policy, adherence to post-war institutions while lobbying for reforms, and the potential role as the pillar of the balance of power between the US and China.

Swing states are "Nations that possess large and growing economies, occupy central positions in a region or stand at the hinge of multiple regions, and embrace democratic government.

What makes India a Swing State?

Swing States are countries that have big developing economy, strategically relevant position in a region, and espouse democracy. Additionally, swing states also push for changes to the prevailing international order while not seeking to completely dismantle the incumbent institutions that propped in the post-war period like the United Nations (UN), World Bank, and International Monetary Fund (IMF). This section discusses five variables i.e., *commitment to international institutions, regional partnerships, adherence to international law, export control regimes, and commitment to democracy,* that make India a swing state.

Along with a big developing economy, a swing state is committed to the post-war international institutions. However, the state actively pursues reforms in the institutions to be more inclusive. India, since its independence, has been a proponent of international institutions and with a developing economy, it has also started to assert reform in those institutions. India's GDP is US$ 3.4 trillion, and it is projected to cross US$ 5 trillion by 2027.[3] Since 2017, the country's real GDP has grown at an average rate of 6 per cent[4] while being the only major economy to rebound fully after the Covid inflicted negative growth in 2020. In terms of Purchasing Power Parity (PPP), India has the third largest GDP behind US and China. India's geographical location makes it an immediate neighbour of East and West Asia while occupying most of the South Asian landmass. Its location makes India the focal point of the most relevant contemporary region i.e., the Indo-Pacific.[5] Coming to institutions, India's political and diplomatic dispensation has been pushing for a change in global governance, calling for

reform in post-war institutions. These calls have come in India's campaign for permanent membership in the United Nations Security Council (UNSC) and in a joint statement with South Africa and Brazil that endorsed "the expansion of UNSC in both permanent and non-permanent categories with increased participation of developing countries.[6]"

Complimentary to this, India follows a mixed approach to international institutions. It actively seeks membership of incumbent institutions while also becoming a member and sometimes driver of new multilateral and regional institutions like Shanghai Cooperation Organisation (SCO), Quadrilateral Security Dialogue (QUAD), Brazil, Russia, India, China, and South Africa (BRICS), India, Israel, United Arab Emirates, United States (I2U2), and Missile Technology Control Regime (MTCR). India at times has worked to halt trade liberalisation (Doha round) while also strengthening financial institutions like IMF by contributing US$ 10 billion to reinforce its lending facility.[7]

A swing state also pays impetus to international law. With a largely interconnected world, international law becomes very important to regulate state's behaviour. One such example is the maritime domain. With the advent of new technologies, the maritime domain has become one of the most strategic constructs. These technologies will make possible seabed mining that will unlock a plethora of resources for the world. However, regulations are needed for maritime actors and the United Nations Convention on the Law of the Sea (UNCLOS) is one such regime that seeks to regulate how states behave. India has ratified the United Nations Convention on the Law of the Sea (UNCLOS) and supports an interpretation of UNCLOS that would require foreign navies to obtain coastal state consent before operating in the Exclusive Economic Zones (EEZs). India has lodged a frequent diplomatic protests with the United States over its Freedom of Navigation Operations (FONOPS) in India's EEZ.[8] India has also pressed on China to abide by international tribunal judgement and international law in the South China Sea. It has also played a major part in anti-piracy operations in the Gulf and Arabian Sea region.

Another trait of a swing state is its commitment to a non-proliferation and export control regime. Albeit, it has not been a signatory to the Nuclear Non-Proliferation Treaty (NPT), India has in principle supported non-proliferation for a long.[9] It is a member of three of the four export control regimes i.e., the Australia Group, Missile Technology Control Regime (MTCR), and the Wassenaar Arrangement and actively seeks membership in the Nuclear Suppliers Group, where its membership has been stymied by China.

The last trait of a swing state is its abutment to democracy. India is one of the founding members of the Community of Democracies,[10] which seeks to promote the rule of law and good governance. It also cofounded the UN Democracy Fund and has been a leading donor since its inception. The fund provides financial assistance to civil societies operating in countries going through a political transition. India's policies in the last decade that has shown it taking global responsibility, its endorsement of the prevailing international order while working to reform it and strengthen most of its institutions makes India a swing state.

India's Interest-Based Foreign Policy and its Balancing Act

The post-war period saw the world being divided on ideological grounds. India traversed the ideological period by leading the 'Non-Aligned Movement' where it didn't support any side. The ideological period was followed by an era of unipolarity, where India's policy was one of 'strategic autonomy'. While India didn't play any major part in the ideological and unipolar movement it finds itself at the centre of the great power rivalry between the US and China. US and China are both scrambling for allies at the moment through institution-building, reinvigorating old alliances, and forging partnerships. The US has followed a mixed approach where it has rejuvenated NATO, increased troops presence in the Philippines and active engagement within QUAD. China on the other side is building institutions and adding more partners to it, particularly SCO. SCO at inception was borne out as a "confidence-building regional forum to demilitarize borders."[11] However, the scope and membership of the organisation have increased since then. In the wake of the Ukraine war, China and Russia are now trying to turn the group into a "non-aligned" group to counter NATO. SCO is already expanding membership, specifically to anti-US countries like Iran, Belarus, and Saudi Arabia.[12] Coming to India, it has not been able to achieve any tangible outcome out of its membership in SCO. India's major concerns like cross-border terrorism and border disputes still emanate from the member states of SCO. On the other hand, if SCO succeeds in its current iteration, it will have security and strategic consequences for India as China will gain more power and influence the Eurasian region.

Similar to SCO, India is also a part of QUAD. India has been able to achieve some tangible outcomes out of its membership in QUAD. India is a developing country and needs better infrastructure, access to critical and emerging

While India's temporary strategic interest lies in engaging with the US against China, however, its long-term aspirations of a multipolar international order are in direct conflict with US interests.

technology and rare earth minerals, scientific exchanges, and security partners. All of the above are being taken care of through QUAD's six working groups.[13] The QUAD can also help India against China by providing deterrence in the maritime domain. Due to China's increasing naval capabilities, it is no longer just a territorial threat to India. Chinese naval assets have been detected operating closer to India's naval facilities in Andamans, Vishakhapatnam, and along the Arabian Sea.[14] China through its base in Djibouti also threatens India in the Indian Ocean. QUAD will act as a force multiplier to deter China through pooled assets, interoperability, and intelligence sharing in the future.

India has so far played a balancing act by being a member of both US and China-led groups. It has been an active part of China-dominated groups like SCO while also being a part of US-dominated groups like QUAD. But with increasing assertiveness and its quest to dominate the world order, China has already destabilised the geopolitical balance at least in Asia. In this scenario, India's strategic options have narrowed down. It cannot afford to be non-aligned in the US-China rivalry as its outcome will have direct consequences for India. This leaves India constrained with strategic autonomy where it follows self-interest while simultaneously building capability to counter China. In the current situation, India's self-interests are best served by aligning more closely with the United States when it comes to matters regarding China.

Conclusion

India's actions in the last five years indicate that it is swinging in the direction of the United States. The most relevant indicators are India's approach to post-war institutions led by the US and its partnership in new groupings with the US. India is actively engaging in Free Trade Agreements (FTA)[15] with various countries, it regularly speaks (including in UN) in favour of the so-called "international rules-based order', vouches for a democratic world and human rights, and contribute to financial institutions like IMF.

While India's temporary strategic interest lies in engaging with the US against China, however, its long-term aspirations of a multipolar international order are in direct conflict with US interests. Therefore, in the short-term, India's interest are best served by taking on global responsibilities and free-riding on

the US. However, India should also be wary of the US engaging in "Buck Passing", where it expects India to bear all the costs of 'containing China'.

Coming to the titular question, Is India the swing state everybody wants? India is a swing state, but it is one that might not be wanted by everyone. China and the US would certainly want India to be on their side, but India too has individual aspirations that are antithetical to their interests. Contemporarily, India's choices are constrained due to its limited individual capabilities to have a profound impact on the global order, but it certainly has the ability to tilt the power balance in favour of the side it chooses. India faces difficult strategic choices of non-alignment, hedging, aligning with the US or China, and building military and economic capacity. In such a situation, India's immediate interests are best served by engaging with the US against China while extracting tangible outcomes from US to build indigenous capabilities to pursue its long-term strategic interests,

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Lithium and Its Geopolitical Implications for India

MUNISH TULI

Lithium

Lithium is a soft, shiny grey, highly reactive and the least dense alkali metal that is found in the earth's crust and constitutes only 0.002 per cent of it. It is used in the manufacture of Lithium-ion batteries, lubricating grease, heat-resistant glass and ceramics, as high energy additive to rocket propellants and as a converter to tritium which is used as a raw material for fusion reactions. Lithium makes precious alloys with aluminium and magnesium that are used in amour plating, aircraft and high-speed trains due to their high strength and lightweight . Lithium salts are frequently used as anti-depressants and in the treatment of mental illnesses like bipolar disorders. Rightly so, owing to its diverse applications in critical areas, Lithium is popularly referred to as 'White Gold'.

