RMA WITH CHINESE CHARACTERISTICS

VINOD ANAND

The revolution in military affairs (RMA) is not only important for the military, it is also a political and strategic tool for the global and regional security policies of the future. It is a metaphor for the politico- military establishments of the countries to prepare for the likely wars and conflicts of the future. The term acquired a certain salience of its own in the 1990s based on the use of high technology exhibited by the US armed forces, and the concepts, practices and doctrines propounded by them, leading to their victory in Operation Desert Storm of 1991 in Iraq, and the successes thereafter in Serbia and Kosovo. Operation Iraqi Freedom of 2003 and Operation Enduring Freedom in Afghanistan provided the impetus for learning about, and catching up with, the RMA.

Both the Chinese and Indian militaries have embarked upon the path of ushering in of the RMA into their respective armed forces after having witnessed the impact of the tools of technology on the conduct of warfare in recent US campaigns. There have been many studies and analyses which have forecast that the 21st century would be an Asian century, dominated by the two major growing economies of Asia i.e. China and India. According to one forecast, their rates of growth are such that China is likely to become the second pole of the bipolar world by the end of the second quarter of this century, and India would be the third pole, albeit the weakest of the poles, of a tripolar world later in this century. It is expected that their economies would release enough resources for the modernisation of their militaries without neglecting development in other

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areas of national endeavour. It is quite evident that a strong economy growing at a steady pace would sustain the momentum of the RMA. Acquisition of strategic and niche technologies, evolving innovative concepts to use new technologies, managing people and organisations to the get best value and worth from the resources would always be a challenge in moving towards the RMA in the both Indian and Chinese militaries. The study of how the People's Liberation Army (PLA) is adopting and adapting to the RMA becomes very important to India as China remains our principal challenger. Also, we can develop important perspectives from the Chinese model which would assist us in adopting a more focussed approach, based on our national security objectives and goals.

MOTIVATORS OF THE RMA

The drivers of the RMA in China, as in the case of other countries, emanate from its national security concerns and strategic ambitions. Ostensibly, the primary concern of China is unification of Taiwan and as a corollary, the PLA's need to deter US intervention in aid of Taiwan. The passage of the Anti-Secession Bill in China also highlights the willingness of China in using force to prevent Taiwan from declaring independence. However, it has generally been recognised that the PLA is acquiring capabilities which are much more than what are justifiably required for the Taiwan scenario. As China's economy grows, so too will its security interests and the need for building a modern military capable of protecting these interests. China as a major world power cannot base its military modernisation purely on considerations of likely conflicts on its borders or in the South China Sea[1]. Its growing hunger for energy and other resources for fuelling its surging economy also leads China towards securing its sea lines of communication (SLOC). Thus, acquiring power projection capabilities beyond its borders, shores and peripheral areas has been a key driver for the PLA to pursue the RMA.

Chinese leaders also speak of forming a "Greater Neighbouring Region" that would replace US leadership in Asia (this concept can be compared to

1. You ji, "Learning and Catching Up: China's RMA Initiative," at www.jciss.llnl.gov/IT_RMA/You_Ji_Final.pdf

the erstwhile Japanese concept of "Greater East Asia Co-Prosperity Sphere"). The Chinese strategic objectives are to achieve "regional military ascendancy" and extra-regional influence[2]. It also needs to be noted that whatever military capabilities the PLA acquires for its oft-stated goal of unification of Taiwan can easily be redirected against its neighbours.

The Defence White Paper of 2004 identifies the technology gap resulting from the RMA as a "development that will have a major impact on China's security." The fundamental goal of China's National Defence Policy is "to modernize China's national defense in line with both the national conditions of China and the trend of military development in the world by adhering to the policy of coordinating military and economic development, and improve the operational capabilities of self-defense under the conditions of informationalization."[3] The PLA has, therefore, come to the conclusion that its technology gap with the US military and other modern militaries of the world needs to be plugged with speed. China is laying increased emphasis on asymmetric, non-linear and "leap-ahead" technologies and wants to "build a strong military by means of science and technology." While articulating its defence policy, China has stressed that it wants "to adapt itself in the international strategic situation and national security environment and rise to the challenges presented by RMA worldwide." Thus, catching up with the modern militaries of its potential adversaries becomes a key factor in pursuing the RMA. The political and military leadership has embraced the RMA after a great deal of discussion and internal debate and after absorbing the continuous changes taking place in the strategic environment and military arena.

