

# MILITARY MODERNIZATION IN THE PRC: DOCTRINAL CHANGE AND PRACTICAL IMPLEMENTATION

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## 1 Introduction

Doctrinal changes are central to understanding Chinese military modernization, from the beginning of the 1990's onwards. To fully grasp the process it is important to analyze the events influencing doctrinal changes: mainly, diminishing world tensions and the results of the 1990's Gulf War.

This paper analyzes how People's Republic of China's (PRC) doctrine changed. It is divided in three sections. In the first, doctrinal changes and their influence to the process of military modernization will be assessed; in the second, I analyze PRC's military structure, as well as the evolution of the country's armed forces, in retrospect, and the process of modernization, per se; in the third section I draw conclusions as to these events.

## 2 Doctrinal Changes and their Influence in the Modernizing Process

The PRC's military modernization is a pressing theme for IR and for Strategic Studies. Since the 1970's Beijing has been talking about it in official pronouncements and documents. The process, however, picked up momentum after the end of the Cold War. For Bergstein *et al.* (2008), the Peoples' Liberation Army (henceforth PLA) is profiting today from steps taken more than 20 years ago, even though some mild revisions have been undertaken to enhance performance and better connect the modernizing pushes with world

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political developments.

In January 13, 1993, the Secretary General of the Chinese Communist Party (CCP) and leader of the Central Military Commission (CMC), at the time, Jiang Zemin, launched the foundations of a novel national military strategy, which guided PLA's modernizing efforts thereafter: the "Military Strategic Guidelines of the New Era". Its main focus was on "a continuous and sustainable modernization". Zemin was an extremely important figure in Chinese military modernizing push. He sought to implement stricter controls on military institutions and ameliorate PLA's relationship with the CCP. It was not an easy task breaking, as Cohen (1988), Scobell (2000), and Swaine (1996) argument, with Mao Zedong's politico-ideological "heritage", diminishing corruption among ranks and top echelons of the armed forces and eliminating some privileges the military had required lots of political skill. That, however, meant that the military were bound to have a bigger say in CCP policy-making processes.

The Guidelines were launched at an auspicious time, in light of structural necessities of Chinese armed forces. Chinese top brass inside the CCP and the CMC made two pivotal decisions, which would define the country's military modernization process: 1) to revise the previous evaluation of China's security, and; 2) to acknowledge the mutating nature of modern conflict.

Chinese analysts recognized how world political structure and conjuncture had changed as a result of the end of the Cold War. The post-Cold War world represented two characteristics: 1) reduction of the risk of conflict between China and another great power; 2) augmentation of the challenges and risks to Chinese security coming from its immediate periphery, which included Taiwan (Peng and Yao 2005). Beijing had also predicted that a multipolar order would arise right at the outset of the post-cold War era. However, the post-Soviet world was a unipolar one, even though the situation has changed recently.

These conclusions influenced changes in force posture and structure aimed at heightened effectiveness and modernization. The 1991 Gulf War, easily won by U.S. and allied forces, impressed Chinese top politico-military echelons. More than that, the capabilities displayed, mainly by Washington's military, shocked PLA leaders. They realized that Chinese forces were not prepared for the conflicts of the end of the 20th Century — highly dependent on cutting-edge technology, on constant information flow, and on highly efficient communications. These capabilities would be even more necessary in the coming Century and not incorporating them would cause Beijing to lag behind. These novel conflicts exhibited eight main characteristics:

[...] 1) fought for limited political objectives and limited in geographic scope; 2) short in duration but decisive in strategic outcome — i.e., a single campaign may decide the entire war; 3) high-intensity operations, characterized by mobility, speed, and force projection; 4) high-technology weapons causing high levels of destruction; 5) logistics-intensive with high resource consumption rates, with success depending as much on combat sustainability as on the ability to inflict damage upon the enemy; 6) information-intensive and dependant upon superior C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance) capabilities and near-total battle space awareness; 7) simultaneous fighting in all battle space dimensions, including outer space and the electro-magnetic spectrum; and 8) carefully coordinated multiservice (army, navy, and air force), ‘joint’ operations (Bergstein *et al.* 2008, 193-4).