Lithium

Source: PngFind

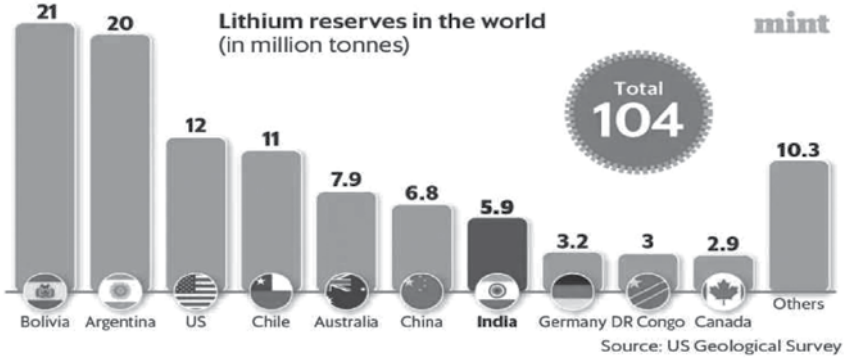
Lithium-ion Batteries

Source: PngFind, Dreamstime.com

Lithium Reserves in India and the World

India has recently discovered a major lithium 'inferred' reserve to the tune of 5.9 million tonnes in the Reasi district of the union territory of Jammu and Kashmir. The term 'inferred' refers to the fact that the reserves are in the 'preliminary exploration stage', which is the second stage of the four-stage mining process. This vital discovery has catapulted India from the position of having little reserves to the competitive seventh position on the global list of countries having Lithium reserves. India now happens to be the second-largest reserve of Lithium in Asia after China. As per an earlier survey, there has been a finding of about 1.6 thousand tonnes of Lithium reserves in the Mandaya district of Karnataka.[1] The

Global Lithium Reserves



Source: *Mint*

world's supply of Lithium is primarily sourced from a handful of South American countries namely Argentina, Bolivia and Chile which together account for 54 per cent of the world's Lithium reserves.

The next section broadly highlights and differentiates the geopolitical significance of Lithium from that of fossil fuels and renewable sources of energy.

Multipolar, decentralised and technology-led renewable geopolitics does not work in the case of Lithium, although Lithium geopolitics could become one of the most critical sub-sets of renewables geopolitics.

Geopolitics of Lithium

As countries around the world migrate towards greener and carbon emission-free fuels, critical minerals like Lithium will sooner or later replace fossil fuels like oil and gas which today command the geo-strategic significance space. As a consequence, countries will like to secure their supplies of Lithium and simultaneously reduce their dependencies on others. This would lead to the rise of new geo-strategic concerns in fulfilling the growing energy requirements of the world. Since Lithium reserves and the manufacturing capability of Lithium-ion batteries are limited to only a handful of countries, it may lead to the emergence of new forms of international conflicts and interdependencies. We shall be witnessing a gradual shift in the geopolitics of production and consumption of energy from the present carbon-based fossil fuels to the futuristic sources of green energy such as Lithium.

While the legacy geopolitics of fossil fuels revolved around the distribution of energy resources and securing the energy transportation corridors, the geopolitics of renewal sources of energy is primarily focused on the distribution of their production capacities. In the case of fossil fuels, the countries are continuously endeavouring to attain either fossil fuel energy independence or interdependence. On the other hand, in the case of renewal energy resources like hydro, wind and solar which are inherently distributed, the countries are focusing on cooperation for technological interdependence in their production. However, in the case of Lithium, the focus is expected to be of hybrid nature. It means that countries would now strive for both energy resource independence as well as technological independence or interdependence to produce Lithium to meet their green energy demands. This would alter the current dynamics of geopolitics on the energy requirements of the world.[2] Multipolar, decentralised and technology-led renewable geopolitics does not work in the case of Lithium,

although Lithium geopolitics could become one of the most critical sub-sets of renewables geopolitics. Lithium resources are finite and limited, unlike renewable sources of energy, thus creating tougher international competition to produce Lithium.[3] Therefore, Lithium geopolitics is sandwiched between the geopolitics of fossil fuels and that of renewable sources of energy due to interdependency between countries arising in the realm of Lithium production technology and manufacturing of Lithium-ion batteries.

China is feverishly securing its future green energy needs by actively making huge investments and acquiring Lithium mining companies in South American countries which are leading the world in Lithium reserves and Lithium production. Globally, China is also the leading manufacturer of Lithium-ion batteries and accounts for more than 70 per cent of the world's production.[4] It has been seen in the past in the realm of the geopolitics of renewable energy that inter-dependence between the countries on the technology front has not resulted in any direct economic and political conflicts between them. The Western countries do not seem to be engaged with China over the issue of battery technology, since it is mutually beneficial for fulfilling the ever-growing demands of the electronic and electric vehicles markets. Therefore, there is a difference between the geopolitics of fossil fuels and technologically dependent Lithium that has successfully deterred economic and political conflicts between the countries so far. In the next section, we shall dwell on the geopolitical significance of Lithium as related to India.

Geopolitical Implications of Lithium for India

A Work Bank study has projected the demand for Lithium to grow by 500 per cent by the year 2050. The global electric vehicle (EV) market is also projected to reach US$ 823.75 billion by 2030. According to the Central Electricity Authority, India will need 27 gigawatts of grid-scale energy storage systems by 2030. In 2021-22, India imported Lithium worth US$ 22.15 million from Hong Kong, China and the USA.[5] At present, India imports Lithium from Australia and Argentina and 70 per cent of its Lithium-ion batteries are imported from China and Hong Kong.[6]

The discovery of Lithium reserves in India will certainly reduce its dependence on imports once the indigenous extraction and production of Lithium commence. India requires large amounts of Lithium for the indigenous manufacture of Lithium-ion batteries. India's demand for these critical resources has also risen six times in the last five years. Hence, the recent discovery will certainly give a major boost to the indigenous battery manufacturing and EV

industry in order to meet India's ambitious target of achieving 30 per cent EV penetration in private cars, 70 per cent in commercial vehicles and 80 per cent in two-wheelers by 2030. The success of the transition from a combustion vehicle to an electric vehicle depends on the battery, which accounts for at least 30 per cent of the vehicle's cost. Albeit, there are pragmatic challenges and concerns with the extraction of Lithium such as the geological stability of the mining region (Jammu and Kashmir being in seismic zones 4 and 5), environmental concerns, availability of extraction technology and last but not least security concerns as some terror groups have already openly threatened the mining of Lithium in the region. Historically, the union territory of Jammu and Kashmir has always been the quintessential cause of persistent tensions between India and Pakistan, cross-border insurgency, and terrorism. Hence, the discovery has immense geo-strategic implications for India considering the geopolitical instability of the larger region encompassing the location of the discovered Lithium reserves. It is also important to positively engage the local population around the discovered reserves in Jammu and Kashmir in the mining and production of Lithium for socio-economic development. It goes without saying that all of these critical challenges have to be overcome before India becomes self-reliant in the supply of Lithium to both its domestic and international consumer markets.

While China has already developed its immense capacity to manufacture Lithium-ion batteries which it is supplying to the entire world, strategically it is crucial for India to minimise its Lithium dependence on China. A high level of dependence of India on China for Lithium is perceived as a risk to its long-term energy security. India is aggressively pushing for a 'Rare Earths Mission' to explore its natural mineral reserves, which account for nearly 6 per cent of the world's rare earth. If the discovered Lithium reserves in Jammu and Kashmir are further explored and efficiently cultivated into production, India could certainly jump ahead of China in growing its Lithium stockpile and also contribute to the country's continuous economic growth. Therefore, it is imperative for India to secure its critical Lithium supplies and build long-term self-reliance and sustainability in Lithium mining and its production and manufacturing of Lithium-ion batteries. India can certainly be a part of the global supply chain of Lithium in times to come.

Conclusion

Lithium is a rare earth metal having multifarious applications and huge economic potential. Lithium is primarily used in manufacturing Lithium-ion batteries

which drive EVs. Though the major concentration of Lithium reserves is found in South America, India has emerged as one of the top countries having Lithium reserves after a recent discovery in Jammu and Kashmir. Lithium geopolitics has mixed flavours of the geopolitics of fossil fuels and renewables. Like fossil fuels, Lithium reserves are distributed across a small group of countries but lead to technological interdependence in production like renewable sources of energy. Unlike, oil and gas which have led to conflicts between countries, the geopolitics of Lithium has rather prevented countries from going into conflicts due to huge interdependence for fulfilling each other's long-term green energy requirements. China currently controls more than three-fourths of the global Lithium-ion battery manufacturing capacity and India needs to reduce its dependence on China for Lithium-ion batteries. India has to tread the path of 'Aatma Nirbharta' in the production of Lithium and manufacture of Lithium-ion batteries. India has not only a dream to fulfil its laid-down milestones of achieving partial and complete electrification of its passenger and transport vehicles but also its dream of emerging as a global hub and a key player in Lithium geopolitics in the coming times.

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SCHOLAR WARRIOR

SECTION IV

LEADERSHIP, MOTIVATION, AND HUMAN RESOURCE

CENTRE FOR LAND WARFARE STUDIES

Strategic Communication by Services: Integration of Civil-Military Assets—A Road Map

ROOPESH MEHTA

Just when experts were writing obituary of conventional wars, Russia-Ukraine happened. The Russian attack and the dogged response by Ukraine supported by US/NATO surprised both sides. What many thought would be a short war continues to drag with negotiated settlement a distant hope. In all this along with the use of disruptive technologies what stands out is distinctive Information warfare efforts which have brought conversations onto Strategic Communication(SC).

