The Significance of 2020 in the Sino-Indian Context

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The article looks at the implications of Hu Jintao's speech at the 18th Party Congress regarding the People's Liberation Army's (PLA) military modernization programme and analyses the significance of 2020 as a key timeline in the speech. Drawing from the previous biennial National Defense papers and significant statements of the Chinese leadership, it assesses the modernization plan of the PLA's four services in the Sino-Indian context and the probable capabilities that each service is likely will develop by 2020. The analysis covers the training, education, logistics and development of weapons and equipment by the PLA. This would enable Indian planners to assess the PLA capabilities and capacity as also temper own modernization plans to deter a possible China threat by 2020.

Hu Jintao's speech on the opening day of the 18th Party Congress of the Communist Party of China (CPC) on 8 November 2012 was a traditional round-up of the government's performance over the past five years. While the speech delves into the past and introspects on the Party's policies, it also lays down guidelines for the future. In fact the speech, which is prepared over the better part of six months preceding the Congress and vetted in detail, is the most detailed document on policy, planning and strategic guidelines that emanates from the labyrinth of the Zongnanhai. Speaking for almost 100 minutes, Hu covered almost every aspect of policy—diplomacy, economy, social systems, science and technology, politics, and the military. One quote which summarized the policy for the future was:

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ISSN 0976-1004 print

Journal of Defence Studies, Vol. 7, No. 1, January–March 2013, pp. 189–212

> We need to have a correct understanding of the changing nature and conditions of this period, seize all opportunities, respond with cool-headedness to challenges, and gain initiative and advantages to win the future and attain the goal of completing the building of a moderately prosperous society in all respects *by 2020*.[1] (author's emphasis)

Xinhua, the official news agency of the Chinese Communist Party, directly controlled by the State, published a translated version of Hu's work report. On the issue of the economy, it quoted Hu as saying:

> On the basis of making China's development much more balanced, coordinated and sustainable, we should double its 2010 GDP and per capita income for both urban and rural residents (by 2020).[2]

With regard to the modernization of the PLA and the military, Hu was emphatic about achievement of the 'historic missions' of the PLA. The four 'new historic missions' for the PLA were spelt out by Hu way back in 2004, soon after he took over as the Chairman of the Central Military Commission (CMC). These missions gave a new meaning to the tasks of the PLA by expanding its role beyond its frontiers and urging the PLA towards a greater role in international affairs.[3] Hu said:

> We should act to meet the new requirements of China's national development and security strategies and ensure that the armed forces fully carry out their historic mission in the new stage in the new century.

The Chinese government releases a biennial paper on National Defense which spells out its defense policy. The paper on National Defense 2008 stated that:

> It (China) has formulated in a scientific way strategic plans for national defense and armed forces building and strategies for the development of the services and arms, according to which it will lay a solid foundation by 2010, *basically accomplish mechanization and make major progress in informationization by 2020,* and by and large reach the goal of modernization of national defense and armed forces by the mid-21st century (author's emphasis).[4]

A 'solid foundation' was been laid by 2010. The 'mechanization' and 'informationalization' is part of the second stage (2010-2020) "when PLAN [PLA Navy] seeks power projection capabilities to the first Chain of island, i.e., the Japanese island of Kyushu and Ryuku, Taiwan,

Philippines and Borneo. The third stage is envisioned from 2020 to 2050, during which PLAN aims to possess the potential to compete with the US or the regional powers in the Indian Ocean and Western Pacific region.'[5]

The official website of the Ministry of Defense amplifies the National Defense Paper 2008 further. On defence policy, it says:

> China is working to adjust and reform the organization, structure and policies of the armed forces, and will advance step by step the modernization of the organizational form and pattern of the armed forces in order to develop *by 2020* a complete set of scientific modes of organization, institutions and ways of operation both with Chinese characteristics and in conformity with the laws governing the building of modern armed forces.[6]

Thus, 2020 emerges as a key date in Chinese policy papers. It appears to be a major timeline in China's march towards becoming a fully-developed and leading superpower in the world. The aim of this paper is to highlight the importance of 2020 as a key objective in China's perspective planning and flag the significance of 2020 in the security paradigm of China-India relations. The scope of the paper is restricted in time, i.e., by 2020 and context, i.e. as it is likely to impact India. It is premised on the assumption that any confrontation with China will predominantly involve the air, land and missile forces by 2020 as China's capabilities to project naval power in the Indian Ocean by 2020 may not be significant to peninsular India.

What does China want to achieve by 2020?

