Chinese Defence Reforms and Lessons for India

D S Rana

Introduction

Since the formation of the People's Republic of China (PRC), China's defence forces have evolved through various stages of modernisation with a focus on doctrinal changes, structural reforms, as well as reduction of forces. Post Mao era, the first sincere attempt to infuse professionalism in the outdated People's Liberation Army (PLA) commenced in the true sense, when 'national defence' was made one of the 'Four Modernisations,' as announced by Deng Xiaoping in 1978. This boost towards military modernisation was catalysed by the reduced threat perception post disintegration of the Soviet Union in 1991 and greater allocation in the defence budget for upgradation post 1995, as boosted by an improved Chinese economy.

The display of high-end technology by the US in the Gulf War and its outcome forced the Chinese brass for the first time to acknowledge the PLA's shortcomings for future wars, and served as a trigger for the present stage of reforms.[1] As a result of the assessed "period of strategic opportunity" by China in the beginning of the 21st century and the consequent Hu Jintao's new set of "historic missions" for the PLA, the concept of 'the Revolution in Military Affairs (RMA) with Chinese characteristics' was enunciated through China's 2004 National Defence White Paper. As a follow-up, the timeline for the modernisation of the

Brigadier **D S Rana** is presently posted as Directing Staff in the Higher Command Wing, Army War College, Mhow.

PLA was laid out in three steps in the following 2006 White Paper. The 19th National Congress of the Communist Party of China (CPC) in October 2017, as part of acceleration of the military modernisation plan, shortened the timeline of the original third step of 'completion of informationisation' by 15 years from 2049 to 2035—a result of China's perceived emerging complex security environment.

Why Study China's Military Reforms?

China being the primary adversary, with outstanding boundary claims, would be the first argument for an in-depth study into the rapid changes in PLA structures and capabilities. On other hand, these reforms based on lessons from recent conflicts and best practices of the developed world militaries, may also provide valuable lessons for the transformation of own armed forces. China's defence reforms are apt case studies for management of change and leapfrogging reforms, based on a long-term vision.

Contours of Present Reforms

On November 23, 2015, Xi Jinping announced a new five-year plan of PLA reforms, scheduled for completion by the end of 2020. The ongoing military reforms are intended to bridge the gap between the PLAs self-assessed weaknesses, identified as the "two incompatibles," the "two inabilities," and the "five incapables", and the expectations of the Party and the state.[2] The unprecedent reforms can be analysed in two broad themes: first, the politics of military reform; and, second, the restructuring of the PLA itself to optimise its war-fighting capabilities.

Politics of Reforms

The immediate political goal of military reforms is to enhance Xi's authority to control the gun on behalf of the CPC.[3] This very objective prompted Xi to assume all three key positions concurrently: President,

Party Secretary and Central Military Commission (CMC) Chairman, on taking over from Hu in 2012. The abolition of the two-term limit of the state presidency in the 13th National People's Congress (NPC) in March 2018 has further consolidated Xi's power. The restructured CMC (seven members against the earlier 11) and replacing four erstwhile Army dominated powerful General Departments with 15 functional departments/offices/commissions has resulted in reinstating the supreme authority of the CMC chair. Some major implications of the political reforms are as follows:

- The emergence of the CMC chair's one-man rule emphasises Xi's consolidation, centralisation, and personalisation rather than civilian control. The all-powerful Politburo Standing Committee (PBSC) members, other than Xi, have limited involvement and say in PLA matters. This increased power stature, coupled with the anti-corruption campaign, has ensured minimum resistance to Xi's command and reform measures.
- The People's Armed Police (PAP), including the Border Defence (BD) troops deployed on the Line of Actual Control (LAC) are now placed under the direct CMC operational and organisational command, with no dual control by the State Council. The PLA would, thus, be in full control over border affairs which would result in better response to CMC directives.
- Xi, as Commander-in Chief, is routinely involved even in operational matters. To ensure his firm control, there has been increased political and ideological training in the PLA post 2012 which may adversely impact the directive style of command required at different levels for modern warfare.