It all is in essence, a battle for the "hearts and minds" of the international community and the two warring nations[1]—the Ukrainians and the Russians. A battle with focus on human capital or will to fight which can manifest in a win or loss. The target of the SC is resilience and resolve of the leaders, the citizens and the soldiers; any section giving in can lead to a loss for the nation. Resolve is about emotional connect and hope which flow from myriad communication by leaders and actions on ground. A visit by US president to Kyiv is one such action with a strategic messaging effect.

In the modern era of the internet-driven communication boom, SC has increased importance for nations, societies and governments. There is an

unquestionable need for a whole national approach to SC as part of national security imperatives.

What is Strategic Communication?

SC is the coordinated actions, messages, images, and other forms of signalling or engagement intended to inform, influence, or persuade selected audiences in support of national objectives.

The default understanding of SC in the minds of many has to do with media interaction, which further devolves to establishing effective talking points for the next press briefing. This is not only wrong but extremely dangerous as it significantly limits the ability of the actual process of SC to synergistically support and ensure the effectiveness of military operations.[2]

SC as a concept is open to definition. 'SC is defined as the coordinated actions, messages, images, and other forms of signalling or engagement intended to inform, influence, or persuade selected audiences in support of national objectives.[3]'

In less-than-war conflicts like Kargil and in some manner Surgical Strikes showed Indian efforts at effective SC, these included elements of perception building and escalation control. The same was probably sub-optimal in Chumar, Pulwama/Balakote or Galwan and some more cases. In all this, there are lessons which demand institutional effort to upgrade capacities for the future.

What needs to be Told?

The national ideals and aims need to be spoken about, this forms part of security ring-fencing of the nation. The audience (citizens) is the target and hence needs to be aware of the threats and be part of the battle order. SC is about building bonds of shared identity and a feeling of collective security. The speeches in parliament, on important national days, PM's 'Mann ke baat', and services chiefs annual briefings can be seen in same context. At the tactical level in Indian Army the sainik sammelans have similar objective(s).

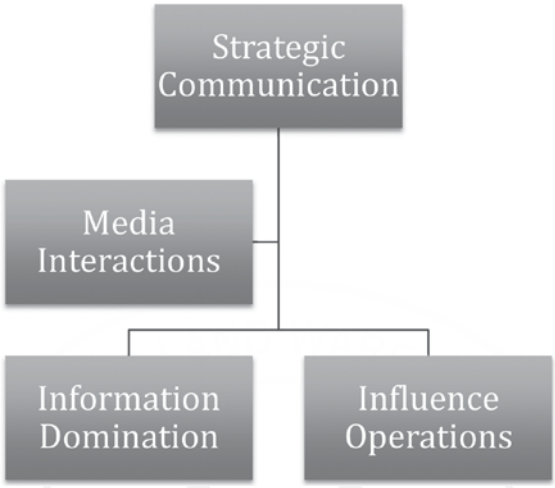
The national objectives and the consequent military objectives need to be defined and periodically refined, this is about national or theatre intent being articulated by the respective leadership. The clarity in macro objectives is a prerequisite for the execution by the multiple domain players of SC at

various levels. A suggested list of what needs to be communicated by the military as part of SC at various levels remains an iterative list. The list below could be explored to arrive at essentials as relevant today. These themes/ sub-themes could form part of an Information Warfare directive(s) at higher levels.

- The idea of India is that the services feel proud about and fight to defend. The higher ideals of preamble, fundamental duties and rights as enshrined in the Constitution.
- Information about services role and activities in nation building.
- 'Just cause' and 'just conduct' as founding blocks of Indian Defense Services in conventional and counter-terrorist operations. A 'moral force' as a fighting machine rooted in Indian traditions of honour and valour.
- The shared cultural heritage of the Indian soldier, sailors and airmen who fight for a common cause.
- Swag and tactical skills of the Indian seaman, airman and soldier.
- Assessment of threats to the nation to improve security consciousness of all arms of the nation, including the citizen.
- Information about the capability of the defence forces of the nation; self-confidence and deterrence.
- Information about current operations including ones as part of Counter-terrorist operations.
- Services must proactively become the principal source of information for media and research scholars to facilitate accurate research and policy inputs for the state.
- Information about achievements that give recognition to achievers and acts as a motivator for others.
- Information about propaganda efforts of the adversary and the need to counter it. Countering of the false propaganda.
- Information about issues relevant to soldiers, veterans and families of service personnel.

Components of SC

For the military, SC can be said to have two principal components beyond the immediate media interactions, viz the information domination operations and influence operations.



Media Interactions

Media is a necessity and not a choice; it is a resource for communication. It is a watchdog and hence will also report negative when something negative happens. That does not make media dangerous but an able partner for better organizational health. Intentional targeting of the services as done by some known baiters is a separate issue from the genuine interactions with the media. While dealing with the fallout from a critical coverage can be unpleasant, they are necessary pain to keep organizational health in top shape.

Media cells at various levels do the function to be a point of contact for the media. They facilitate media interactions including interviews, visits to forward areas, access to the latest information, access to data and coverage of major events including training activities.

Information Domination Operations

Information operations in the conventional setting is about getting accurate information about the enemy while denying the same to the enemy, it involves cyber, EW, espionage, physical security, deception and such efforts. It is primarily targeted at the decision-makers. Information domination is about actions to become a natural source of accurate information about all types of military operations and issues. This is both a need and a responsibility in a democracy. The services with maximum information about operations are responsible for

proactively sharing information about their operations. This needs to be timely, credible and most importantly 'sufficient' for the need of the other arms of the state and the citizens, too less and too late is no longer acceptable. Information domination about an operation is also an operational need for ensuring cementing of a kinetic victory by a win in perceptions, without the non-cognitive victory the success would be incomplete. Information domination is when the impact of the tactical win is converted into a strategic win by influencing the larger long-term victory in 'battle of narratives'.

Influence operations are operations in both cognitive and non-cognitive domains to achieve politico-military objectives by means short of kinetic operations. They are part of the infinite battles that nations and militaries prosecute on the path of national objectives. It includes achieving moral and psychological domination through soft power elements and deterrence through the effective display of hard power; deterring war is an important responsibility of 'hard power' of a nation. Genuine hard power with effective SC can achieve desired deterrence.

The target audience ranges from the international community including adversaries and their leaders, the citizens of the state, other arms of the government, the soldiers and the veteran and services families. It implies the need for multiple formats and languages to reach the target audience(s). For the military, influence operations need to be the principal communication effort in an era of No War No Peace or grey zone warfare.

Current Status

In India, currently, there is a segmented effort at SC by the three services. There have been 'quick fix solutions' attempted at jointly addressing the communication needs in time like Kargil War or events like the Surgical or Balakote strikes where need-based joint briefs were undertaken. More recently the joint brief under the Department of Military Affairs (DMA) at the launch of the Agniveer Scheme with the Raksha Mantri and the three service chiefs is another format that has been seen. Overall these have been limited to event/incident-based information domination operations.

Organisationally there is the Defense Public Relations Officer (PRO) channel with representatives all over the country under the Defense Secretary. Defense PRO at South Block is the one-point media communication office of the MoD. DMA is yet to have a formal structure for SC.

The Indian Army has a potent Additional Directorate General SC (ADG SC), an organisation that has evolved in capacities over the years and continues to innovate for better effectiveness. Indian Navy and Indian Air Force too have similar structures.

There is a conscious effort to build Information Warfare readiness in the three services. The Indian Army is training Information Warfare experts to man organisations at Command and Corps levels. The accretions at the operational and theatre level will create a web of parallel cellular Information Warfare hubs, which can carry out Information Warfare in the unstructured terrain of internet and social media. The last few years have seen a rapid increase in presence of the military on social media especially twitter, and sharing of information is improving in incremental ways with progressive improvement in execution.

In addition to the communication activity, there are actions to support defence coverage by

- Facilitating access to border areas to media, research scholars and other influencers.
- Facilitating clearances for the infotainment industry, cultural groups, writers and others on activities linked to defence services.
- Facilitating development activity in forward areas including communications and tourism.

Indian defence services experience with the international media has been mixed with a sense of distrust and needs a de novo effort to improve SC at the international level.

Resources

Messengers are credible resources that have access to target audiences. These include conventional media, social media, radio, religious leaders, academia, political leaders, sportsmen, social media influencers and so on. In communication seeding minds of influencers proves very effective in proliferation of a message or narrative. Influencers and media can be empowered with correct facts, which in turn ensures effective communication. Efforts to empower the influencers can be a potent method of proliferation of the national narrative.

The military needs to harness every element of national communication resources to generate desired capacities. No list of resources can be exhaustive but the following merit attention of the communication planners and executors

of the military. The organisational structure must enable interactions and collaboration with all these messengers or resources.

- Information & Broadcasting Ministry.
- The MEA is a source of information and an enabler of the proliferation of information. Defence Attaches are posted in embassies around the world.
- The national, international and regional media houses.
- The think-tanks circuit, universities and academia.
- The infotainment industry includes Tedx events and Josh Talks type of events with mass appeal and reach.
- Books, authors and the literature festival events.
- Citizen influencers including diaspora—the influencers of varying backgrounds with large reach on social media.
- Veterans and families of soldiers.
- Training establishments with dedicated access to students.
- Education ecosystem.
- The Cultural Affairs Ministry as an enabler of the use of art and culture for soft power communication.

The Soldier as a Messenger

A military of nearly 14 lakh with a larger veteran and families circles are the important target audience and messaging resource. This community is emotionally involved in matters military. The cyber espionage worries have put the serving soldier under a ban from most of the social media to create a safety wall. This comes at cost of denying the opportunity to use the power of new-age communication tools for the services communication needs!