- A strong economy by 2020. China's per capita income was US $1,135 in 2002 and has reached $5419 in 2011[7]—an increase of 450 per cent! It now wants this figure to double to almost $11,000 by 2020.[8] Interestingly, this is the first time that per capita income has been included in the economic growth target set for 2020. Previous targets set at the 16th and 17th CPC National Congress merely called for the growth of gross domestic product (GDP), not of per capita income.[9] A strong economy implies a strong military.
- The PLA must be fully mechanized and 'make major progress' in informationalization by 2020. This implies that the PLA should have completed the process of induction, training and implementation of mechanization throughout the PLA. It should have made considerable progress in imbibing Information

Technology and Science and Technology in all its arms and service units.

- The PLA should have completed the reorganization of units, created institutions and structures and put into place policies and procedures for the modernization of the armed forces by 2020.

How Far Would China Have Progressed in Achieving These Targets by 2020?

Economy

A strong economy enables a nation to provide for a strong military. It ensures the capacity to support the military financially by placing adequate funds at its disposal for modernization and development of its military-industrial complex. China's defence budget increased at an average 15.9 per cent from 1998–2007, 14.5 per cent from 1988–1997, and 3.5 per cent from 1978–1987. Over the past 10 years, the official budget has increased by roughly 3.6 times (from RMB 166 billion in 2002 to RMB 601 billion today). By 2012, it crossed four times the 2002 figure.[10]

There are various forecasts of the Chinese economy leading up to 2020. Forbes anticipates the Chinese economy to grow at 7.3 per cent average from 2014–2020.[11]

The World Bank in a comprehensive paper in 2009 concluded that: 'In 2020 China's GDP per capita would be broadly comparable to the current level in Latin America, Turkey and Malaysia. Adjusted for purchasing power, in 2020 China's GDP per capita would be one-fourth of the US level and China's total economy larger than that of the US.'[12] The Standard Chartered 'Super Cycle' Report of 2010 states: 'By 2030, income per head in China—using market exchange rates, which include our view of a stronger CNY (Yuan)—could have risen from USD 4,166 in 2010 to USD 21,420. China, currently a big but poor economy, would become a middle-income economy—but on a vastly larger scale.'[13] By simple average, the anticipated income per head could be predicted to be $12,793 by 2020.[14] This is well above the anticipated target of over $11,000 laid down by Hu Jintao in his speech to the 18th Party Congress.

For a military analyst, it simply means that adequate financial resources will be at the disposal of the PLA to ensure that the guidelines in the National Defence Paper 2008 are achievable by 2020. It also assures the PLA that financial constraints will not be a limitation to its military modernization plans. For Indian planners, it is important to note that

budgetary allocations for modernization are critical to build deterrence against the PLA.

Military Modernization

In his work report, Hu reserved a complete chapter on military modernization. He said:

> Building strong national defense and powerful armed forces that are *commensurate with China's international standing* and meet the needs of its security and development interests is a strategic task of China's modernization drive (author's emphasis).[15]

It is interesting to note that there is a clear and well-defined objective of developing powerful armed forces as spelt out by the Party. It is also stipulated by the Party that the size, capability and capacity building of the armed forces must be in keeping with China's 'international standing'. As the world's second largest economy today and with projections of overtaking the US by 2016,[16] it is incumbent on China's military planners to ensure that its military modernization eclipses the US military capability along with its rising international standing. By 2020, it would be prudent to assume that most of the projects would have either been completed or would be in advanced stages of fructification.

On 'Scientific Outlook on Development' in the military, a phrase popularized and attributed to Hu Jintao, he emphasized at the 18th Party Congress that

> China should strengthen the development of new- and high-technology *weapons and equipment*, speed up the complete *development of modern logistics*, train a new type of *high-calibre military personnel* in large numbers, intensively carry out *military training under computerized conditions*, and enhance integrated combat capability based on extensive IT application (author's emphasis).[17]

I have attempted to analyse this statement in detail to get a fair idea of 'work in progress' on each of these issues emphasized by Hu, and tried to identify what would be attainable by 2020. The analysis covers the following:

- Training and exercises under computerized conditions. This includes 'integrated combat capability' or 'jointness', as these are inherent in the exercises.
- Development of modern logistics.

- Training of high calibre personnel.
- Weapons and equipment.