These factors were gradually internalized in PLA’s military doctrine. However, as suggested by Cordesman and Yarosh (2012), Chinese discourse regarding its forces should be taken at face value, even though they can be used for apprehending general guidelines as to Beijing’s intentions.

The major reason for that is the fact that Beijing’s multiple security-related institutions each publish documents concerning the security domain and advance prescriptions. These institutions are all embedded into a greater system, which presents a chain of command structure and hierarchies. As a consequence, these hierarchies also apply to documents published by diverse agencies with some being more important and presenting guidelines with farther-reaching scope than others. The most important document in the series is the “Strategic Military Guidelines”. The Chinese label this chain of documents the “Science of Military Strategy”.

The authors suggest that efforts to differentiate hierarchy between the official documents led to the identification of two key concepts: 1) Active Defense, and; 2) Local Wars under Informatization Conditions. There is, still, the not-so-recent concept of People’s War that used to guide Beijing’s military doctrine. It was “refurbished” not to fall in obsolesce, in the 21st Century.

As for Active Defense:

Active defense is an operational guideline for military strategy that applies to all branches of the armed forces. It states that China’s military engages in a policy of strategic defense and only strike militarily once it has already been struck. However, Active defense specifically states that such a defensive posture is only viable if mated with an offensive operational posture. Moreover, the first strike which triggers a Chinese military response need not be military: actions in the political and strategic realm may also justify a Chinese reaction, even if the PLA fires the first shot tactically (Cordesman

and Yarosh 2012, 34-5).

It is an interesting resource for it implies that situations perceived as threats to national security can also be considered attacks justifying response, what basically legitimates preventive strikes.

The “Science of Military Strategy” establishes three pillars for Active Defense: 1) China will exhaust all diplomatic means before resorting to force; 2) the PRC will try to deter war before it happens, using military and/or political means; 3) Beijing shall respond to attacks with offensive action intended at destroying enemy forces (Peng and Yao 2005). Beijing will also not be the first to resort to nuclear weaponry in a conflict to put down enemy resistance. This was further stated in PRC’s White Papers Series (2015): Chinese nuclear posture is defensive and China will not be the first in a conflict to use nuclear weapons nor shall it use them against non-nuclear-armed states or in declared nuclear-free-zones.

As for “Local Wars under Conditions of Informatization”:

Since 1993, [...] the concept has been the official military doctrine of the PLA. This doctrine states that near-future warfare will be local geographically, primarily along China’s periphery; limited in scope, duration, and means; and under ‘conditions of informatization’, which the DOD describes as ‘conditions in which modern military forces use advanced computer systems, information technology, and communication networks to gain operational advantage over an opponent’ (Cordesman and Yarosh 2012, 35).

The Chinese identified in the 1991 Gulf War a new stage of the “Revolution in Military Affairs”<sup>2</sup>. They also concluded that the end of the Cold War produced stark changes, both in the logic of conflict and in the constraints to war. The result was: highly informatized “new conflicts” of a more local character which, according to Chinese perception, would lead to limited political goals, in opposition to total war. In a nutshell, a more limited, albeit more concentrated, use of force.

However, these elements (shorter and more local conflicts, cutting-edge technology, force informatization, and the capacity of distributing

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<sup>2</sup> Used for the first time, by the Chinese, in their 2004 White Paper. There, the sense is one of shift in military operations’ conduction patterns, not restricted only to information. The changes encompassed are wide-ranging: from mechanization to informatization. Central to the whole discourse is the incorporation of state-of-the-art technology. That, however, is the Chinese take on the term. In academia the term has been used and debated for a longer time and does not refer, solely, to innovations taking place during the later part of the 20th Century.

information timely and efficiently) yield to produce highly lethal and destructive engagements, albeit limited in political objectives and geographic scope. What brings forth another key aspect of modern conflict: logistics efficiency and outstanding mobilization capabilities. Evidence provided by Bitzinger (2011), DoD reports (2008, 2009, 2010, 2011, 2012) and the IISS's *Military Balance* (2012, 2014) strongly suggest that the Chinese are keen on force modernization along these lines, with efforts especially aimed at heightening force mechanization and informatization rates as well as enhancing action coordination between branches.