Restructuring the PLA

The restructuring of the PLA could be termed as the second most important agenda in the present reform aimed to achieve the stated

goal of "complete mechanization and make major progress in informationalization" by 2020. With the 'head' and 'body' of the reforms completed, the PLA is presently undergoing the consolidation phase of the restructuring. Two major implications, besides creating/upgrading new services [PLA Strategic Support Force (PLASSF) and PLA Rocket Force (PLARF)] and formation of five Theatre Commands, to support new concepts of war-fighting, are as follows:

- A lean combat ready force has been achieved by the reduction of three lakh troops, mostly from non-combat areas, with measures like termination of the PLA's profit generation activities, outsourcing logistic functions and military education, to name a few. Flab from the field force has been trimmed by reducing the Group Armies from 18 to 13, removing division headquarters, conversion to modular forces (brigade equivalent) in all the three Services as also streamlining logistic functions.
- There has been concurrent rebalancing among three Services. The Army's dominance in policy-making structures has been reduced, with diluted versions of the erstwhile four powerful departments, balanced composition of members in the restructured CMC as well as nomination of Theatre Commanders from the Navy (Southern Theatre Command—STC) and Air Force (Central Theatre Command—CTC). Since April 2017, "84 corps-level units" have been established in order to instill better interoperability by rebalancing of grades between various services and organisations.[4]

Drivers of Military Reforms

The doctrine evolved out of the military strategy would be the prime driver for force structuring and capability development of any country. China's military strategy of "active defense in the new situation" enunciated through the 2015 White Paper, besides other aspects, highlights maritime orientation.[5] The PLA doctrine has evolved through various phases, with

the present doctrine of "winning informationalized local wars" since 2015 being the guiding factor for the ongoing modernisation efforts. The fifth generation operational regulations, which would translate doctrine into specific guidance for the Services, are long overdue (fourth generation published in 1999) and are likely to include aspects like cyber and space.[6] Some other significant drivers for the reforms are given below:

Shift in Foreign Policy

The foreign policy of China has been guided by two well-known slogans. The first is *tao guang yang hui,* usually rendered into English as "hide your light and bide your time", which guided Chinese policy for decades from the 1980s when Deng Xiaoping first established it as a principle of caution in foreign affairs. In late 2013, though, a new slogan was coined by President Xi Jinping to define a more assertive, muscular approach to foreign policy: *fen fa you wei* or, as it is commonly translated, "strive for achievement".[7] This drift led to China's declaration of an air defence identification zone over the East China Sea in late 2013, its assertive behaviour in the South China Sea, and the beginning of the transformational military reforms.

Economy

China has maintained 1.2 to 1.4 percent of Gross Domestic Product (GDP) as the defence budget albeit with the exclusion of many aspects like foreign weapons procurements, Research and Development (R&D) and certain personnel benefits. As per a recent Brookings Paper on 'economic activity', China has overstated its GDP from 2008-16 by as much as 16 per cent.[8] In that case, China's defence spending as a percentage of GDP would be over 2 per cent. China's military spending increased by an average 10 per cent (inflation adjusted) per year from 2000 to 2016 and has gradually slowed to 5 to 7 per cent during 2017-18.[9] The 2019 defence spending increase of 7.5 per cent with the official outlay of Yuan 1.19 trillion ($177.49 billion), outpaces the economic

growth target of 6.0 to 6.5 per cent.[10] China has benefited from the "latecomer advantage" and, without investing in R&D, has acquired certain new technologies through the direct purchase of platforms from foreign militaries, by retrofits or by theft of Intellectual Property Rights (IPRs).[11]

Science and Technology

China hopes to be a leader of "The Fourth Industrial Revolution" with the focus to exploit the exploding number of technological breakthroughs in fields as diverse as hypersonic; nanotechnology; high-performance computing; quantum communications; space systems; autonomous systems; artificial intelligence; robotics; high-performance turbofan engine design; new, more efficient and powerful forms of propulsion; advanced manufacturing processes (including additive manufacturing/3-D printing); and advanced aerospace quality materials, to name a few. "Made in China 2025", unveiled in 2015, is the first 10-year action plan designed to transform China from a manufacturing giant into a world manufacturing power and is likely to make it almost 70 per cent self-sufficient in technology.[12] These ambitions have caught the attention of the Western world, especially, the US which has repeatedly accused China of unfair practices to achieve its targets by 'leapfrogging'.

Defence Industries Reforms

The PLA initiated the latest defence-industrial reforms in 2016 and these are expected to be implemented by 2020. They are aimed to reduce the bureaucracy, develop a more structured R&D apparatus, streamline developmental timelines and promote innovation through civil-military integration. The aspect of *hungai* (混改), or Mixed-Ownership Reform (MOR) is aimed to relieve the state's financial burden by broadening access to capital market financing, and the long-term objective is to introduce market forces into the industry. Public-private

partnerships manifested through civil-military integration are already reaping rich dividends, as when the PLA, in March 2017, declassified more than 3,000 dual-use technology patents.[13]