Training and Exercises under Computerised Conditions

Various formations and units of the PLA have conducted exercises and demonstrations on integration of combat capacity based on Information Technology (IT) applications in 2012. Some of the major ones relevant to India are:

- A command and confrontation drill of command-and-staff organs was organized by the Chengdu Military Area Command (MAC) of the Chinese PLA. The exercise was held in late June 2012 at a combined tactics training base in the Daliang Mountains area of southwest China's Sichuan province.[18] Over 100 high-ranking officers from the leading organs and troop units above regiment level of the Chengdu MAC observed the drill at the site and studied and explored the ways of 'command and confrontation training' of the command-and-staff organs under information-based conditions. Chengdu MAC has promoted the training and application of integrated command platforms since 2011. A Xinhua report says that, currently, '80 per cent of officers of the leading organs above division level of the Chengdu MAC can master the operation skills on the integrated command platform.'[19]

  This exercise confirms that staff officers appear to have been trained in IT at Division level and that integration of IT appears to have been achieved at Division and above level ,at least in the Chengdu MAC, which is responsible for operations opposite Arunachal Pradesh in India.
- A Group Army (GA) under the Guangzhou MAC held a 'division-brigade organic and systematic independent confrontation drill' at the end of August, 2012.[20] The participating troop units were exercised in 'forms such as online electronic confrontation, actual troops and live ammunition to launch fierce battles in multiple combat fields including manoeuvre, offense and defence, command, support and others.'[21] The *People's Daily* reports that 'both sides were engaged in full-element and full-system confrontations involving personnel and troop units from division leaders to soldiers, from infantry to armoured force,

and from combat companies to logistic and equipment support detachments.'[22] Zheng Guoyue, director of the Military Training and Arms Department of the Guangzhou MAC, said that the drill implemented the operation concepts of information-oriented guidance, firepower-based combat, system-wise attack and destruction and overall victory throughout the entire process, greatly upgrading the troop units' actual combat effectiveness.[23]

This exercise confirms the proliferation of IT at Division and below level, perhaps even at the brigade level, may also have been achieved in the PLA.

- Ex Queshan, a joint drill for 19 colleges and academies, scientific research institutions, and combat troop units of the PLA was held at the combined tactics training base of the Jinan MAC in Queshan Mountains.[24] This joint drill involved the Army, the Navy, the Air Force and the Second Artillery Force; the four systems, namely, the military system, the political system, the logistics system and the armament system; 19 military colleges and academies of the PLA; and 24 organizations of troop units, training bases and scientific research institutions. A total strength of more than 3,000 persons, including 533 cadets from the military colleges and academies participated. The joint drill focussed on 'joint organization and planning, joint fire attack, joint attacking and capturing fortress, joint manoeuvring attack and annihilation and joint occupation and control, and use the combat command information system to conduct the command confrontation drill in such two phases as organization and planning and combat implementation.'[25] This exercise was the first all-factor and multi-dimensional 'joint teaching and joint training' practice and exploration activity among the PLA colleges and academies as well as the troop units, which provided practical experience for exploring the methods and ways for future comprehensive promotion of 'joint teaching and joint training'.[26]

  This exercise suggests that this is the first time a joint exercise of all services was held at brigade and lower levels to implement 'jointness; at the conceptual level. At this stage, this exercise could have only brought the issues on the table which would require coordination, integration and cooperation in the years to come. It is apparent that while individual services have achieved a certain measure of IT absorption, the same is yet to be seen 'jointly;. Furthermore, the

PLA is still groping with need to formulate and standardize joint operational procedures at brigade and lower levels, which are the cutting edge of the PLA.

- An actual-troop confrontation drill conducted by the Air Force, Army Aviation Force and Air Defense force under the Lanzhou MAC was held on 25 August 2012 in north-west China.[27] Air and ground troops tested 'information-based firepower integrated combat' and improved the 'actual-combat and information-based effectiveness of the air-defense force… in complex electromagnetic environment.'[28] Airplanes, helicopters and unmanned aerial vehicles (UAVs) were used to simulate multiple aerial targets, 'which has solved the problems of the single aerial target, slow flight speed and big difference from actual combat that had long existed in the training of the air-defense force, effectively enhancing the actual-combat effectiveness of the air-defense force.'[29] A similar exercise was held by a formation under the Xinjiang MAC which 'manoeuvred for nearly a thousand kilometers while closely cooperating with combat forces of more than ten services and arms including the army aviation force, special operation force and aviation force of the air force, successfully completing the actual-troop test drill of joint tactical corps in late autumn in a combined tactics training base at the foot of the Tianshan Mountains.'[30] Even the Tibet Military District (TMD) organized a joint exercise between a mountain infantry brigade and a division of the PLA Air Force (PLAAF), in which a joint three-dimensional attack was launched 'on a defensive enemy employing a joint coordinated air-ground offensive using fighter aircraft, armed helicopters from the air and an armoured assault supported by infantry, artillery, guided missiles.'[31] The exercise appears to have tested effects of high altitude and low temperatures on man and machine and validated joint training and joint operations on the Tibetan plateau between the PLAAF and PLA ground forces of the Chengdu MAC.[32]