As for the concept of People's War, it has been reformulated in order to remain relevant today. There is, at times, confusion about what "People's War" really means. The concept is ambiguous and some think it to refer to a supposed government incentive to its population, so that the later organize itself into paramilitary groups, guerrillas, national defense forces, and fight alongside the PLA. The claim, however, does not hold water. It actually refers to what Beijing labels "Active Support": active help from the population to the military during conflict or when they are called upon to act. According to Cordesman and Yarosh (2012) it could take the form of logistic, political, operational support, or any combination of the three.

Arming civilians, however, was never completely ruled out by the PLA. Actually, it is seen as a valuable element especially in difficult/costly military campaigns. Nevertheless, other terms are used to define the possibility: militia formation, civil defense and reserve forces (PRC White Paper 2006). This means that one of the most important rules of the Chinese military is to maintain a good relationship with civilians for, *ad postremum*, they could prove decisive for the war effort. The issue was also specifically addressed in one of the documents of the Second Artillery, the "Science of Second Artillery Campaigns" (SAC 2004).

Another pivotal point in Chinese military modernization is coordination between branches. This is a central theme in strategic calculations, being a part of what the PLA calls "Revolution in Military Affairs with Chinese Characteristics". The Zhōngguó de Guófáng 2004<sup>3</sup> (2004 White Paper), is specially important in this sense for it, in addition to acknowledging the

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3 From Mandarin (中国的国防). Literally, "Chinese National Defense in the Year of 2004". It is a periodic series of documents published by PRC's authorities presenting the guidelines to be followed by the various organs linked to the defense and security of the country. It has a great hierarchy inside the ensemble of Chinese publications on the subject even though it is still beneath the "Strategic Military Guidelines". The guidelines do not replace one another. Rather, they complement one another. Posterior papers present the "results" of the actions of preceding issues.

interest and necessity of integrating the services, establishes further some noteworthy measures and guidelines: “[...] adapting to the features and patterns of modern warfare, the PLA has intensified joint training among services and arms at all levels to enhance joint fighting capabilities” (Zhōngguó de Guófāng 2004). The document establishes four pillars. The first is about the accomplishment of conjunct operational training and high-level post-training exercises, what enhanced Commanding Officers’ capacity in performing joint operations.

As for the second pillar, conduction of joint tactical training, military units and diverse services stationed at the same geographic military zones “[...] have intensified their contacts and cooperation in the form of regional cooperation to conduct joint tactical training” (*ibid*). Joint exercises were conducted during 2003, e.g., in Dalian, in September, that year.

The third pillar revolves around perfecting the means of joint training. Years were spent in developing training procedures and routines. With all that expertise “substantial progress” (*sic*) was achieved in three areas: training, *per se*; simulation training; and network training. But that is not all:

Almost all combined tactical training activities at division, brigade and regiment levels can be conducted on base. All services and arms have set up their basic simulation training systems for operational and tactical command. A (joint) combat laboratory system of simulation training for all military educational institutions has been initially put in place. A military training network system has been set up to interconnect the LANs of military area commands, services and arms, and command colleges (Zhōngguó de Guófāng 2004).

As for the fourth pillar, training of joint operations’ COs, great strides were made. Coordination of actions at the levels of Elementary, Intermediate, and Advanced Command Universities was established. These educational institutions are tasked with honing Chinese military officials’ skills, providing strategic studies and joint operations courses, and on-the-job training.