Social media has been active on military issues including among others discussions on OROP, NFU, Agniveer Scheme, Women in Armed Forces, Theaterisation, Capability development of the services, situation along Northern borders, relationship with Pakistan and other matters military.

Secondly, the next generation is being denied exposure to the ever-evolving social media terrain for information warfare, which already has a direct impact on kinetic operations as visible in Ukraine. The social media ban has moved many soldiers social media activity into pseudo account dark zone with same risks of loss of information without means to guide and monitor. A suitably empowered soldier is a popular messenger and can be used to exploit the power of the information revolution. The defence forces need to find a balance

between security concerns and use of the communication tools for optimum impact.

An effort to allow and guide soldiers to be active on social media with due security consciousness will multiply the capacity for information proliferation and domination. The military has accepted the capacity of the veterans to contribute to the battle of narratives and veterans are being updated on the latest happenings through various means. This needs to continue at progressively increasing scales and locations.

Weaknesses

The principal weakness of the Services is poor understanding of media. Lack of exposure leads to a lack of confidence at lower levels, which leads to media avoidance at higher levels. Media has to be accepted as a resource and a necessary part of the terrain of modern warfare.

Too much centralisation with complex clearances for normal access to media leads to too less too late. Centralisation in a huge nation like India leads to missing the regional or local needs.

At most levels, Information Warfare Organisations are well-tuned to handling media interactions at respective headquarters. However, influence operations capacities are missing. Information Warfare with a focus on influence operations needs a separate vertical to prosecute operations in the 'infinite battle space' of 'battle of narratives'.

Lack of institutional tri-service coordination structure makes an overall effort with poor synergy and hence less than desired scales. Within the Army, the SC, IW and SI do not have organisational structure to collaborate and synergise. DIA and MI Directorate role and capacities in SC too needs to be analysed. IA needs to build fresh 'rules of business' for better synergy and focus.

Opensource Intelligent (OSINT) has become a potent resource, which is currently under-utilised. The OSINT needs or focus is different at different levels and regions. The OSINT effort in the services is ad-hoc and disjointed and has limited availability at lower levels. Institutionalised responsibilities and processes are required to be specified to meet this requirement down to Brigade and equivalent levels.

Nearly all communication in the services is in English. While English efforts must continue, there is a gap in communication in vernacular languages that needs to be bridged.

What needs to be done

The start is an acceptance that 'SC' is a command function at all levels Brigade equivalent and above, communication both within and without the organization is responsibility of the one who has the privilege to command. Higher the level, higher the responsibility and reach. An articulate senior military officer in command role is a natural messenger.

At the organisational level, the structures and processes need a fresh look. Some aspects that can be reviewed with respect to structures are as under:

- A Delhi-based PRO could focus on media interaction needs of the MoD.
- The larger national spread Defence PRO as media communication asset can be reinforced as the tri-service communication strategy coordination and execution agency, it could be renamed as 'Defence SC Agency' or something similar. It would have to appropriately come under the DMA to achieve the mandate to carry out SC coordination activities between the three services, under the guidance of the CDS. This would entail establishing responsibilities and processes for coordination with various entities responsible for the communication activities in the services. At this level, the role would be limited to coordination leaving the execution to service-level Information Warfare organisations. It should not become another level of approval.
- There can be no hierarchical structure for SC as hierarchy and upward approval processes inhibit speed and scales that are prerequisites for modern communications. The rules of business would involve macro themes planning and communication by higher levels and delegated independent micro-planning and execution at lower levels. There can be no efforts at positive control of information warfare activities. 'Zero error syndrome' can inhibit SC.
- The Information and Influence operations of the three services would primarily be independent in execution except for joint operations, however, they should have the DMA umbrella for mutual exchange of ideas and support/collaboration in the proliferation efforts. For example, a media effort to remember such as beyond the Balakot strikes needs an effort beyond just the IAF vertical.
- Signal Intelligence or a nominated agency should be responsible to share OSINT updates down to operational commands. OSINT will also need regional hubs to have their own methods to collate and share inputs as relevant at the respective theatres.

- Build an institutionalised method of collaboration with MEA, MHA, I&B Ministry, Ministry of Cultural Affairs and any other relevant government agency.
- An institutionalised method of collaboration with think tanks and universities/academia at the national and international level for SC needs to be planned. This would need long-term investment and focus. Presently HQ ARTRAC is in the lead role with a limited mandate or focus on SC.
- An institutional method to engage influencers in terms of media personalities, social media influencers, celebrities of various fields, etc., through orientation tours, seminars and other exchanges and thus leading to proliferation of narratives, be put in place.
- Processes for connecting with the infotainment industry need to be streamlined to become industry-friendly. This connection should facilitate sharing of ideas, approvals for industry projects and access to military personnel and areas as needed by the infotainment industry.
- Simple procedural issues like clearances for articles need to move down to Formation headquarters to enable scales and regional focus.
- Category A and B training establishments need to become windows of the intellectual capital of the services by putting research papers, articles, podcasts, Ted talks, and seminars on the internet. Soldiers and officers must be encouraged to contribute to vernacular also.

Conclusion

SC is simply a way to affect the perceptions, attitudes and beliefs of key audiences in support of national and military objectives. It is about rallying synergy in intent as a nation and as a force. International experiences have confirmed the potency of the new age information domain, necessitating a concerted effort from the services to expedite the process of upgrade in quality and capacities.

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SCHOLAR WARRIOR

SECTION V

LOGISTICS, INFRASTRUCTURE AND DEFENCE BUDGET

CENTRE FOR LAND WARFARE STUDIES

Integrated Logistics Architecture for the Armed Forces in Light of Theaterisation, Envisioned Connectivity Contours and Timelines

MUKESH CHADHA

Introduction

The Indian Armed Forces are the backbone of the nation's security and have been playing a critical role in protecting the country's borders, maintaining peace, providing humanitarian aid and disaster relief operations. Future operations in a networked environment will require rapid deployment and speedy execution in a coordinated manner by the three Services and ably supported by all of nation approach. Sine qua non to achieve this is an efficient, effective and integrated logistics backup. Logistics, in its broadest sense signifies the total process by which the material and human resources of a nation are mobilised and directed towards achieving its military aim. Presently each Service has its own logistics organisations working efficiently but mostly independently with some overlap. To further refine jointness and resource optimisation amongst the three Services, the concept of Integrated Theatre Commands has been evolved. The efficiency

of Theatre Commands will rest on the evolution of commensurate integrated logistics organisation between the three Services.

Multi front operations transcending extant combat command boundaries has necessitated the creation of Theatre Commands, a concept followed by most modern armies and validated in recent battles. Present single Service focused legacy logistics system is not up to speed to support evolving operational and cross spectrum threats and not in synchronization with the remarkable improvement in all round infrastructure and connectivity the nation has achieved in the past three decades. Integrated logistics architecture would amalgamate various components of the logistics system, such as transportation, storage and maintenance, into a cohesive and streamlined system. It is envisaged that in a Theatre Command all the resources of the three Services would be placed at the disposal of the Theatre Commander leading to faster response and optimal utilisation.

Overview of the Logistics Challenges for Indian Armed Forces

Operational matters and logistics go hand in hand and are equally important in planning and prosecution of war fighting strategy at tactical, operational and strategic level. Centralised utilisation of infrastructure and coordination at apex level will achieve desired results which will further enhance the efficiency and response of the nation by means of joint planning, procurement and resourcing.

To highlight a few areas, there is significant variation in procurement, stocking, maintenance and support functions. This contributes to lack of standardisation, overstocking and higher inventory costs. Improving awareness with regards to overall national perspective for military logistics will greatly augment the decision making at national level. The involvement of private sector in defence research and development is presently not adequate and needs to be given a boost. There is also a need to mesh public corporations and distribution systems with defence logistics infrastructure for formulating an integrated national mobilisation plan. Defence logistics need to be dovetailed into overall national planning. In addition, there is a requirement to find solutions to excessive lead time in procurement to strengthen the capabilities of the Services in shortest possible time.

The Armed Forces operate in a diverse and challenging environment, which further complicates logistics operations. The logistics infrastructure, including roads, railways, and ports, in remote areas are inadequate, making it challenging

to transport goods and supplies to these areas. To overcome these challenges, integrated logistics architecture is essential. Such architecture would bring together the different components of the logistics system into a cohesive and streamlined system. It would enable the Armed Forces to share information, improve visibility across the supply chain, and optimise logistics processes. An integrated architecture would improve the efficiency and effectiveness of logistics operations, thereby enhancing the operational readiness of the Armed Forces.

Brief overview of the Concept of Integrated Logistics Architecture and Its Importance in the Military Context

In the military context, integrated logistics architecture would involve a holistic approach towards building a cohesive system to respond efficiently and timely to meet the operational needs at optimal costs and increased efficiencies. The PM Gati Shakti Yojana[1] and the National Logistics Policy (NLP)[2] for creating integrated logistics architecture are two recent path breaking initiatives of the government. The PM Gati Shakti Yojana aims to improve the connectivity infrastructure in the country, while the NLP seeks to create an enabling environment for logistics development. The amalgamation of the logistics requirement of the Armed Forces with creation national logistics infrastructure will give a boost to the logistics for the Theatre Commands.