These exercises, held at brigade/regiment levels have all been 'joint' exercises. They suggest that capability to manoeuvre over long distances in far-flung provinces of Xinjiang and Tibet have been validated, i.e. the process of 'mechanization' and 'integration' of various arms and services has been achieved to a significant measure at brigade and lower levels. However, 'joint' service capabilities continue to be under

validation. This is a major shift from the times when 'jointness' in the PLA only meant exercising simultaneously, albeit not necessarily together!

Development of Modern Logistics

The PLA has extended the Revolution in Military Affairs (RMA) to logistics as well. The key change is a shift from 'service specific' to 'integrated' logistics. Integrated logistics implies 'the integration of military services' logistics, civil-military compatibility, and the combination of wartime and peacetime functions to support mobilization.'[33] The plan is to develop combat logistics capability to enable sustained operations well beyond China's borders. In the Indian context, this has been ensured by carrying out a massive infrastructure development in Tibet and Xinjiang to enable it to support the logistics supply, transportation, stocking and distribution system. Recent extension of the Qinghai Tibet Railway (QTR) to Xigaze at a cost of $1.98 billion by 2014,[34] and extension of the 435 km long Lhasa-Nyingchi railway to the south-east will boost logistics supply to the areas opposite Arunachal Pradesh of India. This will be part of the $20.8 billion, 1,900 km long Sichuan-Lhasa railway which will be completed by 2018.[35] Reports of construction of dual runways in the Tibet Autonomous Region (TAR) will enable simultaneous use by fighter and transport aircraft enabling transportation of supplies, armaments and equipment by air.[36]

The PLA has established a three-tier logistic system based on joint logistics at General Logistics Department (GLD), War Zone and region-level logistics departments. The same was validated by Jinan Military Region (MR) as a pilot project in 2004 and the lessons learnt are being adopted by the PLA. Newer technologies like bar coding, Radio Frequency Identification (RFID), Commercial off-the-shelf (COTS), and outsourcing have been introduced. Non-military personnel have been increased from 12 per cent to 40 per cent and use of civil facilities like trucks for tank transportation has been envisioned.[37] Warehousing, inventory management and standardization is under implementation. As the PLA formalizes a new 'joint logistics system' that relies partly on civilian sourcing, we can expect to see more local governments involved in supporting exercises.[38]

Training of High-calibre Personnel

It was to the credit of Jiang Zemin that training of high-calibre personnel

commenced in the PLA. One of his 'Two Transformations' directives called for the PLA to 'transform from an army based on quantity to an army based on quality'.[39] Hu Jintao followed it up by launching the 'Strategic Project for Talented People' which aimed at 'develop(ing) command officers with the skills needed to lead "informationalized wars", staff officers with operational planning and force development skills, scientists and technical specialists and a cadre of NCOs with subject matter expertise in the employment of complex weaponry."[40]

At the macro level, the General Staff Department has created the Department of Training to oversee and monitor training including joint training at the GA level. The Training Department is also responsible for laying down the training policy, standards and modalities of training across the four services. There are also reports that suggest that 'Joint Training' desks have been established at MR and GA levels to coordinate joint manoeuvres and exercises.[41] The major challenge that the PLA faces is lack of combat and war experience in its junior and middle level leadership. The new guidelines issued on 1 January 2009 by the General Staff Department on the 'Outline of Military Training and Evaluation' focus on joint training with a view to enhance joint operation capability and specialized training as applicable to individual services and arms. Military operations other than war (MOOTW), increased proportion of informationization, and IT knowledge and expertise on simulators has been highlighted.[42] Realism in training by having a real time 'blue' force and live firing in an 'electromagnetic' environment has been implemented. According to a US report to Congress, the PLA is likely to adopt by 2020, an 'increased force-on-force training against dedicated opposing force units, adopting simulator use for training, developing automated command tools to aid command decisions, and increasing the education levels and science and technology training of PLA commanders and staff officers.'[43]