Other measures were also envisaged. Among them the cut on 200000 men in PLA personnel, leading to intestine force reorganization; strengthening the Navy, Air Force and the SAC; acceleration of informatization efforts; acceleration of armament and equipment modernization; skilled-people strategic project implementation; escalation of logistics reforms; political job innovation; and, finally, the governing of the military according to the laws of the PRC. Incentives and reforms to Chinese science and technology areas and to the national defense industry were also addressed.

Little changed in the Beijing’s strategic planning as shown by the

Zhōngguó de Guófāng 2006. The greatest innovation can be attributed to Active Defense implementation. One important shift, however, figures on the 2008 paper, others, on the 2010 issue. In 2008 a new objective was advanced: strengthening political and ideological works, what meant a stronger control of the armed forces by the Chinese CCP. It is an unequivocal message to the world, reaffirming that the PLA is under CCP control.

As for the 2010 paper, some points are put forward. Firstly, creation of joint operational systems with measures such as: 1) intensifying research on operational theories; 2) strengthening combatant forces' formation; 3) enhancing operational command systems, and; 4) modernizing joint support capabilities. Secondly, promoting transition in military training, with such measures as: 1) training tasks reform; 2) training methodologies innovation; 3) enhancing the means of military training; 4) training management reform. Thirdly, multilateral approaches in developing a modern logistics system, a shift dependent on a series of steps, e.g., outsourcing services; stepping up system integration process; informatizing a multitude of processes and adopting more scientific postures to managing logistics support systems. Fourthly, and most importantly, accelerating new cutting-edge weapons systems development, with Chinese technology; strengthening the modification and modernization process of present weapons, equipment and their management, that is to be conducted in more rational ways; and developing mechanized weapons and equipment and/or their conjunct informatization (i.e. branches cooperation between themselves and between branches and Chinese R&D centers, factories, industries, educational institutions, etc.). To the exception of these innovative four points, little has changed in relation to the 2008 paper.

The 2012 and 2014 White Papers further reaffirm such tenets. Here, however, the central objective of Chinese reunification is given even more importance. The 2014 version of the document states that that is one of the most cherished Chinese foreign policy goals. However, other important security events are also tackled by Beijing's near term strategy. These are the challenges to Chinese existence as a unified political entity coming, mainly, from separatist groups in Tibet and Uyghuristan. Such groups are considered terrorist by Beijing and are treated the same way as groups espousing like political agendas operating in the Middle East and Central Asia. That is an effective strategy for, while it delegitimizes these groups' operations inside China, it also works towards giving credibility and coherence, at least in discourse, to Chinese policy. Naturally, however, Chinese actions are not standardized regarding this matter and a violent process of cracking these groups down, domestically, is ensuing, even though this does not hold true for groups operating beyond borders and elsewhere in the world.

Some attention was also given to Japan and the US. Even though the White Papers do not explicitly name the challengers in East Asia, the presentation of hurdles and the strategies to counter them clearly have Tokyo's and Washington's names in them. On the other hand, the Chinese, at least discursively, are seeking to enhance cooperation with both countries, or so the documents say. Recent events, nonetheless, suggest that tension is mounting, what can yield to unpredictable results in the future.

The Chinese took all of these tenets to heart and the results are already appearing in the form of force structure and doctrine as well as force modernization, mechanization and informatization. The most important development from this is the fact that China poses, nowadays, as consistent challenge to American interests in the region. Tellis and Tanner (2012) suggest that China used its relentless economic growth for, at least, 30 years, as a means to produce the resources to improve its military. This is, they argue, a source of anxiety regionally for China is geo-strategically located in the "heartland" of Asia given its central location in the continent. Because of this Beijing is consistently in the position to trouble American force projection in Asia. Panda (2007) gives a similar account of the matter. More so today as the Chinese continuously augment their access-denial capabilities, especially after the Taiwan Strait Crisis. Naval forces here are key as Fravel's (2008) account suggests. The modernization of Chinese naval forces augments their punch and tactical and strategic capabilities, what is a consistent source of anxiety in a region so riddled with territorial disputes.