PM Gati Shakti Yojna. The infrastructure development program aims to enhance the country's logistics and transportation infrastructure, with the goal of creating a more efficient and seamless logistics network across the country. The program involves the development of a National Master Plan for multimodal connectivity, which will identify the gaps in the country's transportation network and propose measures to address them. The plan will focus on the integration of road, rail, air, and waterways to create a unified and efficient transportation system. The program will prioritise the development of infrastructure in the country's Northern, Eastern and North Eastern Regions, which can also be effectively used for military purpose for faster moblisation and buildup of stocks in remote and far flung areas.

National Logistics Policy. The policy proposes a multi-modal approach to infrastructure development by creating more efficient and integrated logistics ecosystem in the country, which includes the development of roadways, railways, waterways, and airways. Different modes of transportation in a multi-modal approach are necessary to optimise the logistics supply chain. It aims to develop

logistics parks, warehouses, and transportation corridors across the country and proposes the streamlining of regulations related to warehousing and distribution. Expressways, railways, dedicated freight corridors, waterways and airways will be developed to ensure cost-effective and environmentally friendly mode of transportation to reduce travel time and improve connectivity. The policy proposes the development of a digital logistics portal, which will provide real-time information on the movement of goods across the country. All these national assets would be at the disposal of Armed Forces during war.

Creation of dedicated logistics hubs that are strategically located across the country and equipped with modern technologies, including automation, artificial intelligence (AI), and the Internet of Things (IoT), to enable real-time monitoring and tracking of logistics operations.

Strategies for Implementing the Integrated Logistics Architecture for Theatre Commands

Implementing integrated logistics architecture requires a well-defined strategy that considers the unique challenges and requirements of the Armed Forces. Joint logistics would need to be integrated under a single head with a joint and common national level perspective of the Services duly supported by the nation in terms of industry, research and development, materials, information sharing and response. Holistic approach towards commonality in procurement and introduction of new equipment with minimal import dependency would be required. Some of the key strategies for implementing integrated logistics architecture for the Indian Armed Forces are discussed in subsequent paras.

Theatre Station Concept. This involves creation of dedicated logistics hubs that are strategically located across the country. These hubs will act as central points of coordination for logistics operations and will provide a wide range of logistical support to troops in the field including remote and inaccessible areas. The hubs will be self-sufficient in all respects, with their own power generation and water supply systems. The hubs will be equipped with modern technologies, including automation, artificial intelligence (AI), and the Internet of Things (IoT), to enable real-time monitoring and tracking of logistics operations. This will ensure that logistics operations are optimised for maximum efficiency and effectiveness. The objective of integrated logistics architecture is to create a seamless and efficient system of logistics that can cater to the needs

of the forces in the Theatre of operations in real-time. The Joint Logistics Nodes (JLN)[3] in support of any Theatre Command can either form part of these hubs or be located in their close proximity so as to exploit their full potential. The system will be designed to provide a range of services, including transportation, supply chain management, maintenance, repair, and overhaul of equipment, and provisioning of fuel, oil, lubricants, food and medical supplies. Considering the potency, accuracy and destructive capability of modern weapon systems, physical integration of resources may prove expensive and risky. Hence the essence would be in networking existing infrastructure, building redundancy and optimally catering for dual use infrastructure.

Connectivity Contours. The connectivity contours of the integrated logistics architecture will be based on the terrain existing in the Theatre of operations and the operational requirements of the forces. The strategically located hubs will be connected through a network of transportation infrastructure that includes roads, railways, airways, and waterways so that multi-modal transportation model can be exploited by the Theatre Commander for speedy moblisation, timely build up of stocks and efficient maintenance of forward troops. The requirement of the Armed Forces with respect to roads, helipads, advance landing grounds, railway sidings, warehousing and habitat in forward areas will be dovetailed into overall national logistics grid giving due importance and priority in execution of these infrastructure projects.

Anticipated Timelines. The pace of modernisation of People's Liberation Army (PLA) and infrastructure development across Northern borders have necessitated to adoption of an aggressive and post haste approach to theaterisation and accelerate resource creation[4]. The task will involve construction and upgradation of logistics infrastructure to include expressways, airports, ports and waterways to meet the operational needs of the Armed Forces. The feedback on existing Joint Logistics Nodes (JLNs) and lessons learnt can also be analysed and incorporated prior to implementation. Though dual use infrastructure and resources are essential and need to be optimally utilised but self reliance and strategic autonomy to support planned operations should not be compromised.

Benefits. Benefits of integration would include building an efficient and effective Supply Chain with reduced costs and desired redundancy directly impacting operational outcome. Other benefits include:-

- Improved coordination and communication between different logistics units at national and Services level.

- Enhanced transparency and accountability in logistics operations.
- Improved safety and security of logistics operations.
- Reduction in logistics costs due to the optimisation of operations and resources.
- Coordinated response and utilisation for other than operational requirements like Humanitarian Aid, Disaster Relief Operations and Out of Area Contingencies.

Possible Areas for Integration by Theatre Commands

The key components of effective logistics are the efficient mobilisation plan, high state of logistic readiness and equipment serviceability with adequate levels of stocks for self-contained, theatre based logistic support without dependence on inter-theatre movement of resources. This to a very large extent is achieved by integrating various facets of logistics at national and Services level as part of tailor made integrated logistics architecture for Theatre Commands.

National Level. The specific areas to be considered at the national level and coordinated by respective Theatre Commanders are:

- **Transportation.** In conjunction with Centre and State governments, development of strategic roads, railway lines, airfields and airbases, Inland Water Transport (IWT), construction of canals, dedicated and stabled railway rolling stock are the spheres to be integrated. The nation's public and private transport resources must be committed to defence requirements at the time of need and the same be coordinated and evaluated during peace time.
- **Logistics Hubs.** Integration of logistic Infrastructure bases in Border States.
- **Communications through Optical Fiber Cables and Satellites.** Armed Forces requirements to be dovetailed into civil communication development projects.
- **Supply and FOL.** A time bound action plan requires deliberation between various Ministries to meet the needs of the Armed Forces in remote areas.
- **Energy.** Conventional and unconventional sources of energy should be optimally garnered for civil and defence application.
- **Research & Development (R&D).** Mesh in R&D, Ordnance factories,, DRDO, Defence Public Sector Undertakings (PSUs) and other public and private sectors to include Indian Institutes of Technology (IIT) & Council of Scientific and industrial Research (CSIR) in order to promote self reliance and have an enhanced indigenised output.

- **Civil Military Industrial Integration.** Interoperability and dual use of various equipment and products between the military and civilian sectors. Steps in this direction have already been initiated by way of establishment of Defence Technology Board and Defence Management Board where in requirements of services would be projected to premier technological institutions (IITs and IIMs) who will take them up as research projects.
- **Uniformity/Congruence.** Uniformity and congruence in military and civil specifications of vehicles, pallets and carriage norms would greatly assist in interoperability.

Inter Services Level. Integrated defence logistics in support of Theatre Command requires a complex coordination and interaction amongst the three Services. The first step would be recogonising the individual organisations meshing into a single discipline in philosophy, training, operations and staffing. The overall aim should be, to have the greatest possible numbers of common sub-systems between the three Services. Some of the areas of inter-Service integration are as under:

- **Standardisation.** Common systems will reduce the response time, maintenance cost and speed up the process of standardisation.
- **Codification.** Codification for cross identification and reduction of inventory.
- **Training.** Joint training of personnel with common trades and cross posting in staff appointments.
- **Equipment Management.** Barring specialised aviation and engineering equipment of Air Force and Navy, majority of the other equipment is common to the three Services. Equipment management must be planned in integrated manner to avoid duplication of efforts.
- **Integrated Procurement Agency.** An integrated procurement agency exclusively for defence requirements of all three Services, staffed by defence personnel will be more effective, in achieving quality control, uniformity, inventory management, cost effectiveness and integrated warehousing.
- **Plug and Play.** Creation and utilization of each other's resources based on operational requirements, controlled at the theatre headquarters.

Conclusion

The essence of integrated logistics architecture was amply proven in the Gulf War[5]. In the ongoing Russian Ukraine conflict too, the importance of logistics has been acknowledged as a key factor for successful execution of operations.[6]

Government initiatives are currently supportive and enabling to adopt a well defined strategy in development of Tri Services integrated logistics architecture. The time is now to synchronise defence requirements with the national transformation of infrastructure and logistics to build a capable and responsive future ready system that not only encourages operational boldness and affords strategic bulwark but creates a deterrence in the adversary towards any misadventure.

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Catalysing Atmanirbharta in Defence Industry

AMIT BAVEJA

Two milestone events over the last year shaped the Atmanirbharta (self-reliance) story for the Indian Defence industry. While the Russia-Ukraine war, consequent sanctions and supply chain challenges served as a stark reminder about the perils of external dependence for equipping our forces,[1] the momentous landing of the Tejas on INS Vikrant demonstrated India's capability to operate an indigenously developed aircraft carrier with an indigenous fighter aircraft.[2]

Beyond the euphoria surrounding the historic landing, stakeholders in the defence ecosystem are cognisant that a lot needs to be done to usher in true self-reliance. The Government has taken numerous policy initiatives to incentivize local manufacturing and Research & Development (R&D) to promote atmanirbharta in defence.[3]

The long positive indigenisation lists of 411 items for the Services and 2958 items for the Defence Public Sector Undertakings (DPSUs) promulgated by the Ministry of Defence (MoD) placing an embargo on imports, with specified timelines for each item[4], demonstrates the realisation that the country is still miles away from achieving true atmanirbharta. Needless to say, these lists include only low-hanging fruits and exclude many critical technologies, not only for complex platforms like aircraft, ships, etc., but also for basic weapons, ammunition, and communication equipment et al wherein indigenization is not a viable option in the near foreseeable future.