Each MR has its own training college where Non-commissioned Officers (NCOs) and officers undergo training at various levels and ranks. This is in addition to central training institutions which are directly controlled by the CMC. The PLA has the Academy of Military Sciences (AMS), the National Defense University (NDU), and the National University of Defense Technology (NUDT). The AMS is the PLA's highest-level research institute and centre of military sciences. The NDU is mainly responsible for the education and training of senior commanding and staff officers and researchers. The NUDT is mainly responsible for the education and training of senior

scientists and engineers, and specialized commanding officers. In 2012, we have seen two major exercises held in Jinan MR (Shijiazhuang Army Command College) and Nanjing MR (Nanjing, Jiangsu province) where in academicians, combat troops and scholars have sat together to jointly evolve, enforce and evaluate training and combat doctrines and strategies for the PLA in 'fighting under conditions of informationalization'.

In an attempt to recruit personnel with higher education levels, the PLA is offering a bonus of $3,500 to college graduates who volunteer to join the PLA. There has been a relaxation in height, weight and even 'ear piercings' and 'tattoos' to attract talent. Other sops include relaxation of conscription from four to two years, and benefits for veterans seeking advanced degrees, exemptions from postgraduate entrance exams and preferential hiring in public sector organizations.[44] There is even a direct recruitment programme for officers through the National Defense Students programme. The officer corps has a three-tier education system which offers technical bachelors, masters and doctorate degrees. NCOs are required to gain proficiency in one or more skills recognized by civilian community and the army.[45] The focus on NCO training has been emphasized by converting two officer academies to NCO training academies. The 'Strategic Project for Talented People' commenced in 2003 and was to be fully implemented in two decades. Dennis J. Blasko believes that the 'PLA recognizes it is only halfway through its two-decade' project.[46] *By 2020, the PLA should have largely achieved the aim of a technically educated and skilled military force capable of using complex weapons and fighting in an informationalized environment.*

Reorganization of Units and Creation of Institutions and Structures

The PLA is undergoing a major reorganization of its units. Divisions are being disbanded and replaced with brigades and regiments. The GAs have been divided into three types, based on terrain—GA for Mountains, Plains and Coastal terrain. Broadly, a standard GA comprises two divisions (these could be a combination of infantry/motorized divisions) and one armoured, one artillery, and one air-defence brigade along with the usual complement of logistic units. Certain GAs have additional engineer units/ mechanized units depending on the demands of the terrain. The latest Order of Battle (ORBAT) suggests that the process of re-organization is underway and a few GAs continue to have armoured/artillery divisions on ORBAT. These GAs are leaner, mechanized, possess heavier firepower and modern equipment. *With the phased induction of state-of-the-art*

equipment like Type 99 MBT [main battle tank] tanks, ZBD 05 armoured personnel carriers (APCs), PLZ-05 155 mm guns and multi-barrels rocket launchers over a period of time, the standard organization of GAs should be complete by 2020.

At the Divisional level, the standard Division has been replaced with Brigades. These are possibly a consequence of the tremendous success of the combat Stryker Brigades of the US Army in Iraq and Kuwait during the Gulf wars. Thus, Armoured/Mechanized divisions have been re-organized into two to three brigades each with three to four armoured battalions.[47] The mechanized brigades have a 4–4–3 configuration (four battalions–four companies–three platoons) with each company equipped with 13 APCs (four per platoon) supported by a tank battalion, an artillery battalion, an engineer battalion and a communication battalion. A armoured brigade has 132 MBTs in 4–3–3 (four battalions–three companies–three platoons) configuration with each armoured company having three tanks (three tanks per platoon) and a total of 33 to a battalion supported by a mechanized battalion, an artillery regiment, an engineer battalion and a communication battalion.[48] *The absence of a reconnaissance element in tank battalions and the integration of armour-mechanized troops at company level remain to be reconciled.* Meanwhile, the artillery support philosophy to these formations is also undergoing change, with a greater reliance on rocket artillery for massed fire support and heavier calibres for close support. Thus, we see standard artillery brigades (72 guns self-propelled/towed/motorized) being equipped with two rocket and two gun/howitzer battalions or a combination of 152 mm and 122 mm self-propelled battalions replacing the smaller 105/122 mm gun/howitzers in most GAs. *By 2020 combat arms would have been reorganized to fight as integrated battle groups at brigade level. Firepower would be augmented with heavier calibres, precision munitions and long range artillery and rocket and missiles.*

Major Equipment Induction by 2020

Space-based Assets (SBA)