Intellectual Foundation

One of the significant and often overlooked aspects of the current military reforms has been an overhaul of the research and doctrinal development system within the PLA. As part of "below-the-neck" reforms which commenced some time in 2017, there has been a revision of the Professional Military Education (PME) system, with emphasis on joint operations. There has been major realignment of the Academy of Military Sciences (AMS) along with some changes to the National Defence University (NDU) and National University of Defence Technology (NUDT), the institutions under the CMC. The AMS which, till now, had the niche on doctrinal issues, including publication of Defence White Papers, etc., has received fresh Science and Technology (S&T) focus after the recent merger of six research institutes, earlier subordinate to the PLA's former General Departments[14], within its fold. This is aimed at closer alignment of S&T progress with doctrinal development. There have been new partnerships with civilian universities and research academies to achieve what the PLA refers to as "military-civilian fusion" (军民融合). Military educational institutes also contribute to writing joint training scenarios, organise training, participate in exercise assessments and evaluations, and provide a blue force of experts for the confrontation exercises. These changes are already bringing PLA academics and operational commanders in close contact, which should improve the quality of both groups.

Concept of 'System of System' Warfare and Integrated Joint Operations (IJOs)

Indepth study of the Gulf War (1991) and Kosovo conflict (1999) has led the PLA to adopt systems thinking (integrate so that the sum

is greater than the parts). China has adapted the US concept of net-centric warfare and aims to achieve the *"information system-based system of system operational capability",* and the IJO is the foundation to achieve this capability. As per the PLA's *system destruction warfare,* modern warfare would be a confrontation between opposing *operational systems* [作战体系] rather than merely opposing Armies.[15] The aim would be to paralyse the critical functioning of the opposing force by striking key points and nodes through kinetic and non-kinetic means by employing a more robust, capable, and adaptable operational system. These operational systems would be tailor-made for specific needs, employing all domains, including cyber, electronic warfare, psychological and others.

The PLA is presently undergoing a transition from coordinated joint operations to IJOs with the aim to integrate domains like cyber, electronic warfare, psychological and others, till the lower tactical echelons. Some of the important concepts associated with the system of system and IJOs, as discussed in PLA publications, include precision operations, modular forces groupings, information firepower strike, non-contact and non-linear operations.[16] To achieve these capabilities, the PLA has almost doubled its integrated training to almost 40 per cent. The ongoing Non-Commissioned Officer (NCO) reforms aim to build a more permanent technical oriented professional corps, thus, overcome problems arising out of the non-permanent nature of the conscription system. The concept of the system of system and IJO may seem more aspirational at this stage but a degree of these capabilities would be achieved by the end of 2020 and the PLA hopes to mature the same by 2035, coinciding with the laid down milestone of completion of informationalisation.

Evolved Key Capabilities for War-Fighting: Implications

The PLA has moved a long way from the Mao Zedonga's era military which was ground force-centric and lacked mechanisation. Most of the

evolving capabilities and structures in the recent past have been designed to achieve information system-based system of system operational and IJO capabilities. The implications of these structures and capabilities are as follows.

Integrated C4ISR

The development of integrated Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) is the backbone to achieve IJOs capabilities. Beidou-based integrated command platforms have been developed and made available till the tactical levels to all combat and support elements, which would provide seamless battlefield awareness and connectivity. There is focus on redundancy of communication by a combination of Optical Fibre Communication (OFC), satellite, combat net radio and establishing a communication grid through Unmanned Aerial Vehicles (UAVs), if required. Major advances have been made in developing a very expensive hackproof quantum communication. China successfully launched the world's first quantum-enabled satellite in August 2016.

Modular Forces and Brigadisation

As per the PLA concept of system of system, the 'operational units' are basic 'plug and play' modular units which can be rapidly structured to form bigger modular combat formations, as per requirement, thereby enhancing flexibility.[17] Within the ground forces, the combined arms battalion and brigade are part of such modular forces. The three regiments of the 15th Airborne Corps of the PLA Air Force (PLAAF) is also now reformed into six airborne brigades directly under the corps headquarters along with other support brigades.[18] The recent reorganisation of the PLAAF from 20-25 air regiments to a largely brigade structure today (as also the PLA Naval Aviation) makes it a more agile and flexible force.[19]

Non-Contact Warfare (NCW)

Some of the likely reasons for China's enhanced impetus to develop NCW capabilities, with the underlying principle of "fighting wars without suffering casualties" are lessons from their successful employment by the US in Gulf War, China's self-realisation of its lack of combat experience, coupled with the impact of its one-child policy. In order to achieve asymmetric advantage, China, over a period, has developed these capabilities in both the kinetic and non-kinetic spheres, as described below.