The last few years have seen numerous Joint Ventures and collaborations by Indian businesses with leading global OEMs to 'Make in India' and qualify to sell products to the Indian Armed Forces. Concurrently, there is an urgent need

to incentivise R&D in the Indian ecosystem and 'develop technology' as a viable way of accelerating self-reliance as compared to merely 'absorbing technology' from the global OEMs, who always shy away from transferring niche', cutting-edge technology.

The fact that spending on R&D and innovation has never been an accepted norm in India is least encouraging. India's Gross Expenditure on R&D (GERD) has hovered around 0.7 per cent over the last decade as against 4.94 per cent for Israel, 3.28 per cent for Japan, 3.13 per cent for 2.83 for the USA and 2.14 per cent for China.[5] Also, most of this expenditure happens in the government sector which is not known to be the most efficient. Specifically in the defence space, India has earmarked 5.1 per cent of its defence budget in the current FY for R&D.[6] This compares to approximately China's 20 per cent and USA's 12 per cent.[7]

Nascent Defence Industry Ecosystem

The Armed Forces have traditionally been a very high percentage of imported weapons and equipment for many decades now. Stockholm International Peace Research Institute (SIPRI) database for global weapons import over the last 50, 40, 30, 20 and 10 years consistently shows India as the leading arms importer.[8] In fact, even after the launch of the Make in India program in 2014 and the Atmanirbhar Bharat campaign in 2020, India continues to feature at top of the list.

While imports formed a significant percentage of the Indian Armed Forces inventory, the Ordnance Factories and DPSUs made up for the remaining supplies of weapons and equipment. It was only in 2001 that the defence sector opened up to the private industry in India, with Foreign Direct Investment (FDI) of up to 26 per cent. Recently the government has allowed 100 per cent FDI, with up to 74 per cent permitted under the automatic route.[9]

Since most of the private companies have recently forayed into the defence sector, the regulatory landscape and policies need to be innovative enough to incentivise them towards research and innovation. Not only is it important for MoD and Services to walk the talk on the slew of policies announced for incentivizing indigenous manufacturing, but it is also equally important to encourage R&D by the private sector.

Spinoffs of Dynamic Defence Industry

Building a strong & resilient defence industry contributes to a stronger industrial base with numerous spinoffs for the economy in terms of generating direct

and indirect employment; developing a local supply chain (which benefits the Medium, Small and Micro Enterprises (MSME) and service sectors alike); and reducing international trade deficit in a dual manner (reducing imports and increasing exports).

The use of many intermediate and final products produced in other sectors is yet another offshoot for industrial growth. Factoring in locally produced Military Material and Information Technology (IT) components goes on to enhance this benefit multi-fold. Further, by adding the ability to leverage defence exports diplomatically and enhancement in the Nation's soft power, the picture starts looking even brighter. A holistic understanding of these aspects would have been key in the government's intent of identifying defence industry as one of the focus areas for the Make in India and Atmanirbhar Bharat campaigns.

From the Services' perspective, procuring indigenous products has numerous advantages in terms of support over entire product life-cycle, including obsolescence management, and ability to upgrade weapons and equipment. In addition, reliability of support even in face of adverse geopolitical situations and supply chain disruptions, is a huge advantage. It is clearly evident from the present Russia-Ukraine war that the global arms industry is not really geared up for such a prolonged war and is struggling to meet the requirements.[10] We definitely cannot afford to count on such an ecosystem to meet our requirements in challenging times. Assured support from a local manufacturer is the best bargain that the Services can ever get!

Inter-Ministerial Synergy in Procurements

Ease of doing business remains the biggest challenge for industry with multiple licenses needed from various ministries/departments for project phase and routine operations. Multiple stakeholders in Defence, Home, Commerce and Finance ministries, besides the State Governments, are rarely aligned with the big picture. Not only are procedures excruciating, complex and sans any defined timelines, but there is also minimal support from the MoD or Services, even while the private industry is investing in a 'monopsony' ecosystem with no/minimal alternate customers. The Central Government needs to implement a genuine single window clearance system which has resonance across all central ministries and departments.

Even as the MoD has taken multiple initiatives to incentivize the industry, it is yet to align with major policy interventions of the Commerce & Finance Ministries like providing Preference to Make in India.[11] The MoD would

also do well in graduating from the present L1 (lowest bidder meeting basic specifications) to a Quality cum Cost Based Selection (QCBS),[12] promulgated a couple of years back. We definitely can't have the best equipment with vendors focused on cost prudence to win tenders. In fact, to boost R&D and innovation, additional incentives and weightage need to be accorded to locally designed, developed and manufactured products, systems or sub-systems.

Factoring in Industry Perspectives

The long gestation period for major procurement cases, uncertainty about progress of cases even while they are at contract stage, policy tweaks et al are definitely the least encouraging. Business ambiguities get factored in financial quotations by the bidders, not only in the instant cases, but in future cases as well. MoD & Services would do well to reduce such uncertainties.

The financial qualification criteria for procurement cases also need to move beyond the traditional criteria of Annual Turnover and Net worth and include alternate criteria like capital expenditure on greenfield projects, especially ones planned to produce equipment that are solely used by Security Forces. Needless to say, nothing can display better commitment from entrepreneurs than putting their money where their mouth is. Similarly, the technical qualification criteria should provide due weightage to demonstrated investments for R&D.

Driving Pragmatism in Procurement

It might also be prudent to come up with procurement cases with smaller quantities rather than looking at mammoth cases wherein deliveries are spread over 8-10 years. This would stimulate a competitive defence industry and ensure that weapons and equipment in Services do not turn obsolescent in bulk over the next few years. Alternatively, the cases should build in provisions for upgrades after deliveries over the first three years with clear stipulations on improvements factored in the tendering stage itself, this will spur R&D and innovation by the selected vendor and also help maintain a robust and healthy equipment profile.

While our procurement policies mandate specific levels of indigenisation and 'absorbing critical technologies', the same realistically needs to extend to commercial production. A business may absorb the technology itself, or through a third-party business partner, but may not produce the component in bulk because of financial viability. Vendors should be compensated for additional

costs involved in indigenous manufacturing and this financial delta should be excluded from the price quoted for determining the lowest bidder.

Leveraging Technology in Trials

The current trial methodology is traditional with multiple trials by diverse agencies conducted across the geographic expanse and spread over months, sans use of technological facilitators. These No Cost No Commitment (NCNC) trials are grossly inefficient in terms of time and resources, and result in huge cost and time overruns, often resulting in many procurement cases falling because of the multiple developments on policy and technology fronts et al over the long trial period.

While the onus of participating in NCNC trials can lie solely on the vendors, their preparation for trials which includes compliance to clauses like '*should be compatible with in-service radio set*' or '*should be compatible with in-service ammunition*' definitely warrants better handholding from MoD and Services.

Pragmatically speaking, the trials truly having 'no cost' for the user is a huge myth. Most bidders would factor in the costs and resources employed in the trials in their commercial quote, not only for the instant procurement case, but also for other trials that participate in. The huge delays and cost overruns also need to be factored in to understand the actual implications of these NCNC trials.

Having a de-novo look at the trials methodology, using technology and being innovative, can result in making these more efficient. A dedicated 'Army Trials Wing' (ATW) is recommended with professionals trained in the nuances of weapon technology, defence manufacturing and trials et al, to function under the oversight of the Army Design Bureau. This wing should not 'delegate the responsibility of conducting trials to a field formation', as is the psyche in most headquarters and nodal agencies of the Army, but should carry out the trials themselves. The existing 'Faculties of Studies' in various Category A Training Establishments of the Army can merge to form the ATW. Long tenures of up to 10 years for professionals employed would make the system more efficient.

Defence Corridors as Enablers for Defence Industry

The Central Government announced the setting up of two defence corridors namely in Uttar Pradesh (UP) and Tamil Nadu in 2019[13] and aims to attract Rs 20,000 crore of investment in these corridors by 2024-25. In addition to multiple traditional incentives being offered by the UP and Tamil Nadu governments,

innovative thinking could help address the pain points of the industry while simultaneously streamlining procurements.

A common, integrated test facility, equipped with diverse laboratory equipment and simulators, can be set up by Army (ATW, recommended above) wherein simulations can test for multiple scenarios, terrain and weather conditions, help streamline trials and reduce procurement timelines by nearly half. Internationally accredited laboratories could also be roped in to establish these facilities (with incentives from the state governments). Technical control of these labs can be exercised by National Accreditation Board for Testing & Calibration (NABL). Establishing testing facilities in nominated corridors would emerge as shared national resources and prove efficient in terms of resources and cost as well as help streamline trials. In addition, the laboratories would also help industry in their certifications for their facilities as well as products, throughout the equipment life cycle.

The gaps in conducting any special test, specific to any particular weapon/equipment, can also be overcome by third-party certifications in synch with global/NABL standards.

Building the Core: Military Material

Military Materials are special-grade materials which form the core for weapons, different types of vehicles, aircraft, ships, personal protective gear etc. Given their strategic importance, India cannot afford dependence on geopolitically turbulent supply chains. The fact that these special-grade materials need to be specifically developed for different military applications, and have limited application in other industries, need to be factored in while formulating policies for development and use of these materials.