According to a report titled 'China Annual Report 2011' prepared by the Observer Research Foundation, an Indian think tank covering China's Space programme: 'The [S]pace docking mission was accomplished in November 2011 has boosted China's confidence and has reflected China's ambition for dominance in the [S]pace arena. The docking was part of China's plans to establish a [S]pace lab by 2016 and to complete the

[S]pace station by 2020.'[49] China's Space programme is an ambitious programme which gives it a quantum jump in capability to exploit Space-based assets in improving Intelligence, Surveillance and Reconnaissance (ISR) capability, and its capability to use Space-based weapons and Space-based technologies to destroy and degrade the war waging potential of the adversary. It has an indigenous Global Positioning System (GPS) project underway comprising a 35-satellite constellation system of which 16 satellites are already in position. The report states: 'Beijing aims to cover the Asia-Pacific region by 2012 and the world by 2020, through its Beidou navigation system. [The] Beidou system is being designed to provide accurate, reliable all-time, all-weather positioning, navigation and timing services.'[50] Unlike GPS, which only relays signals, Beidou users are able to send messages to the system directly through their devices. Terminals can communicate with each other as easily as using a cell phone or fax machine. Beidou is backwards compatible: users can shift to GPS easily, thereby having inbuilt redundancy.

The PLA has a very comprehensive programme of Spaced-based assets to add value to its 'Command, Control, Communications, Computers, Intelligence, Surveillance and Recceconniasnce' (C4ISR) programme. China has invested heavily in Electro-optical (EO), Synthetic Aperture Radar (SAR), and electronic reconnaissance capability to monitor the Pacific and Indian Oceans. Four pairs of Shijian 6 ELINT [electronic intelligence] platfoms and 15 Yaogan series of remote sensing satellites provide guaranteed and continuous coverage of maritime and critical land-based targets for its anti-ship ballistic missle (ASBM)/anti-ship cruise missile (ASCM) network. This also integrates with eight Haiyang series of satellites for maritime surveillance, which monitor the country's ocean environment and maritime rights. 'The planned satellite launches, including four satellites observing the color of the sea, two observing ocean currents and two maritime radar satellites *before 2020*, have been approved by the National Development and Reform Commission (author's emphasis)', says Jiang Xingwei, director of the National Satellite Ocean Application Service.[51] *Thus by 2020, China will have a formidable C4ISR programme in place.*

Missile Systems

The recent test of the DF-41 missile on 24 July 2012 has given China a quantum leap in missile technology and capability. It is likely to be an inter-continental ballistic missile (ICBM) with a multiple integrated re-

entry vehicle (MIRV) capability that would pose a serious challenge to a 'missile shield' capability of an adversary as it would break up into more than one warhead when approaching the target area. With a range of 12,000 km, it would cover almost all parts of the globe. *By 2020 it could be expected to be fully integrated with the Second Artillery Corps (SAC) of the PLA.* The other missiles that China has developed is the DF-31(range 8,000 km), which is a new mobile-type ICBM with a solid propellant system mounted onto a Transporter Erector Launcher (TEL), and its extended version, the DF-31A (range 12,000 km). The missile can also be transported by rail or deployed in fixed silos. These have already been inducted in service. Its sea version, the submarine launched JL-2 (range 8,000 km), is believed to be mounted on the Jin (Type 094) class nuclear-powered ballistic missile submarines (SSBN), two of which are reported to be in service. *By 2020, these would be mounted on at least 4-5 SSBNs.*[52] The other successful programme is the ASBM strike system based on the DF-21 series of missiles. The DF-21D is the latest missile, test fired on land and likely to achieve a range of 1,860 miles or 3,000 kilometres.[53] It also has MIRV capability and its seaborne version is also called 'carrier killer'. *About 140 of these missiles are appreciated to be in service with the PLASAC by 2020.*[54]

PLAAF Programmes

Three major PLAAF programmes would have largely fructified by 2020, which need to be closely monitored by the Indian Air Force (IAF).