Cyber and Electronic Warfare

Chinese writings indicate "information domination" as the prerequisite for achieving victory in modern warfare. The PLA could use cyber warfare capabilities to support military operations in the early stages of the conflict by interfering in the adversary's mobilisation, targeting networks based on Command and Control (C2), C4ISR, logistics and others by exploiting extensive data collected by cyber reconnaissance during peace-time. The enhanced cyber activities would continue as force multipliers to the conventional capabilities during a conflict. Centralisation of cyber reconnaissance, cyber attack and cyber defence capabilities under the PLASSF would enhance the potential of NCW. The dual control of its assets at the theatre level also would facilitate war-fighting. The display of separate Information Operations Group during the 90th anniversary parade at Zhurihe in 2017 suggests the PLA's increasing priority to control the complex electromagnetic environment.[20]

Space and Counter-Space

China gradually realised the importance of 'space' when, in 2013, it become an independent and essential domain of modern warfare. All space-based programmes have been historically managed by the PLA, which, post current reorganisation, have become part of the Space Division of the

PLASSF. China's strategists regard the ability to use space-based systems and deny them to adversaries as central to enabling modern informatised warfare.[21] Post 2020, with a "high-resolution Earth Observation system" in place, China would achieve almost real-time Intelligence Surveillance and Reconnaissance (ISR) capabilities.[22] The BeiDou Navigation Satellite System (BDS) would achieve a global network by 2020, with higher grade accuracy for the military (navigation, guidance of missiles/weapon system).[23] In order to gain asymmetric advantage over the US (whose communication, ISR and navigation is mostly space-based), China's focus over the next decade would be the development of counter-space capabilities. Some of these existing Chinese capabilities include direct ascent Anti-Satellite (ASAT) weapons, co-orbital systems like the Aolong-1 and Directed Energy Weapons (DEW) which allegedly have been used in the past to blind US satellites.[24]

Unmanned Systems

As part of the advanced weapon systems programmes, China's unmanned system is the most rapid growing sector, being a low cost, safe, less escalatory and very versatile option.[25] While China has made some progress on the Unmanned Ground Vehicles (UGVs) and Unmanned Surface Vehicles (USVs), maximum expansion has been in UAVs and Unmanned Combat Aerial Vehicles (UCAVs) with almost 140 variants being presently operated by the PLA. Chinese armed drones (UCAVs) have been operated or ordered by 17 [mostly Belt and Road Initiative (BRI)] countries, with Pakistan producing a licensed version of the Wing Loong II model.[26] China set a world record in December 2017 when it succeeded in showcasing collective orchestration of over 1,000 miniature drones.[27] While presently, Chinese UAV models may lack in detection capabilities and overall endurance, when compared to US models, the ranges (with data link from Beidou) and payload capabilities are increasing.

Precision Strikes

A key part of China's PLARF arsenal is a large force of approximately 1,200 conventionally armed variety of Short Range Ballastic Missiles (SRBMs).[28] China is also fielding conventional Medium Range Ballistic Missiles (MRBMs) like the manoeuvrable warheads with higher accuracy DF 21D (1,500 km range) and DF 16 G missiles to conduct precision strikes against land as also aircraft carriers.[29] The CJ 10 ground launched cruise missile (ranges over 1,500 km), along with similar air launched land attack cruise missiles, offers flight paths different from the SRBMs, enhancing targeting options and flexibility. In addition, the PLA Ground Forces have in recent years acquired artillery rockets comparable in range to the SRBMs and may be acquiring tactical-range cruise missiles.[30]

Implications of NCW

In any future war, China is likely to have a protracted Network-Centric Warfare (NCW) phase prior to the contact phase. The "*Three Warfares Strategy*" adopted by the CMC in 2003, involving psychological warfare, public opinion warfare, and legal warfare, would be effective months and even years before the war. Now, with the PLASSF increasingly participating in all field joint exercises including 'Stride,' there would be greater impact of NCW in all stages of the battle.[31] The real-time ISR capability, coupled with improved Circular Error Probable (CEPs) of its SRBMs would translate into a precise and effective kinetic targeting of own operational assets and Vital Areas/Vital Points (VAs/VPs). The vertical Take-Off and Landing (VTOL) UAV, the AV 500 W, capable of carrying air-to-ground missiles, participated in the PLA exercise in Tibet in September 2018.[32] When deployed along the Sino-India border, these would pose additional challenges of detection and interception. The demonstrated smart, self-healing swarm drones can saturate enemy defences and undertake operations like Suppression of Enemy Air Defences (SEAD) very effectively. China considers its most innovative network warfare capability, including cyber

weapons, as 'single use resources' and would reveal them only to attain major strategic objective at the appropriate time.[33]

Pockets for Excellence (POE) for War-Fighting

The contours of the present modernisation and structures suggest that in the future, China would avoid attrition warfare. The concept would involve prolonged NCW, as described earlier, followed by the land campaign with more reliance on third dimensions (vertical envelopment) along multiple thrust lines. The POEs developed in the realm of ground forces to support this concept are as follows.