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2. Richard Fisher, "China's Military Power: An Assessment from Open Sources," Testimony before the Armed Services Committee of the US House of Representatives, July 27, 2005.
3. China's National Defence in 2004, at www.english.people.com.cn/whitepaper/defense 2004 .

CHINESE APPROACHES TO THE RMA

The roots of the present RMA in the PLA can be traced to the political direction given by Deng Hsiao Ping in 1979 when he put China on the path of four modernisations. Industry, agriculture, science and technology, and defence were the four areas of the modernisation programme of China. Deng and other political leaders felt that possibilities of war had reduced and China had improved its security environment by playing a triangular game with America and Soviet Russia. Thus, greater emphasis was to be laid on economic reconstruction in the 1980s and 1990s which would also enable China to move towards defence modernisation.

The Western concepts of the RMA are not subscribed in toto by either the political or the military leadership.

The Western concepts of the RMA are not subscribed to in toto by either the political or the military leadership. These concepts have been modified to suit the local conditions. There are three schools of thoughts on how to proceed on the modernisation of the PLA. The first school consists of those (especially the old guard) who continue to subscribe to the notions of people's war (PW) in almost all spheres of military activity. They cite the US defeat in Vietnam and the Soviet Union's defeat in Afghanistan as examples of the strength of the PW concept. PW under modern conditions was a product of this school and evolved in the 1970s when China was facing a military threat from Soviet Russia. However, some of them are realising that PW in the information age may not be able to do much under the changed circumstances, for instance, in the case of non-contact long distance surgical air strikes or missile strikes. Their influence could also be seen in the practice of the PW concept in the context of information warfare. Even in China's Defence White Paper 2004, it is mentioned that the *"PLA adheres to the people's war concept and develops the strategies and tactics of the people's war."* However, the strength of this school has been reducing.[4]

The majority of PLA generals belong to the second school of thought who believe in the tenets of high-tech warfare and adopting the RMA with Chinese

4. You Ji, n. 1.

characteristics. The concept of limited war under high-tech conditions was evolved after learning lessons from Operation Desert Storm. The PLA officers from this school have been in key positions since the mid-Nineties. They believe that even though China does not have a solid technological foundation for ushering in the RMA at present, it would be able to achieve it by 2020.[5] In the meanwhile, therefore, the PLA would be a hybrid of industrial-age military with some elements being RMA enabled. This school gives priority to developing the special services, air force, navy and strategic rocket forces. The PLA envisions a gradual transition from mechanisation and semi-mechanisation to informationalisation. Mechanisation is considered as the foundation to promote informationalisation and informationalisation as the driving force to bring forward mechanisation. However, creating digital divisions and constructing the digital battlefield at present is not considered relevant to China's needs. China's current National Defence Strategy is driven by this school of thought.

The objective of the RMA is to strengthen the air force, navy and second artillery force to improve their strategic reach and power projection capabilities.

The third school consists of pure RMA advocates. Mostly, these are young officers, war planners in HQ of the PLA's Special Services and academic staff in educational institutions. The future development of the RMA may be guided by this group.[6] The Defence White Paper of 2004 largely bears the stamp of the second school, but its replacement of the term "fighting limited wars under high-tech conditions" which had been in force for a decade by the new doctrine of fighting "local wars under informationalised conditions" also connotes the influence of the third school.

KEY OBJECTIVES OF THE RMA

The PLA's RMA with Chinese characteristics has nine distinct components with further sub-sets. The first and foremost objective is to downsize the PLA and

5. Ibid.
6. Ibid.

improve its quality; the second objective of the RMA is to strengthen the air force, navy and second artillery force to improve their strategic reach and power projection capabilities. The third key objective is speeding up of "informationalisation" with a view to move the PLA towards becoming a knowledge age force. The other six objectives of the RMA are:

- Accelerating the modernisation of weaponry and equipment.
- Improving the quality of military personnel to meet the needs of knowledge age warfare.
- Enhancing joint operational and joint training capabilities.
- Speeding up of logistics reforms.
- Stressing on the importance of political work's contribution to combat function.
- Governing the armed forces according to the law.