One should not understate what the PLA Navy means regionally and how force modernization can substantially increase its power projection and access denial capabilities. One should also not downplay what Taipei means to Beijing. On the one hand, O'Rourke's (2012) evidence strongly suggests that the Chinese stepped up existing efforts toward refurbishing their navy after the 1996 Taiwan Strait fiasco in terms of national pride. They realized that their forces were not a match for Washington's. The Clinton administration intimidated Zemin's through the deployment of two aircraft-carrier battle groups to the region. The Chinese are poised not to experience the situation again. On the other hand, however, there also seem to exist other objectives the Chinese wish to achieve through a more capable navy. O'Rourke's (2012) evidence suggests that these are mainly linked to regional preeminence, control of territorial waters and ensuring Chinese easy access to regional waters and beyond. Beijing is especially concerned with logistics and ensuring the safe arrival of energetic supplies coming from the Gulf of Aden to the mainland. Creating a countenance force to America in the Pacific is also a cherished goal in China. Bitzinger (2011) offers a similar account of the sit-



uation, stressing that Chinese military modernization might create regional imbalances in military strength, specially when it comes to Japan and Taiwan.

Further evidence substantiating this can be found in Larson's (2007) account of Chinese military capabilities. For him, Beijing has been focusing on the improvement of asymmetrical capabilities and in building a Navy and an Air Force capable of operating further off the mainland's shores. As for the Army, modernization is intended at enhancing mobility. Taken together, these changes effectively contribute to heightened power projection capabilities in land, air, and sea. It also means that attacks will be more precise, increasing tactical and strategic effectiveness, what also reflects on Chinese diplomatic/political efficiency and Beijing's prestige internationally.

Another point worth mentioning is the political work currently undertaken by CCP leaders towards both the armed forces and the general public. This is a specially pressing theme for the Chinese, which saw in Soviet demise an example of what an unsupportive military can do politically (Scobell 2000). As a matter of fact, one of the most crippling blows to the Soviet Union was regime abandonment by its military. That is why the Chinese are so keen on politico-ideological work/indoctrination of both the armed forces and the public and on the need of maintaining a harmonic relationship between the civilian and military realms of activity. Beijing seems to have taken the lesson to heart and the presence of the topic in the country's White Papers and other doctrinary documents only attest to that.

Anyhow, indigenous weapons development is the policy that most catches the eyes of observers and governments, and in particular Washington's. The issue is shrouded in controversy. Evidence presented by Labrecque *et al.* (2011) and Chang (2012) suggests that Chinese military modernization outpaced US and Western analysts' expectations as to timeframes in development, procurement and deployment of new pieces of weaponry. Indeed, the speed with which the Chinese are managing to develop state-of-the-art equipment locally and the ability with which Beijing has managed to conceal the progress, success and development rates of this undertaking are astonishing. Shambaugh (2005-6) suggested that the Chinese were being quite effective in their process of military modernization. The analysis holds even truer today.

Beijing's indigenous military modernization brings consequences for all branches and parcels of military activity in China. Nevertheless, some areas such as the navy, the air forces and space/extra-atmospheric warfare capabilities are receiving a lot of attention. In this respect, Labrecque *et al.*'s (2011) evidence is conclusive. If in 2000 only 9% of Chinese submarines were modern, the rate had risen by 2009 to 50%. The numbers in submarines have also increased along the years. Amphibious ships were also added to the fleet

and it is estimated that their number are likely to grow in the future. However, the Chinese still have to tackle technology-related problems and critical sub-components currently in use are Russian-made. The PRC faces the same problems in relation to its aircraft carriers, which are, also, Russian in origin, even though they might be currently undertaking to build such ships indigenously. Evidence, however, suggest, they are still a long way off in terms of mastering a force posture enabling them to make the most out of these ships. These capabilities are considered crucial to tackle such problems as: Taiwan, the South China Sea territorial disputes, to secure important sea-lanes for energy supply, and anti-piracy operations. Carter and Bulkeley (2012) give a similar account on the matters stressing, further, that Chinese military modernization may prove to be detrimental to American interests in East Asia.