Special Operation Force (SOF)

One SOF or Special Operation Brigade is now grouped with each reorganised Group Army (GA)/Combined Corps (CC), including Xinjiang Military District (XMD) and Tibet Military District (TMD).[34] These forces in the Western Theatre Command (WTC), mostly co-located and training with aviation assets, are now equipped with the latest equipment like the QTS 11, an advanced integrated individual soldier combat system and, thus, would have a significant force multiplier effect at the tactical and operational levels.[35]

Air Assault Brigades

The Air Assault Brigades, formed by the merging of the motorised infantry division and aviation assets, were first displayed in air assault demonstration in 2017, at Zhurihe during the 90th anniversary military parade to mark the founding of the PLA. The air assault simulated the integration of reconnaissance, attack, and transport helicopters with infantry to secure a remote landing zone.[36] Currently, there is one air assault brigade each in 75CC/ STC and 83CC/CTC and more are likely to be raised.[37] These could well be utilised for *coup-de-main* operations against unheld areas on the Sino-India borders.

Aviation

Army Aviation as one of the "new-type combat forces" has been rapidly expanding, especially after 2015, with the PLA receiving its 1,000th helicopter in 2016.[38] Presently, the PLA Army Aviation comprises 13 brigades, one aviation brigade per CC (except 75 and 88, which have air assault brigade each), XMD and TMD.[39] Aviation is modernising quantitively as well as qualitatively, with the induction of the latest helicopters, including the WZ 10 attack helicopter, and the Z18, Z 8G, Z 20 transport version replacing the old MI 171, S 70, and aiming to achieve all-weather day or night capability.[40] The combined SOF and aviation expansion in the WTC, with increased helicopter bases close to the Sino-India border, provide increased heliborne capabilities thereby, altering the threat perception.

Force Projection and its Manifestation in IOR

The PLA Navy (PLAN) is gradually acquiring blue water capabilities aligned to its fresh orientation of 'offshore water defence with open sea protection', as highlighted in the 2015 White Paper. It is likely to operate three aircraft carriers by 2022. The PLAN is also rapidly expanding the Marines with presently seven battalions, has launched four of the planned eight world's largest Type 55 destroyers (displacement over 10,000 tons), capable of independent blue water deployments.[41] With five Type 71 Landing Platform Docks (LPDs), each capable of carrying a battalion group, and the under construction 35,000 tons displacement Type 75 LPDs, it would provide sizeable amphibious capabilities.

Since 2008, as part of naval diplomacy, China has sent 30 Anti-Piracy Task Forces in the Indian Ocean Region (IOR), generally comprising two battleships and a supply ship.[42] Regular naval exercises with foreign countries, especially Russia, have provided the necessary nuances of blue water operations. In addition, the PLA Air Force (PLAAF)has incrementally improved its power projection capabilities with frequent

exercises beyond the first island chain involving H-6K bombers equipped with the CJ-20 Land Attack Cruise Missiles (LACMs). Strategic lift is on the rise with increased induction of the Y-20 transport aircraft and the ongoing joint production of the world's largest transport aircraft (An-225) with Ukraine.[43] There are many reports of Chinese submarines' forays in the Indian Ocean, including nuclear ones (SSNs). With these developments, the PLAN is likely to be capable of undertaking meaningful combat manifestation in the Indian Ocean Region (IOR) by 2025.

Logistics for IJO

The PLA considers joint logistics an important foundation for its emerging IJO capability. A Joint Logistic Support Force (JLSF) was established in September 2016, with one central logistic base at Wuhan and five logistic centres in each Theatre Command. An integrated C4ISR, along with the Bediou-based Integrated Command Platform (providing real-time status) would provide the foundation to the Just in Time (JIT) responsive logistic framework. There is provision for a tailor-made contingency logistic support brigade to support the 'system of system' confrontation warfare.[44]

Lessons for India

Aligning Defence Modernisation with Political Vision

India is possibly the only democratic country where civilian control over the military is exercised by the bureaucracy rather than the political class. The experiences of the PLA and other developed militaries indicate that no transformative reform is possible without the direct involvement of the apex political leadership. In the absence of the required transformational changes, an empowered Defence Planning Committee (DPC) was established in April 2018, under the chairmanship of the National Security Adviser (NSA). While the DPC, headed by a political appointee, would play

an important role to bridge a key gap in the existing integrated capability building, it doesn't replace the ultimate need of an institutionalised CDS/ permanent Chairman Chief of Staff Committee (COSC). As, in the case of China, aligning defence modernisation goals with the national vision would also provide the required impetus to defence modernisation.