In the latest round of downsizing, China has decided to further reduce its armed forces strength by 200,000 personnel which was to be put into effect by end 2005. Since the mid-Eighties, China has reduced the PLA's strength twice by a total of 1.5 million. At the end of 2005, the PLA's strength was expected to be 2.3 million. It is evident that quantitative downsizing is expected to release adequate resources for upgradation of the PLA's force structure. One of the key benefits of the RMA is that it enables reduction in manpower without affecting the combat efficiency. The PLA aims at optimising the ratio between officers and men by reducing officers in deputy positions, improving the system of leadership and command, and adopting a system of civilian employees. The PLA is also cutting down the numbers in its logistics organisations and realigning the organisational structure of its military education system so that more functions can be outsourced to civilian entities. The ultimate objective is to transform the PLA from a manpower-intensive to a technology-intensive force.

While the army reduces the ordinary troops that are technologically backward, the navy, air force and second artillery force and special forces are being strengthened. The force structure is increasingly being optimised with a greater proportion of "new and high-tech units."[7] The importance attached to the

7. n. 3.

development of the air force, navy and second rocket artillery can be judged from the fact that their commanders were made members the Central Military Commission (CMC) when its membership was expanded from eight to eleven. Besides the army, information age wars are going to significantly impact the navy, air force and strategic rocket forces which would require a greater number of elements of command, control, communications, computers, intelligence surveillance, reconnaissance (C^4ISR), precision systems and networked platforms if they are to exercise deterrence and coercive power along with enhanced power projection capabilities. The current objective, therefore, is to create a modern military force — about 15 per cent of the PLA — which is able to conduct operations in high-tech as well as "informationalized" conditions.[8] The PLA is seeking to enhance its offensive capabilities in concert with its strategy of active defence by forming technologically advanced and more mobile elite brigade and battalion level rapid reaction forces (RRF) which can fight and win local wars under conditions of informationalisation[9]. These elite forces have also been referred to as "Pockets of Excellence."

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The PLA is focussing on "balanced development in combat force structure, in order to strengthen the capabilities for winning both command of sea and command of air and conducting strategic counter-strikes."[10] Both the navy and air force are working towards increasing their long range precision capabilities, acquiring modern platforms and improving their joint operational capabilities in concert with the ground forces. The Defence White Paper 2004 highlights the role of the navy by stating, "The Navy has expanded the space and extended the depth of offensive and defensive operations. Preparing the maritime battlefield is intensified and improved, while the integrated combat capabilities enhanced in conducting off shore campaigns, and the capability of nuclear counter-attack

8. Robert Marquand, "Chinese Build a High-Tech Army Within an Army," *Christian Science Monitor*, November 17, 2005.
9. Xinhui, "Brigade Reforms and Recent PLA Developments," at www.chinadefense.com .
10. n. 3.

enhanced." While the navy's aim is to break away from the "first island channel," the air force has gradually shifted from its preoccupation with territorial air defence to a concept of offensive and defensive operations based on the lessons learnt from US campaigns. The overall stress is on information operations, anti-missile weaponry and automated command and control systems. Electronic warfare (EW), reconnaissance and strategic mobility are niche capabilities which are being improved upon. The overall aim is to build an "air force which is appropriate in size, sound in organizational structure and advanced in weaponry and equipment and which possesses integrated and complete array of information support and operational means."

For the special rocket forces (SRF), upgradation in research and development (R&D) of missiles, improvements in precision capabilities and improvements in command and control systems are considered essential in deterring the adversary from using nuclear weapons against China. The White Paper observes, "More than 70% of its active-duty officers have bachelor's degrees or above. High-tech means are used to reform its training and shorten the cycle for new weaponry and equipment to be combat-ready. It conducts missile-launching training and readiness exercises in near-real conditions and constantly enhances its quick-response and precision-strike capabilities."