As for the air force, modernization rates have been astonishing: from 2% of modernization in 2000 to 34% in 2010. There has also been substantial increase in the numbers of fourth-generation fighters. A fifth-generation fighter, the J-20, was also developed but not yet deployed. One of the main problems with the new model is its reliance on Russian motors and avionics. Support systems are another area of interests to Chinese leaders and, according to evidence, the Chinese are intent on developing an AEW system. Nevertheless, other areas such as aerial defense, surface-to-air missiles, training and education, service integration, and long-range capabilities are also in the order of the day.

The Chinese space program is another area of particular strategic and commercial/economic interest to Beijing. The launch of a panoply of satellites attest to that, making many in Washington wonder if the Chinese are using this as a way of enhancing the effectiveness of their ballistic missiles. One must not forget that such areas hold many similarities in terms of technology. On the other hand, the development of anti-satellite missiles, a current trend in Chinese strategic posture, represents a risk not circumscribed only to military affairs. Having the capability to temper with communications systems worldwide brings consistent bargaining power for this represents the possibility to bring substantial costs to bear on oppositionists.

Four examples of Chinese prowess in hiding military activities and indigenous development of military capacity elucidate the discussion, as Fisher Jr. (2006) discusses. Analysts did not hope that the new Yuan-class submarine, “discovered” in 2004, were almost fully operational at that time, let alone that it can bear air-independent propulsion systems (Chang 2012).

A second weapons system, whose development speed caused awe, was the anti-satellite missile. In 2004, analysts were aware that potential tests could happen but its exact moment could not be estimated. It was believed

that the Chinese were to acquire ASAT (anti-satellite) capability “soon”. But trials did not take long to take place and in January 11, 2007, the Chinese achieved their first successful trial. One of their own climate satellites, the FY-1C, which flew at approximately 530 miles above the Earth’s surface, was destroyed. The test, that caused concern in various governments, and especially the American, created the biggest man-made space waste cloud, at a single time, in history. In January 11, 2010, they launched another missile to intercept one of their own mid-range ballistic missiles, the CSS-X-11 (*ibid*).

Obtaining an anti-satellite capability is paramount to the Chinese. White Papers make it fairly clear, albeit in a tacit way, that Washington is Beijing’s main adversary. Thus, such capacity is extremely well placed for facing the Americans in case of conflict, for the US is currently heavily reliant on SIGINT. Disrupting satellite operations can give the Chinese an edge over American forces for it would consistently undermine their information gathering capabilities. Carter and Bulkeley (2012) and Scobell (2000) give a similar account on the matter stressing, further, that anti-satellite capabilities have been on Chinese “wish list” for quite some time. However, in analyzing such subject one is urged to see the bigger picture. Such capability could also be extremely influential in relation to markets and social functioning, especially in relation to the West and some East Asian countries such as Japan and South Korea. Interfering with satellites could bring dire consequences in terms of economic activity, natural disasters forecasting, and society, for a substantial parcel of contemporary communications are satellite-based. Oh (2012) argues that Chinese ASAT capabilities do not pose a threat to American and other countries’ interests in the region. However, in light of the presented evidence, I beg to differ.

It is simply too difficult to obtain reliable information about Chinese new weapons systems. Still, miscalculations are also a constant here and occurred at least twice. The first concerned the development of ground-based anti-ship ballistic missiles; the second, the stealth fighter J-20.

When it comes to the former:

Chinese naval modernization efforts — including anti-ship ballistic missile development, among the numerous projects and weapons acquisition programs — began in the 1990s. Conventional ballistic missile technology has developed at remarkable speed. The *Dong Feng-21* (DF-21) medium-range ballistic missile, for instance, has several variants. The development of the DF-21D variant (a ground-based ASBM) is reportedly fitted with a maneuverable reentry vehicle (MaRV), has GPS and active radar-based terminal guidance, and the ability to strike 1,500 to 2,000 kilometers away from China’s shores (Chang 2012, 21).