Integrated Theatre Commands

In the present set-up, the Indian armed forces are organised in 18 Commands excluding the Strategic Forces Command (SFC). In the event of hostilities with India, China would employ the Western Theatre Command (WTC) on the land borders and the Southern Theatre Command (STC) with the South China Sea fleet component at sea. In contrast, eight Indian operational commands (from the Indian Army and Indian Air Force) would be involved on land, and for the maritime domain, the Navy's Eastern Command and Tri-Service Andaman and Nicobar Theatre Command would also come into play, which incidentally report to the rotational Chairman COSC. There is no gainsaying the fact that in the absence of both a CDS/permanent COSC and a Joint Operations Directorate, there would be total lack of coordination which would adversely impact the operational effectiveness. Learning from China's approach and specific Indian conditions, it is recommended that the undermentioned actions be undertaken as a precursor to implementing the proposed unified structure in the Indian armed forces.

- Synchronise the boundaries of different operational commands of the three Services, in the same theatre of war. Wherever possible, the headquarters of these commands to be co-located, with cross-posting of staff officers from the three Services up to the division levels and equivalent. These steps would instill better coordination.
- In 2018, China had brought all its border defence formations directly under the CMC with no dual control by the state which would make them more responsive to the PLA in all contingencies. Similarly,

the Indo-Tibetan Border Police (ITBP) deployed on the northern borders needs to be under the Army's operational control for greater operational synergy and optimal utilisation of resources.

- Appoint a Permanent Chairman, Chiefs of Staff Committee, as recommended by the Naresh Chandra Task Force in 2013. Besides the tri-Service institutions presently under the CISC, he should command future Integrated Functional Commands (Space, Cyber, Special Forces). He may also be mandated to integrate logistics, training and such functions in a time-bound manner and undertake pilot studies for further integration.

Integration for Jointness

The reservations amongst the various stakeholders in India have resulted in the less than optimum level of jointness required to address the threat arising from the reformed armed forces of China in the near future. There is a need to combine the top down and bottom up approach to achieve gradual 'integration' of various functions which will act as a catalyst and ultimately lead to the desired end state of 'jointness'. While functions like communication between the Services have achieved a fair level of integration, the following aspects/areas which possibly can be integrated are as under.

Logistics

The logistics chain of various operational commands of the different Services can be integrated after some restructuring. Learning from China's experiment, initially, only common or general logistics may be integrated while retaining separate Service specific requirements.

Professional Military Education (PME)

Knowledge integration of commanders with common procedures and staff work between the Services would be an inescapable necessity for future wars. In order to implement cross-posting of staff officers, as

recommended above, joint training of staff officers by integrating our training institutions like the Defence Services Staff College (DSSC) (same course curriculum) and co-locating the Higher Command (HC) and equivalent courses from the three Services need to be instituted as a first step. India may explore China's experience as part of civil-military integration and that of the US since the 1990s, wherein more and more civilians are being inducted as faculty members in military academic institutions. This, along with allocating training slots in joint Services training institutions for the bureaucrats handling defence matters in the Ministry of Defence, would also enhance civil-military integration.

Training

More focus is required on joint planning rather than merely joint operations during training. More integrated training is the need of the hour, with participation of not only Service platforms but also aspects like cyber, space, information warfare in realistic settings, down to tactical levels. Existing Service specific training areas, with a scale of at least one per Army Command should be gradually converted to Integrated Training Bases (ITBs) as enabling infrastructure. Employing a state-of-the-art enemy force combined with simulation techniques could help in evolving more efficient procedures and tactics. All outcomes of war-games and exercises need to be retained as data base for feeding in the Artificial Intelligence (AI) enabled national level joint simulation centre which is recommended to be established in the near future.

Doctrine and Strategy

China has been publishing Defence White Papers since 1998, with the 2015 White Paper on "Chinese Military Strategy," being the ninth in the order. India published the first unclassified Joint Armed Forces Doctrine in 2017 despite the absence of any formal National Security Strategy and National Military Strategy. For these reasons, the doctrine may not

be perfect, nevertheless, it provides a window into the beginning of a formal articulation of India's guiding strategic thought. In the past, India has come out with various informal limited war doctrines addressing the western adversary, like "cold start doctrine" to sub-conventional, covert action (informally called "hot pursuit" or "surgical strike"), with some degree of success on the intended impact. There is a need to articulate an appropriate doctrine for the northern front to bridge the increasing gap in military capabilities. As an example, there is possibly a rethinking on the "no first use" nuclear policy within China in certain conditions considering its powerful adversary (US).[45] Similar reconsideration by India may also be debated to enhance our deterrence.