The PLA's current process of upgrading its quality has been based on the lessons it learnt from Operation Iraqi Freedom (OIF). The PLA observed how an agile and nimble force with high-tech weapons, supported by the air force and navy, can overcome an industrial age military. The PLA's understanding of the Iraq War is reflected in a paper written by its Deputy Chief of General Staff Xiong Guangkai a little after the termination of the war campaign in May 2003. He observed that use of high ratio of precision weapons, satellites for intelligence and weapon guidance were instrumental in the US attaining victory. Joint warfare and integrated operations were the keys to success. He further observed that information technology (IT) was a leading factor in the general trend of new military changes and the PLA should learn lessons and adopt them according to Chinese conditions.

Thus, the PLA's understanding of the new kind of warfare has led it to move towards speeding up of its "informationalisation" process. This process is

proceeding simultaneously with mechanisation which is as yet not complete, and to hasten up mechanisation, the tools of IT are being used. The PLA is focussing on military information systems, automated command systems, informationalised main battle systems, development of information structure in a comprehensive manner and introduction of IT in the armed forces in a major way. In order to strengthen the capability to win local wars under informationalised conditions, the PLA and political leaders have guaranteed their support for development of IT infrastructure.[11]

The PLA also regards "weaponry and equipment as the crucial material and technological basis for pushing forward the RMA with Chinese characteristics." Modernisation of weaponry and equipment would necessarily have to be coordinated with national economic development and technological advances. The aim is to achieve "composite and leapfrog development." Towards this objective, the PLA is seeking to field new weapon systems which Jiang Zemin in the mid-Nineties had referred to as "*shaoshaojian*" or assassin's mace or magic or silver bullet weapons. Some examples of these weapons are a manoeuvring ballistic missile designed to target naval forces and high power microwave weapons that use electro-magnetic pulse (EMP) to disable electronic defences of the targeted platform/area.[12]

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The PLA plans to intensify R&D efforts, strengthen its innovative capabilities through self-reliance, with special emphasis on new informationalised combat platforms, precision-guided munitions (PGMs) and electronic counter-measures equipment. Some of the existing equipment is also to be modified and reconfigured by embedding IT elements to improve their functioning.

11. Ibid.
12. For instance, see detailed critique of China's naval capabilities in CRS Report for Congress, November 18, 2005, authored by Ronald O'Rourke, "China's Naval Modernization: Implications for US naval Capabilities-Background and Issues for Congress."

EVOLVING JOINT CAPABILITIES

Both the Gulf War and Iraq War and other recent US campaigns have given an impetus to the precepts of jointmanship in the PLA where the other Services were treated only as adjuncts of the army because of historical reasons and the inward nature of the PLA's security doctrine. Though the other Services are still dominated by the ground forces, increasingly in both budgetary allotments and introduction of new technologies, and in both hardware and software, the air force, navy and SRF are receiving major attention. In the last five years, the PLA has carried out over 15 joint training exercises involving all the Services. In an exercise held in August 2005, the Chinese armed forces carried out joint and combined exercises with the Russians involving the army, air force, navy, marines, and para-forces along with live firing to test the levels of joint training and interoperability. The special services have also been upgraded to function both independently and as a part of a team supporting joint operations. The exercises also showcased the PLA's expanding amphibious and airborne capabilities which are essential components of power projection.

The PLA has understood that success of its concept of War Zone Campaign (WZC) combined with its strategy of active defence depends upon achieving a high level of joint capabilities. WZC aims at the use of "elite and sharp arms" to be inserted behind enemy lines and seizing important ground to make a political statement (gaining initiative by striking first remains the essential lynchpin of its active defence strategy). If political objectives are achieved, then the forces are withdrawn, otherwise a quick battle is to be fought to force a quick resolution. WZC is likely to be conducted at an intermediate level between the theatre and operational levels. It would be a joint and integrated campaign conducted under joint HQs with support from the Military Regions. At some level, WZC which involves the use of rapid reaction forces (RRF), can be compared with our new "cold start doctrine" which aims at achieving allotted mission in a short span of time with Integrated Battle Groups. Both concepts are greatly dependent upon ushering in elements of the RMA and the practice of a high level of jointmanship.

An integrated military training network has been also put into place to interconnect the LANs of military area commands, Services and arms and other elements of the Services to foster jointness. Increased emphasis is being placed on training commanders for joint operations.