The requirement needs to be projected way before the Request for Information stage, to factor in the timelines involved. Positive indigenisation lists, specifically for Military Material would be helpful. In addition, the users may look at providing incentive/extra allowance of up to three to 5 per cent of the procurement cost for locally developed and manufactured material. In fact, it should be made mandatory for all equipment manufacturers to use indigenously developed material in platforms, vehicles and weapons, even while it seems to cost more, as this will help to reduce the perennial external dependence. Other measures like having separate Harmonised System of Nomenclature (HSN) codes/sub-codes for each Military Material, and imposing a very high customs

duty on same, would help to regulate the segment effectively and mitigate the issues of importing such material discreetly.

Developing Capabilities in IT & Artificial Intelligence (AI)

While the Central Government has recently launched the India Semiconductor Mission and announced a slew of incentives to incentivise manufacturing and innovation in semiconductors,[14] the MoD and Services would do well to capitalise on this development and ensure that its own priorities are addressed. Locally manufactured chips would provide reliability and redundancy in all types of electronic equipment used by the Services.

Also, the phenomenal expansion of AI-based applications and their disruptive effect on planning and operations by the military should not be lost sight of. The diverse applications ranging from Surveillance and Situational Awareness, Information Warfare, Training; Wargaming, Command & Control Systems, Unmanned Swarms, Identification and Security Access, are realistic use cases for initiating AI development and use in the militaries.[15]

Riding on the back of a vibrant IT industry in India and its demonstrated capabilities in diverse applications (many with tremendous security implications) ranging from tax portals, fintech platforms, Passport portals etc., it is time to move beyond the mindset that only DPSUs can be entrusted with critical defence projects concerning the use of data. The private industry is capable of delivering goods with adequate attention to cyber security, let's exploit their capabilities.

Conclusion

The current ecosystem with a progressive government, clear intent for atmanirbharta, slow reduction in the preference to DPSUs, committed & capable entrepreneurs, availability of talented pool of professionals, and an economy growing despite global challenges provides the perfect setting for the defence industry to blossom. The Services would do well to optimise the current ecosystem and work innovatively and pragmatically to ensure that the process of equipping them is energised. This would go a long way in developing capabilities to take on the challenges of an uncertain geopolitical future and also help in cementing India's rightful place in the global order.

Colonel **Amit Baveja** (Retd), is an Army Air Defence Officer with experience of working with private defence industries. Views expressed are personal.

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SECTION VI

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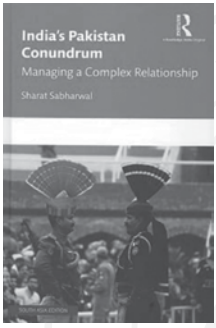


India's Pakistan Conundrum: Managing a Complex Relationship

Sharat Sabharwal
Routledge India (Taylor & Francis Group) 2022
ISBN: 978-1-032-37431-4 (Hbk)
ISBN: 978-1-003-14808-1 (ebk)
Rs 1295, pp. 228

Key Idea of the Book

- The '*conundrum*' of relations between two neighbouring States tends to become a '*soap opera*' of two opposite poles—separated by boundaries, torn by ideologies and distanced by suspicion. The same holds true for India and Pakistan; the twins born from the '*Two Nation Theory*' with a gap of one day, that too in the glooms of the Cold War. One decided to move *independently* and the other in the *shadow of superpowers*; one decided to follow the principles of its forefathers in its Constitution and the other, expecting quick results, put its entire energy to break the other Nation. As both celebrated their respective '*Platinum Jubilees of Independence*', one named it as '**Azadi ka Amrit Mahotsav**'; the other is still struggling to keep its own house in order and is short of being declared as a 'terrorist state'. Mr Sharat Sabharwal in his book India's Pakistan Conundrum: Managing a Complex Relationship has extensively written on this saga of the 'two states' engaged in ' the Great Game' for the past 75 years.

Structure of the Book

- The book is a *360-degree perspective* of Pakistan's tryst with its destiny and how it impacted the complex Indo-Pak relations. The author being a career diplomat has put in his vast experience to analyse the internal dynamics of the deepstate within Pakistan and the corresponding issues which have marked its relations with India. He has divided the book into two parts wherein the first part has been dedicated to the 'Pakistani State' and in the second he talks about the complex India-Pakistan relations and India's policy options. The author has beautifully conceptualised the book by putting the facts about Pakistani State amidst the upheavals of long periods of military dictatorship and civilian-rule-with-military-interference and how they have impacted the peaceful rise of India as a strong and vibrant democracy in the form of regular irritants—be it conventional wars, acting as terror proxy, attempts to tarnish India's image internationally, attempts to weaken India economically or its socio-religious fabric.
- **Part I: The Pakistani State**. This Part has six chapters and covers different facets which have troubled Pakistan for 75 long years as an independent nation. The first chapter covers the growth of religious extremism in Pakistan despite the secular outlook of its founding-father Mohd Ali Jinnah. It then covers various dimensions of religious diversity within Pakistan and how the Sunni majority has prevailed with the support of State as well as the Pakistani Army thereby *outclassing* and *outcasting* other religious identities including the Ahmedis. The second chapter realistically portrays the 'sorry state' of Pakistan's economy in the shadow of constant war-mongering with India. The author covers the economic facts with statistics and how the vested interests of Pakistani Generals in specific and the Pakistani Army as a whole have troubled the economy. The resultant civil-military imbalance has been covered in the third chapter explaining how Pakistan's civilian leadership was forced to be subservient to the military leadership. The fourth chapter covers ethnic fault lines explaining the Punjabi dominance over the rest of Pakistan; more so the growth of Punjabi-Sunni-Wahabi class and the resultant radicalism and violent extremism, overshadowing other tribal/ethnic communities like Balochi/Sindhis/Pakhtoons and oppression of minorities. The last two chapters explain the outcome of these Pakistani fault lines as drivers of Pakistani hostility towards India which includes its attempts to instigate the Muslim community living in India by way of propaganda as

defender of Muslim *Umma, a phenomenon* witnessed during recent anti-CAA riots.

- **Part II: India Pakistan Relations and India's Foreign Policy Options**. This part has been covered in 12 chapters with the first six delving upon Indo-Pak relations and the balance covering the options which India may have. He starts with an analysis of the J&K issue, the key bone of contention between the two nations. He uses his first-hand experience of his stint on the other side of the boundary to explain the internal dynamics of Pakistan during the Kargil War—the Nawaz Sharif experience and the coup by General Parvez Musharraf. The author has covered the Pakistani diplomatic triad of **Terror-Trade-Talks** on outstanding issues in the next three chapters. The expression of the author '*Pakistan's use of proxies and terror to attain its foreign policy objectives is as old as its inception*' speaks volumes to the 'deep state of retrograde diplomacy' by Pakistan. In one of the anecdotes, the author mentions the grand welcome received by a known terrorist Mast Gul who had burnt down the Chara-re-Sharif in J&K. Post 9/11, Pakistan support to the USA in 'Global War Against Terror' meant defining terrorism as 'good' and 'bad'; another diplomatic stunt. The author has beautifully described this argument highlighting India's limited choices post 26/11 to declare Pakistan as a 'sponsor of terrorism'. The trade between India and Pakistan has suffered the most due to these differences and Pakistan's support for terror. The author has suggested various steps taken to normalise the economic relations including the SAARC initiative in form of SAFTA; however, constant terror activities have brought the relations to a point of no-return. Other issues like Siachen Glacier, Sir Creek and Tulbul Navigation project got over-shadowed in the light of larger issues; the most pre-dominant being J&K.
- The author has dedicated the last seven chapters to the options available with India if it has to have some hope with Pakistan. He has canvassed multiple aspects in one frame starting from emotional attachment between Indians and Pakistanis by way of people-to-people connect, the pros & cons of direct engagement with 'the real power centre', i.e., the Pakistani Army, water diplomacy, MFN status and so on. The author has also analysed the China-Pak nexus, the nuclear dilemma as also the possibilities to isolate Pakistan internationally as other diplomatic means to bring Pakistan to terms.

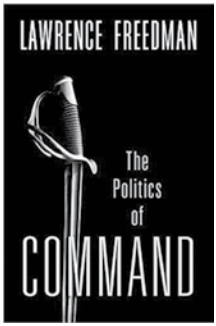
Comments

- This book is unique because of the anecdotes by Mr Sharat Sabharwal who happened to be in Pakistan at crucial times; once during Kargil as well as 9/11 and then during the era of serial blasts/terror attacks in India post 26/11. This makes the book more than '*yet another academic compilation*' to an exciting 'real-time fiction' which could keep the readers engaged.
- The author, did not, at any stage in the book goes on to compare India and Pakistan, a welcome change from other similar books. The author continues to keep his focus on India's options in light of Pakistani fault lines and never digresses from the key argument.
- The book is quite recent, published in 2021, hence the author could have covered India's options in light of our stand post Pathankot, Uri & Pulwama attacks as also post abrogation of Article 370 – that is, no talks without dismantling of terror infrastructure.

Recommendations

- The book is a 'Must-Read' for students of Political Science especially those into International Relations and Defence & Strategic Studies. Officers of the Indian Armed Forces and Civil Services should read this book to get a better insight on this hostile neighbour.
- This book can be considered as a 'Case-Study' on Pakistan's path towards democracy and form part of syllabus in International Relations in Universities.
- A Hindi version of this book will be an enabler for a wider audience in India especially those who read Indo-Pak matters regularly.