Defence Industry Reforms

India's defence industry has gained traction with the government's policy changes and reforms such as streamlining of the Defence Procurement Procedure (DPP 2016) and changes in Foreign Direct Investment (FDI) regulations from 26 to 49 per cent. Despite the above steps and unrolling of the Strategic Partnership Policy (SPP) to create capacity in the private sector, the process remains complex, with limited flow of FDI and less than optimum utility of the Defence Public Sector Undertakings (DPSUs). India could gainfully utilise China's reforms experiences wherein the State-Owned Enterprises (SOEs) are benefiting from civil-military integration in the fields of R&D (dual use patents) and more cost-effective practices. It would go a long way to create an efficient ecology by establishing widely distributed "science cities", industrial parks, and high-tech zones near our defence-industrial corporations. This would also facilitate absorption of disruptive technology in which there is substantial expertise available in Indian private industries, like AI, nano technology, robotics, and others for military purpose. India may also reduce the state's financial burden in its state enterprises by broadening access to capital market financing from issuing bonds and equity, as now being done in China.

Domination of IOR

With China's threat of manifestation in the IOR looming large in the foreseeable future, India may draw valuable lessons from China's Anti-Access/Area Denial (A2/AD) strategy against the US military intervention in its immediate areas of concern. India should maintain its focus on deepening security cooperation with regional partners to ensure the effectiveness of its radar initiative as part of an ambitious project to build a maritime domain awareness network across the Indian Ocean.[46] It would be prudent to further expand the strategic reach of the Andaman and Nicobar (A&N) Islands. The strategically located Lakshadweep Islands, which also comprise a natural unsinkable aircraft carrier, like the A&N Islands, could be developed and converted into another Tri-Service Command, along with the Southern Naval Command in Kochi.[47] Taking a clue from China's 'underwater great wall' project, India too could deploy sensors on the bottlenecks of the Straits of Ombai Wetar and Lombak, from where Chinese submarines could enter the IOR, submerged and undetected. Gradually enhancing Maritime Domain Awareness (MDA) in the South China Sea would provide the required leverage to the Indian Navy.

Increase Interaction with PLA Institutions

The PLA plays an important role in China's foreign and security policies, be it relations with neighbours or its interests overseas. Therefore, it is necessary that the Indian establishment deepen its contacts with PLA academies and institutions. Indian think-tanks can play a role in this regard.[48] The National Defence College (NDC), Higher Command (HC) and equivalent courses should regularly visit China as part of foreign study tours. Similarly, more training courses at various training institutions may be allotted for the PLA in India on a reciprocal bases. The frequency of joint exercises like 'Hand in Hand' needs to increase. These interactions would provide insight into China's perspective on various issues and the future contours and challenges of its defence reforms.

Operational Concept

PLA modernisation is primarily aimed against a superior adversary (the US) and the application of its new force structure based on mechanisation gives it an edge in some areas in eastern Ladakh and northern Sikkim opposite India.[49] Indian military's operational concepts need to be tailored to the nature of the terrain which imposes mostly attrition warfare beyond the crust of the Tibetan plateau, and assessing the Chinese military threat post reorganisation in view of the increased special forces, aviation and NCW capabilities. In accordance with its doctrine on frontier defence, China does not follow the concept of ground holding and most of its conventional forces are in the interior—to be surged in times of crisis, supported by a well-developed infrastructure. With China's focus on border development, many more valuable objectives have emerged closer to the LAC.

Operational Structures and Capabilities

Cyber and Space

China has integrated cyber and space under the PLASSF which is directly under the CMC. In India, the diluted versions of integrated functional commands in the form of the Defence Cyber Agency and Defence Space Agency may be a good beginning but are short of the desired level of integration. For example, post reorganisation, the cyber aspects for critical and non-critical infrastructure would be the responsibility of the National Technical Research Organisation (NTRO) and Ministry of Electronics and Information Technology (MEITY) respectively, with separate defence cyber agencies for the different Services. Thus, the structures are still in compartments, and functioning through coordination without integrating has its pitfalls and needs to be factored for further reforms.

Approaches to Develop C4ISR Capabilities

To bridge rapidly growing gap with China in space and ISR capability, a separate focussed well-articulated military space programme is needed to develop indigenous space and counter-space capabilities. India would need many more satellites in the Low Earth Orbit (LEO) [both Earth Observation (EO) and Synthetic Aperture Radar (SAR)] with better resolution to match the almost real-time revisit that China is likely to achieve by 2020. To cater for redundancy and counter-space weapons, India needs to develop capabilities to launch LEO satellites on demand. India's latest test of ASAT weapon capability on March 27, 2019, is indeed a strategic achievement. Enhanced focus on UAVs and other platforms for Electronic Intelligence (ELINT) is needed for the northern borders. India should fully the utilise provisions of COMCASA, or Communications Compatibility and Security Agreement signed with the US in September 2018, for intelligence sharing, including real-time imagery. India needs to undertake a pilot study for harnessing the power of research in AI and Internet of Things (IoT) in the private sector to develop an efficient model for network-centric warfare capabilities.