REVOLUTION IN MILITARY LOGISTICS

Logistics reforms have been undertaken by the PLA to create an integrated tri-Service support system. All in-theatre logistics facilities such as rear depots, hospitals, recuperation centres and other supply and maintenance facilities have been transferred to the joint logistics system for unified and integrated management. The Theatre Joint Logistics Department or Joint Logistics Department of Military Area Command, originally called Logistics Department of Military Area Command, has been made responsible for joint logistical support for all in-theatre units of the three Services. The percentage of non-army cadres in this department has risen from 12 to 45 per cent. The first joint logistics unit was fielded in July 2004 in the Jinan theatre[13].

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The PLA is also integrating the civil sector with the military procurement system to benefit from synergies thus achieved. This is being considered as "a modern adaptation of People's War."[14] A large number of logistical functions are being increasingly outsourced to the civil sector and common dual-use items are being procured from the market at lower costs. This includes extending of the medical support system and greater reliance on the civil sector. In April 2004, the Fourth Beijing International Exhibition on Military Logistical Equipment and Technology was held which showcased technological advances made and new equipment designed in the field of logistics.

13. Pentagon's Annual Report to Congress on "The Military Power of People's Republic of China 2005."
14. Ibid.

KNOWLEDGEABLE PERSONNEL FOR KNOWLEDGE AGE WARS

Improving the quality of its personnel through both education and training continues to be the focus of attention of the PLA for winning wars under conditions of informationalisation. In August 2003, the PLA launched a Strategic Project for Talented People with the objective of creating a force, in the next one to two decades, which would have the following kind of personnel:

(a) A contingent of command officers capable of directing informationalised wars and of building informationalised armed forces.

(b) A contingent of staff officers proficient in planning armed forces building and military operations.

(c) A contingent of scientists capable of planning and organising the innovative development of weaponry and equipment and the exploration of key technologies.

(d) A contingent of technical specialists with thorough knowledge of new- and high-tech weaponry performance.

(e) A contingent of non-commissioned officers (NCOs) with expertise in using weapons and equipment at hand.[15]

The professional military education, training and education at civil institutes of higher levels of learning are being geared up to achieve the above objectives. Here again, the aim is to create a force which is well conversant with new technologies and which has special abilities and skills to deal with knowledge-age warfare. The PLA's current officer corps is quite different from the past, since 90 per cent have higher education qualifications, 20,000 officers have Masters degrees and 4,000 have Doctoral degrees. But over half of them are in non-military and non-technological areas. Only 20 per cent of PLA officers graduate from tertiary institutions of science and technology[16]. There are large numbers of enlisted personnel who cannot handle computers or high-tech

The professional military education, training and education at civil institutes of higher levels of learning are being geared up.

15. n. 3.
16. You Ji, n.1.

equipment. With the implementation of the Strategic Project for Talented People, both officers and enlisted personnel are expected to be RMA ready in two stages which would be completed by 2010 and 2020 respectively.

Military academies and schools have also undergone a spate of reforms and restructuring in recent years. They have assumed a more important role in professional development with the aim of creating a better educated and technologically skilled force. Reforms in training and education have constituted an important part of the military modernisation programme since the 1980s. Improving the military skills and raising the education levels of both officers and troops were necessary prerequisites for the utilisation of more advanced weaponry and the conduct of joint and combined-arms operations. The PLA leadership focussed on educational reforms in the military academy system and altered training to emphasise the officer corps, mechanised warfare, and combined arms operations.

The core institutions to assist the military leadership in developing new theories and doctrines are the Academy of Military Sciences (AMS) and National Defence University (NDU) in Beijing. The AMS and NDU are not only the primary sources for new tactics and doctrines based on RMA concepts, they also assist the military leadership in their implementation. As a consequence of the above changes, and in order to train the middle level leadership to adapt itself to changing doctrinal thought, all officers above the regimental level have to pass the curriculum requirement at the NDU. Member of the Secretariat of the Central Committee of the CPC, Member of the Central Military Commission and Director of the General Political Department of the PLA, Xu Caihou, while speaking at NDU, observed, "Boosting the military changes with Chinese characteristics, constructing an informationized army, winning informationized war all depended on talents. 'Programme on Implementing the Talents Strategy Project in the Army'..... the objectives of these measures were to cultivate a great deal of talent and improve the quality of them to provide organizational guarantee for military changes with Chinese characteristics."[17]