- The Stealth programme (J-20 and J-31): According to Chinese experts, *the J-20 is a fifth generation aircraft which is likely to enter service by 2017–19.*[55] J-20 squadrons along with J-11B and J-10 would form the backbone of the PLAAF in 2020. On 31 October 2012, the Shenyang J-31, also known as the Falcon Eagle, was unveiled to the public. It is also a fifth-generation fighter with a twin-engine, and a stealth design similar to that of the F-35. It is significantly smaller than the Chengdu J-20 and some experts opine that this may be stationed on the carriers in future.[56] The J-20 first flew in 2011 and is likely to take six to eight years to be fully operationalized in 2019. From the J-20 experience, it would be reasonable to conclude that the J-31 is still some time away from serial production and is *unlikely to be inducted in large numbers by 2020.*
- The Strategic airlift programme (Y-20 and CIC-919): The

200 tonne Y-20 would be placed somewhere between the 167 tonne Russian IL-76(47 tonne payload, 3,650 km) and the 265 tonne C-17 Globemaster (77 tonne payload, 4,400 km) with an estimated payload of 60 tonnes and endurance of up to 4,000 km. One American estimate is that it will be comparable to the US C-130 Hercules.[57] The C-919 COMAC (Commercial Airliner Corporation of China) is a 156 seater commercial liner with an operating range of 5,500 km and a life of 90,000 hours or 30 calendar years.[58] A report at the recent Farnborough Air Show suggests that 280 of the C-919 have already been ordered and the first of these will join the fleet in 2016.[59] Both these aircraft are likely to provide the basic platform for the PLAAFs strategic requirements like long-range re-fuellers, Airborne Warning and Control System (AWAC), heavy airlift for tanks/infantry combat vehicles (ICVs), long-range maritime surveillance and heavy bombers. *By 2020, 15 Airborne Corps, the strategic Rapid Reaction Force (RRF) would have developed the capability of being deployed within 48–72 hours anywhere in China and a fair capability of Out Of Area Contingency (OOAC) tasks around the globe.*

- The heavy and attack helicopter programme (WZ-10 and WZ-19): The WZ-10 is an attack helicopter in the US AH-64 Apache and Russian Mi-28 genre and was displayed in the Zhuhai Air Show in November 2012. The WZ-10 or 'Thunder Fire' would complement the anti-tank capability of frontline formations with its air-to-air and anti-tank missile capability.[60] The other helicopter unveiled was the WZ-19 'Black Tornado', which would be used for armed reconnaissance and scout duties. In the heavy lift category, the PLA has introduced the AVIC 313 helicopter which has a capacity of carrying 27 persons or 4 tonne payload. With a flight ceiling of 8,500 metres, the AVIC 313 is the PLA's answer to its woefully inadequate heli-lift and troop carriage capability in remote and inaccessible areas.[61] Two Aviation Regiments have already been reorganized into Aviation Brigades in GAs and other would also be raised by 2020.

PLAN Programmes

The PLAN programme would have achieved 'blue water' capability by 2020. The programmes that would have fructified by 2020 concerning the Indian Armed Forces are listed below.

- The Liaoning carrier battle group would be fully effective with all its complement of escort and combat ships and submarines. Chinese experts have opined that PLAN requires three to five aircraft carriers.[62] If the Liaoning experience is any guideline, then it will take China at least a decade to operationalize an indigenously constructed carrier. *At best China may be able to just put one more carrier to sea by 2020.*
- Naval aviation would receive a major fillip with adequate numbers of naval aviation J-15 squadrons in service on the aircraft carrier and coastal duties. The long-range maritime reconnaissance is likely to be based on the KJ-2000 platform, an AEW&C (Airborne Early Warning and Control) aircraft. The 4350-mile range High Altitude Long Endurance (HALE) UAV called Xianglong is currently undergoing trials and would be a major air and maritime reconnaissance source by 2020.
- The SSBN/SSN (nuclear attack/ballistic) submarine programme would have matured with an estimated capability of up to eight SSBN operating in PLAN by 2020. In addition to the two Jin Class Type 094 SSBN, there are reports that PLAN is aiming at building the Tang Class Type 096 SSBN—the numbers vary from two to six—by 2020.[63]
- For amphibious operations, the PLAN has increased its medium and heavy amphibious fleet from 50 to 87. Of these, about 30 are meant for operations in coastal waters. It has also inducted four large Landing Platform Dock (LPD), each capable of carrying up to a marine battalion, 20–25 armoured vehicles and medium lift helicopters.[64] A total of eight such ships are planned to be inducted in the PLAN. The large and medium landing ships can make the 100-plus nautical mile voyage (depending on the point of embarkation) from the mainland to Taiwan with ease, with a troop carrying capacity of approximately one division (12,000 troops).[65] In the near future, the induction of LPDs and other amphibious vessels will enhance China capability to put troops on island territories beyond Taiwan, especially in the South China Sea. *By 2020, should the PLAN have a base in the Indian Ocean, this capability would be available for amphibious operations in the Indian Ocean Region (IOR). In other words, the PLAN capability to operate in the Indian Ocean would be contingent on developing a base in the Indian Ocean by 2020.*

PLA Ground Forces Programmes

The bulk of the modernization budget has been consumed by the PLAAF, PLAN and PLASAC. Major programmes by Ground Forces which would concern the Indian Army are discussed below.