Adapting to Non-Contact Warfare

On priority, India should invest in, or acquire, advanced UAVs (including UCAVs) and counter UAV technology against China's significant expansion of similar capabilities. India's BrahMos supersonic cruise terrain hugging missile, with steep dive capabilities, is most difficult to intercept.[50] Increased production and further modifications to the BrahMos missile (including a hypersonic version) which is already capable of being launched from the sea, land, and air would be an apt response to China's precision strike capabilities. Induction of such an indigenous system in good numbers could again be a very cost-effective solution to bridge the SRBM gap with China.

India needs to gradually develop the indigenous and secure Indian Regional Navigation System (IRNSS) receiver chips for all our long-range vectors. Creating redundancies in command and control structures and communications, forward logistics, ability to fight when cutoff, maintaining conventional methods of operations without over-reliance on satellite-based utilities (for example, artillery shoots) would be some of the war-fighting methods to adapt in the NCW setting. China's enhanced SRBM capabilities may necessitate more dispersal of own Air Force assets and the need to acquire advance technology for a more effective Runway Rehabilitation Scheme (RRS). There is also a need to acquire more precision strike standoff armour piercing munitions by the Air Force in view of the increased mechanisation of the PLA.

Asymmetric Strategic Capabilities

With China's official military budget three times that of India, it wouldn't be prudent to match China's defence capabilities strength with strength. Till India achieves such capability, an indirect approach may be the preferred option to deter China. China's famous book "*Unrestricted Warfare*" written by two Chinese Colonels in 1999 had advocated how China can defeat a technologically superior opponent (such as the United States) through a variety of means including "military and non-military" and with "no rules, with nothing forbidden". China has demonstrated the same with its regional competitor, India, by creating Pakistan as its proxy, and continues to block Masood Azhar being designated as a terrorist even post Pulwama attack, while it considers the Dalai Lama as a radical separatist. India needs to consider the option of supporting the Tibetan cause, engage with the youth there who may be used as a strategic asset in case China escalates the situation along the borders. To cater for such a situation, India needs to plan for, and be involved in evolving, a post Dalai Lama scenario. At the same time, India should monitor resumption of secret talks after a long gap between the Dalai Lama's representative

and Chinese United Front Works Department (UFWD) and the source of increased funding of monasteries along the Sino-India border. Taking a cue from the imperial era practice, China could even be using the powerful Tibetan cultural connectivity for expanding its influence across the Indian Himalayan belt, Mongolia and Russia.[51] Thus, blindly playing the 'Dalai Lama card' may be a simplistic approach. The ongoing initiative under the Border Area Development Plan (BADP) along the Sino-India border would arrest the migration of locals from these remote areas.

Exploitation of PLA Grey Areas in Reforms

India's own defences should to be organised in the classic mountain warfare format to force the PLA to fight attrition warfare which it is presently not equipped to do. This is due to the PLA's over-reliance on mechanisation, lack of real combat experience since 1979 and likely reduced foot infantry post the reforms. The holding units should train and equip one-fourth of their strength to operate in small teams akin to the Ghatak platoon for standoff fire assaults, act as stay behind parties, and prevent the main defences being cut off and bypassed.

Considering the rugged terrain and not so developed infrastructure, there needs to be more reliance on a reactive, distributed and mobile force structure, in tandem with scouts, based on the sons of the soil concept, dovetailed in the overall conventional defensive framework. Increased employment of long range anti-tank weapons in selected areas in eastern Ladakh and north Sikkim will prove effective against mechanised thrust lines in narrow mobility corridors. Heliborne insertions by enhanced aviation assets and SOF in the WTC, including employment of air assault formations have their limitations in high altitude areas due to the reduced carrying capabilities of helicopters, necessitating large trails through valleys. Such attempts could be thwarted by deploying more mobile Air Defence (AD) resources [Man-Portable Air Defence System (MANPADS)] along the valleys.

Conclusion

China's recent military reforms are transformational in nature, which would bring China's hard power to the next level post 2020. Its growing footprint in South Asia and the extended IOR, along with collusion with Pakistan, has added to India's security concerns. There is a variance in the ways to deal with these existing challenges: while the larger political dialogue emphasises cooperation and restrains competition, there is, nonetheless, a growing awareness that India needs to develop reliable and effective hard power as a dissuasive strategy against China. It may not be possible at this stage for India to compete with China in defence spending, but it is extremely prudent to fully optimise and integrate its limited resources. To achieve the same, India needs to take concrete steps to develop its hard power by transformative reforms in the defence structures at all levels, in a time-bound manner.

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