17. "Xu has Discussion with National Defense Students," Report in *PLA Daily*, October 22, 2003, http://english.chinamil.com.cn/site2/ militarydatabase/2004-09/23/content_22805.htm

RMA, CHINA'S DEFENCE INDUSTRY AND R&D

The emphasis on R&D can be seen from the fact that defence related R&D expenditure has been growing at the rate of 20 per cent annually while in the US, the growth has been 6 per cent and in Japan and Europe, it has been 5 per cent. Projections up to 2015 forecast a more modest rate of 15 per cent per year. There are two major sources of funding for R&D; the Five-Year Plans and National Defence Funding programmes. Though there are eight national defence programmes which are active, the most notable are the National Defence 863 Programme and National Defence 973 (the programme currently includes about 60 projects in the fields of mathematics, life sciences, information science, material science, energy and the environment).[18]

At the strategic level, the 863 Programme is focussed on seven main research fields: biotechnology, aerospace, information technology, lasers, automation technology, energy technology, and new materials. This is the most critical national defence programme and was propelled by Chinese political leaders and scientists with the following understanding[19]:

- Technology is the key to rapid economic development.
- China's quest to become a world power required that it build its own high technology base.
- The essential nature of technology had changed during the 1970s and China had missed the change.
- China must quickly adjust its technology base to conform to these changed realities or risk permanent second-rate status, behind Japan and the West.

In the IT sector, which is fuelling the RMA in a major way, China has made rapid strides backed by state R&D funding and national laboratories; instead of merely importing Western technology, it is co-developing with foreign firms and even developing indigenously near state-of-the-art technology. The PLA thus, has been provided access to cutting edge technologies, imparting an impetus to the C⁴ISR revolution in the armed forces. This is a great leap forward from the

18. Deh-I Hsiung, "An Evaluation of China's Science and Technology System and its Impact on Research Community," available at http://www.usembassy-china.org.cn/sandt/ST-Report.doc.
19. Evan S. Mederios *et. al*, "A New Direction for China's Defense Industry," p.231, a RAND Project document of 2005, at www.rand.org .

days of the 1979 Vietnam War when inadequate communications played a major role in heavy losses incurred by the PLA. A model, termed as the Digital Triangle, has been evolved wherein state R&D infrastructure, guided by techno-nationalist development strategy, combined with vibrancy of the commercial sector meets the requirements of the military. Neither the military requirements nor the commercial imperatives are lost sight of.

There has been resistance to changes in command and control structures, and restructuring of forces, with the old guard feeling that they would lose their power and clout.

The missiles, shipbuilding, space and military aviation sectors are the other areas which have received considerable attention. All these sectors are important for acquiring power projection capabilities and for ushering in the RMA with Chinese characteristics.

OBSTACLES AND CONSTRAINTS TO THE PROGRESS OF THE RMA

Transforming an industrial age PLA which has not even completed its process of mechanisation, to a knowledge age force is not an easy task even though there might be political direction, support and guidance from the top echelons of the hierarchy. There are systemic constraints, bureaucratic barriers and vested interests which impact the process of the RMA, like reorganisation of force structure and weapon system development and induction. Some systemic constraints are related to China's political and social system. It is generally recognised that an open society is more conducive to becoming a knowledge age society rather than a closed and authoritarian system.[20]

There has also been resistance to changes in command and control structures, and restructuring of forces, with the old guard feeling that they would lose their power and clout; this was the case when the number of Military Regions was reduced. Dr. You Ji, a China analyst, is of the view that the resistance is strong among the ground forces (which have been axed the maximum) and the debate has not ended as yet.

20. For instance, see You ji, n. 1.

Realisation of the RMA gets further delayed by China's weak technological foundation compared to the US and the West, in spite of advances in many fields. It would take considerable time for China to close the gaps and achieve meaningful capabilities in the space, real-time command, control, surveillance and reconnaissance arenas.

The PLA's long range targeting and precision strike capabilities are as yet inadequate.[21] Even though China has emerged as a major manufacturing hub, its weaknesses in producing hi-tech equipment for the military are well-known. For instance, it is still struggling with producing an indigenous fourth generation fighter aircraft; even the major components like the engine have to be imported. It does not have integrated air defence systems or sophisticated naval ships. For a real RMA to occur on a sustainable basis, China has to have sophisticated military and civil technologies and quality hardware for the PLA.