Colonel **Arun Prakash Agarwal** is a Senior Fellow at CLAWS. Views expressed are personal.



Command: The Politics of Military Operations from Korea to Ukraine

Lawrence Freedman
New York: Oxford University Press (2023)
ISBN 978–0–19–754067–1

The book *Command* by Lawrence Freedman explores the political nature of military decision-making and argues that Commanders must navigate politics in the chain of Command as well as embrace the mandate of warfare. It highlights the challenges of balancing civilian and military priorities during wartime which has become the core of the post-war international order. This account dwells deep into the complexities of the politics of Command and offers insights for Generals about managing civilian leaders' demands for any illegal actions that contradict core national interests or professional values; and, at the same time, options with political leaders when Generals refuse to honour orders. It sheds light on the interplay of Politics and Command and the importance of maintaining civilian primacy in democratic systems.

Lawrence Freedman's *Command* establishes a strong case for military leadership and decision-making with 15 different cases, each stressing on some important lessons from historical events.

The first case, "Supreme Commander: Truman and MacArthur", emphasises the importance of maintaining military subordination to civilian authority and the need for clear reasons if subordinates are to be dismissed.

The second case, "The Fury of the Legions: The French Army in Indochina and Algeria", discusses the danger of resorting to extreme measures in pursuit of political goals while acknowledging the importance of a political commitment in counter-insurgency campaigns. It addressed the question, perhaps dilemma of Generals on "whether the military's loyalty is to the government of the day or some higher notion of the interests of the state".

The third case, "Keeping Control: The Cuban Missile Crisis", highlights the importance of effective communication between military commanders and their superiors. The act of obedience and disobedience about launching (nuclear) weapons of mass destruction "without questioning the morality", potential dire

consequences if one relies on the unthinking machines and the automaticity of retaliation are accountability issues in the operational mandate. Here Freedman suggests that improving civil-military interaction helps to learn from historical events to make informed decisions on crisis management strategies and procedures.

The fourth case, "The Very Model of Insubordination: Ariel Sharon and Israel's Wars", emphasised the importance of issuing clear and precise orders independent of the commander's spirit and leaving no room for interpretation. Freedman also suggests that lower-level commanders take the initiative when fully aware of the risks and challenges of delegating command authority.

The fifth case, "Civil War: The Surrender of East Pakistan", discusses the importance of understanding complex relationships between the Military, State, and Society in the context of the surrender of East Pakistan. This chapter underlines the need to avoid politicising the military and promoting unity and cohesion within the military.

The sixth case, "Orders from on High: Responses to North Vietnam's 1972 Offensive", provided historical insights into the Vietnam War, focusing on the events of the Easter Offensive of 1972. Freedman's recommendations are based on the information, those including concentrating forces, mastering conventional warfare, negotiating, emphasising training and professional development, empowering good commanders, avoiding over-reliance on any one weapon system, and effective communication.

The seventh case, "Command in Theatre: The Falklands Campaign", analysed political elements associated with theaterisation. Freedman provided recommendations for maintaining military professionalism, considering logistical aspects of operations, encouraging coordination between different forces, being aware of political pressure, avoiding unnecessary meddling, and using diplomatic opportunities.

The eighth case, "Dictator as Supreme Commander: Saddam Hussein", offered recommendations about how leaders can control the message, manage information, be careful with concessions, foster critical thinking, monitor the narrative, and be aware of the power of perception.

The ninth case, "Command in a Fragile State: Somalia 1992-1994", provides insights for leaders when their forces operate in fragile states. Freedman's emphasis on local factors requires a relook as they limit the use of force and logistics.

The tenth case, "Command in a Faltering State: The Russian Invasion of Chechnya", discussed the impact on (Russian) domestic politics of big States on sovereign claims (over the Chechen) and significant implications for new leadership. Freedman explained the impact of the Chechen War on the Russian government and its leaders, particularly Boris Yeltsin and Vladimir Putin. This case is also unique as it led to the rapid rise of the new leader (Putin) to power.

The eleventh case, "Too Many Cooks: Kosovo in 1999", explained how to manage complex commands; it is essential to understand and acknowledge the complexity of the situation, foster clear and effective communication, build a strong command team, develop a flexible and adaptable approach, foster a culture of trust and respect, develop contingency plans, and seek input and advice from experts.

The twelfth case, "From Hybrid Conflict to All-Out War: Russia Fights Ukraine", reiterated that diplomacy should be the first and foremost solution to any conflict. This chapter suggests that four aspects should be encouraged: better planning, respect for human rights, avoiding the use of nuclear weapons, and international cooperation in resolving conflicts.

The thirteenth case, "The War on Terror: The Battle of Tora Bora", states that countries should ensure that opportunities are not missed in future operations dealing with terrorism. It details improving coordination and communication, conducting thorough intelligence analysis, considering all options, empowering commanders on the ground, and learning from past mistakes as essential lessons from a missed opportunity.

The fourteenth case, "A Tale of Two Surges: Iraq 2006–7", recommends that improving the situation is key to the Iraq issue, including better coordination and communication with other forces of the US and UK. This chapter avows the need for more resources and personnel, realistic objectives, and a better understanding of the local context.

In the fifteenth case, "War among the People: Fighting the Taliban and ISIS", here two parts require focus. Afghanistan's section discusses General McChrystal's appointment as the International Security Assistance Force (ISAF) commander in Afghanistan in 2009. It examines the challenges facing the coalition forces in Afghanistan, including the resurgence of the Taliban, corruption in the Afghan government, and tensions among the different agencies involved in the conflict. It is one of the successful examples of political manoeuvring and pressure tactics employed by military leaders to push for increased troop levels, as well as the perception of indecisiveness on the part of the political administration.

The second section compares the US and Russian parallel military campaigns in Syria. Freedman notes that while both campaigns were motivated by a shared concern for the threat of ISIS, the approaches differed significantly. The Russians resorted to the limited deployment of ground forces but significant air support, including real-time drone imagery, heavy artillery, and rockets. In contrast, the Americans attempted to minimise civilian losses, yet were criticised for circumventing processes intended to prevent them.

In conclusion, Lawrence Freedman's Book provides valuable insights and recommendations for military leaders and policymakers (political leadership) dealing with complex conflicts and crises. The importance of maintaining civilian control over the military, effective communication, professional competence, and accountability are emphasised throughout each chapter. In addition, the importance of understanding the local context, fostering local leadership and capacity, avoiding over-reliance on any one weapon system, and incorporating political considerations into planning are highlighted. Overall, the recommendations suggest a need for a comprehensive and adaptable approach to managing conflict of interest by focusing more on diplomacy, coordination, and a deep understanding of the local culture and politics.

This book is an extensive account which examines the interplay of politics and Command; the balance of decision-making by leaders and their military counterparts; important civilian and military officials in positions of Command and their behaviour during times of war and peace; and the need for commanders to cultivate the sensibility in navigating politics during wartime.

Dokku Nagamalleswara Rao is a Research Assistant at CLAWS, New Delhi. Views expressed are personal.

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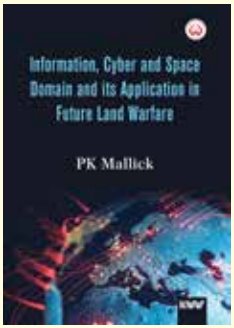

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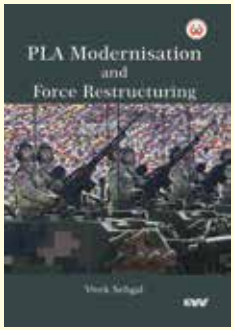

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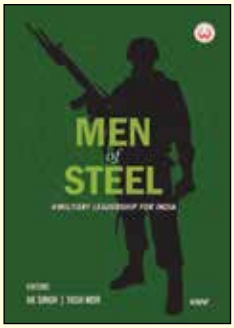

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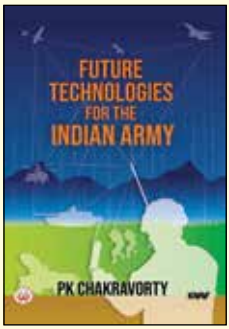

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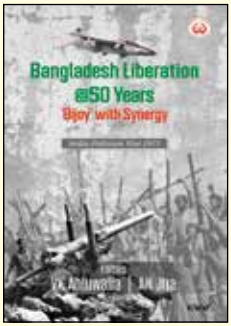

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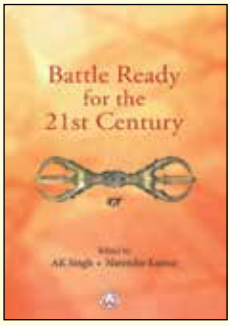

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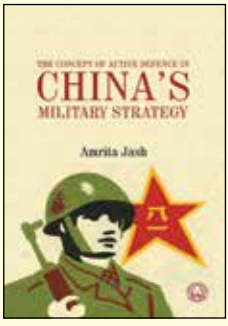

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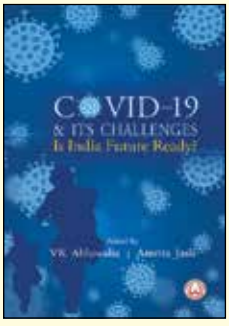

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