- The ZTZ Type 99 A2 is latest variant of the third-generation Type 99 series. With a 1,500 HP power pack, a 125 mm smooth bore gun and AT-11 Sniper anti-tank missile, a 12.7 mm anti-aircraft gun and Explosive Reactive Armour (ERA), it is comparable to the MIAI Abrams or the Leopard 2. It has an auto loader, capable of firing eight rounds a minute and penetrating 950 mm of steel at 2,000 metres. The missile has a range of 5 km. The on-board ballistic computer, laser range-finder, thermal barrel sleeve, wind sensor and muzzle reference system give the tank fire accuracy. It is fitted with GPS and has both VHF and HF communications.[66] *The tank should be in service in large numbers in 2020 including with formations on the Tibetan Plateau.*
- Secure, seamless and guaranteed satellite-based communications with back-up and real-time data transmission down to battalion level**.** *This is yet to be achieved fully at the battalion level, as evident from exercises conducted, and is likely to be completed by 2020.* However, battalions of RRFs and Special Forces are known to have achieved this capability.
- Regarding artillery, the PLA has recently produced the 155 mm PLZ 05 52 calibre self-propelled howitzer, capable of firing the entire range of modern munitions including precision guided munitions up to an extended range of 50 km. Equipped with a 520 HP power pack and an auto loader, it fires eight rounds per minute. It is likely to replace the aging type 83 SPH in mechanized formations.[67] The other new equipment in the PLA artillery is the motorized PLA's type PCL-09 122 mm self-propelled howitzer. Unveiled in 2010 to go abroad to participate in the Shanghai Cooperation Organization (SCO) joint military exercise, the PCL-09's style, design and ideas are similar to the French 'Caesar' howitzer and Sweden 'Archers' wheeled chassis self-propelled howitzer. Both have excellent mobility to keep up with mechanized formations. *These two new artillery systems will be the backbone of future mechanized artillery brigades of the PLA.*

Conclusion

The significance of 2020 as a major timeline in China's modernization programme must be realized. Directives emanating from the highest policy-makers in China are sacrosanct. The entire Party organization, military-industrial complex, the military training directives and the military logistics support systems of the PLA will synergise to comply with these directives. Finances are unlikely to be a constraint—the delay, if any, would be due to the adoption of high-end technological skills, plant and machinery. The Chinese modernization programme aims at matching capabilities of the US by 2050. The Indian Army needs to be fully prepared to match up to the challenge which the PLA will pose by 2020. Adequate budgetary allocations to maintain the tempo of building deterrence must be ensured. One report suggests that by 2018 the budgetary gap would exceed $ 1 trillion between India and China, leaving India far behind in capability and capacity building of its armed forces.[68] This requires immediate attention. The other issue is encouraging indigenization of defence production and building a vibrant military-industrial complex in India. China is likely to achieve 80 per cent indigenization by 2020 while India would still be importing 70 per cent of its equipment at two to three times the actual cost.[69] The US-China Economic and Security Commission's report of April 2012 was candid in accepting that '[the] process of modernizing its armed forces [i.e., the PLA] has involved the development of indigenously designed weapons systems—some of which appeared to undergo a process of development, procurement, and/or deployment *that outpaced the estimates of U.S. and other foreign observers* [author's emphasis].' The report adds: 'Furthermore, US observers *should not take at face value statements from the Chinese government on military policy, as they could either be deceptive, or simply issued by agencies (e.g., the PRC Ministry of Foreign Affairs) that have no real say over military matters* [author's emphasis].' The report concluded that 'US analysts and policymakers should expect to *see continued advancements in the ability of the PRC to produce modern weapons platforms, and an attendant increase in the operational capabilities of the People's Liberation Army* [author's emphasis].'[70] The Indian Army could take a leaf out of this report while analysing and assessing the PLA capability and capacity to wage war by 2020.

Notes

1. Hu Jintao, former general secretary of the Central Committee of the CPC and Chinese president, delivered a keynote report during the opening ceremony of the 18th CPC National Congress at the Great Hall of the People in Beijing on 8 November, 2012. See 'Full text of Hu Jintao's report at 18th Party Congress', available at http://news.xinhuanet.com/english/special/18cpcnc/2012-11/17/c_131981259.htm, accessed on 27 November 2012.
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