To remove an old and ingrained idea from the military mind is a difficult task.

Building a knowledge age force requires large amounts of funds and even though China is focussed on military modernisation, the funds for modernisation cannot be unlimited. The availability of funds, thus, impacts the speed of informationalisation in the PLA. The RMA, a priority for the military, cannot be a top priority for the political leadership due to other competing requirements of the civil sector.[22]

Though the PLA has embarked upon inducting quality personnel into its armed forces, a large majority of its personnel still lack the qualifications and training necessary for not only a knowledge age force but also for a fully developed industrial age force. The majority of enlisted personnel are computer illiterate and have inadequate basic education. Increasing the percentage of technically qualified men and computer literates who can handle hi-tech equipment would take time.

It is a well recognised fact that to remove an old and ingrained idea from the military mind is a difficult task. The concept that the tactics and notions of people's

21. n. 12.

22. For a detailed study of constraints on military modernisation in China, see Keith Crane *et. al*, "Modernizing China's Military: Opportunities and Constraints," 2005, a RAND Study available at www.rand .org .

war are more important than technology and advanced military hardware weighs heavily with many officers and men of the PLA. This mindset becomes a hindrance towards adopting a flexible approach to the new kind of warfare, new concepts and technologies. Defeating superior with inferior stratagems and tactics is a recurring theme in Chinese military writings. This may not be applicable in the non-contact and long range precision warfare of the information age.

However, the PLA is in the nascent stage of the RMA and may be able to overcome a large number of these problems in the next two decades or so when China's political, social and economic systems grow.

FUTURE DIRECTION OF THE RMA WITH CHINESE CHARACTERISTICS

There is a general consensus in the vision of Chinese leaders that when the People's Republic of China celebrates its hundredth anniversary in 2049, both economic and military power should be at the levels of the developed countries. After having reviewed the Western experience in the RMA, the political and military leaders have surmised that it may take anything from 30 to 40 years to build an informationalised force. In the March 2005 session of the National People's Congress, it was noted that the PLA will implement modernisation in two stages and three major steps. In the first stage (2005-2020), the PLA would work at completing mechanisation and intensifying informationalisation. In the second stage (2020-2050), the PLA will basically complete informationalisation and national defence modernisation. The central principle driving the modernisation of national defence is reliance on science and technology.[23]

In the three-step strategy, the PLA plans to develop new hi-tech weapons for deterrence as well as for fighting wars under hi-tech conditions (replaced by informationalisation in 2004) by around 2010 as a first step. In step two, China plans to accelerate qualitative improvement of weapon systems and further streamline the organisational structures of the PLA by 2020. The PLA is expected to be a "force tooled for sustainable regional force projection." And it would definitely be a more professional force with a relatively small core of highly trained and suitably

23. Mary C. FitzGerald, "China's Evolving Juggernaut" in *China's New Great Leap Forward, High Technology and Military Power*, a Hudson Institute publication of 2005 at www.hudson.org .

equipped units that will make the PLA one of the premier regional military forces in Asia by 2020[24]. The third step is to race for completing informationalisation and national defence modernisation by 2050. A leaps and bounds strategy is an essential facet of development where stages of research and development could be merged or skipped in order to hasten progress.[25]

One factor which clearly differentiates the RMA in India and China is the lack of political direction or involvement of Indian polity in guiding defence policy.

All the components of the PLA have future plans to achieve RMA capabilities in the above mentioned three stages as part of China's overall plan to build comprehensive national power and acquire a dominant global role by 2050. By 2010, China's economy is expected to double as compared to 2000. China's economy will expand to $ 4.8 trillion in 2020 and to $ 6.4 trillion by 2025. If a proportion of defence expenditure as a percentage of gross domestic product (GDP) remains constant, China's defence budget could rise three-fold or more by 2025.[26] Thus, the RMA would increasingly become more affordable in the future. However, the strengths and weaknesses of China, as mentioned earlier, and its social and political stability, along with sustained technological advances, would greatly dictate the pace and direction of the RMA.

IMPLICATIONS FOR INDIA

One factor which clearly differentiates the RMA in India and China is the lack of political direction or involvement of Indian polity in guiding defence policy. Most of the formulation of defence planning is left to the defence forces and, thus, the commitment of the political leadership to long-term and medium-term budgetary support remains diffused. Thus, modernisation or transformation of the armed forces occurs in fit and starts and because of lack of any meaningful joint mechanisms, the development of different Services and branches of the armed forces at times also becomes skewed.

24. David M. Finkelstein, "The Chinese People's Liberation Army in 2020," NIC, 2020 Project. Paper presented to the conference on "The Changing Nature of Warfare- Global Trends-2020," May 26, 2004.
25. Ibid.
26. See n. 11.

The defence policy guidance has to flow out of the National Security Strategy which lays down long-term challenges to India, and a holistic defence policy perspective would alone provide focus for the RMA in our armed forces. The development of critical technologies and associated concepts and doctrines would help us in acquiring power projection capabilities and gaining advantage over our potential adversaries. Development of critical technologies and of a civil-military/defence industrial sector is a basic condition for the RMA to occur. In the short to medium-term, it may be necessary to import certain cutting edge or niche technologies but in the long-term and beyond, it would be necessary to indigenously develop state-of-the-art technologies and weapon systems.

Force structuring and technical development are critical to building of a modern military force; and the model to be adopted should suit the local conditions and also be reflective of our security threats and concerns. Technology intensive armed forces rather than manpower intensive armed forces are the *leitmotif* of an RMA enabled organisation. Even though there are constraints in moving towards a right-sized force because of our internal security concerns, the RMA mandates that we evolve a lean and professional force. We could follow the Chinese example of creating a small number of highly flexible forces for use in regional contingencies (the Chinese call such forces Pockets of Excellence). A lean and well balanced force backed by elements of information warfare (IW) and electronic warfare (EW) would be better able to deal with the proxy war and cross-border terrorism being waged by Pakistan. Similarly, on our northern borders, well balanced joint battle groups which are RMA enabled would be better able to contest the PLA's RRF/units which are likely to be ready to fight local wars under conditions of informationalisation. The second component would be a large number of standing and reserve forces equipped with low to medium technology which, over a planned period of time, would move towards modernisation and eventually would enter the information age. Above all, we would need to induct knowledgeable personnel, i.e. qualified people with a technical bent of mind to fight knowledge age wars.

As C⁴ISR is the core of the RMA, we need to pay more attention to acquiring capabilities in the sphere of IW, surveillance and reconnaissance and space support. Space-based assets need to be developed for providing communication,

navigation, guidance and ISR capabilities in support of our surface forces, air force and strategic forces. Robust capabilities of C⁴ISR would also help us in integrating our operational capabilities.

We are as yet far from evolving joint and integrated capabilities. There is a need to work with speed in putting into place joint and integrated networks and evolving joint capabilities to address our security concerns. Attaining high levels of jointness is a key battle winning factor in an information age war. Out of area contingencies and power projection missions can only be addressed meaningfully if we have well integrated joint operational and logistical capabilities.

The focus of our technological and weapon development could include key areas like IW, EW, land attack cruise missiles (LACM), anti-ship cruise missiles, theatre missile defence, long range precision strikes, unmanned aerial vehicles (UAVs), directed energy weapons, E-bombs and non-polluting EMP weapons, fourth generation fighter aircraft and modern naval ships. Our efforts at improving accuracy and range of missiles should be intensified. Acquiring own global positioning system would be a force multiplication factor of the highest order. The Chinese concept of acquiring asymmetrical capabilities in relation to our potential adversaries could also be put into practice.

At certain levels, India and China face some common constraints to the progress of the RMA, especially when it comes to imbibing new concepts and doctrines, development of new technologies, bureaucratic obstacles and systemic problems. China may be addressing these constraints in a better manner because of the nature of its political system but the Indian capacity to handle the same problems should not be underestimated. India's capabilities in the IT sector, missile sector, naval shipbuilding and its technical prowess in niche technologies is growing. A National Intelligence Council Report identifies India and China as two of the five countries where successful RMA can occur. If the Indian economy continues to grow at 8 percent annually on a sustained basis, then our armed forces could be provided 3.5 percent of the GDP for force development. Needless to say, such enhancement of funds for modernisation would create conditions for the RMA to occur in India sooner than later.