Washington underestimated Chinese capacity to develop and field the system. It predicted that the system would only be operation by December 2010. However, by 2008, both the Chinese and Taiwanese media affirmed that the system was already part of PLA forces. Moreover, a 2009 Nasic report suggested that the Chinese inventory of missiles, ballistic and non-ballistic, of various ranges was already diversified.

Concerning the fifth-generation fighter-plane J-20, American specialists' forecasts indicated that the initial prototype trials would only happen in 2012. Anyhow, the plane made its first observable flight in January 11, 2011.

According to Chang (2012), despite American specialists' claims, in 2010, that the J-20 would only enter service somewhere between 2017 and 2019, one Chinese military academic affirmed that the Chinese were very close to completing one of the last technological requisites of the plane and that it be fielded by 2015. Until December 2011 the Chinese conducted 60 test-flights. In February 2012 the Chinese media released a series of reports informing that Beijing intended to continue testing that year.

Evidence suggests it is very hard to estimate the speed at which the development of new Chinese weaponry is being conducted and there are reasons for that. Labrecque *et al.* and Chang (2012) point reasons why this happens. For starters, Chinese strategy of denying and omitting information, in official channels, and disclosing in some "alternative channels" hints and clues about the stage of development of its armaments is such one issue.

Secondly, analysts sometimes fail to grasp deepness and broadness of transformations, which Beijing's war industry went through. It is true that chokepoints still exist. However, Chinese innovation capacity should not be underestimated.

The difficulty in understanding the relationship between the diverse organs involved in defense and security issues also poses problems for analysts. Hierarchies regulate even the publication of documents about military doctrines and governmental objectives. But that is not all. Evidence suggests that there are serious bureaucratic coordination problems between government organs. Moreover, there also exists the possibility "[...] of a civil-military divide at the top levels of Chinese policymaking" (Chang 2012, 4).

Beijing's threat perceptions are frequently underestimated. Many analysts underestimate how much some countries, specially the U.S., are seen as threats to Chinese national security. The substantial American economic, cultural, and military presence in Eastern Asia and the Pacific are factors observed with great caution by decision-makers. However, recent past events worked as catalysts of great importance in military modernizing processes.

The 1996 Taiwan Strait Crisis and the 1999 bombing of Chinese embassy's Annex in Belgrade, by U.S. aircraft during the ex-Yugoslavian crisis are cases in point.

Another issue is the country's military spending. Chinese military spending, between 2000 and 2010, had not exceeded 2,21% of GDP p.a.. However, the country's economic growth in the period was outstanding, exceeding, in 2007, the 14% p.a.-mark (Cordesman and Yarosh 2012). This makes so that the real amount invested is increasing year in and year out.

Even though the amount invested in military spending is crescent but official figures are deceiving. Evidence strongly suggests that a multitude of expenditures, which would be computed as military spending by other governments, are simply left out of the assessment. Bergstein *et al.*'s (2008), Cordesman and Kleiber's (2006), Cordesman and Yarosh's (2012), IISS (2012, 2014) and SIPRI's (2015) figures attest to that. Large wage raises were granted to PLA personnel in 2006, 2008 and 2011. Additionally, spending with imports of armament, bids for foreign weaponry, military assistance to and from foreign governments, paramilitary forces and strategic and nuclear forces spending, war materiel production subsidies, military R&D spending, and the PLA's own fund-raising are not computed as part of the official "military spending" statistics. In light of these considerations, it is estimated that the real amount invested by Beijing in its military is consistently larger than officially announced figures.

Lastly, linguistic skills are paramount to assess PRC's military modernization process. Few analysts have adequate linguistic training to understand information pouring in Chinese open sources. This problem is aggravated by the lack of regard with which PRC sources are treated. Few can understand Chinese sources and fewer still are interested in them publications (Chang 2002).

Chinese military modernization and weapons buildup is not only important from a strategic point of view. It can potentially bring consistent change in regional politics. East Asia is an important area of concern for American foreign policy and evidence strongly suggests that Chinese strategies are intended at sidelining Washington diplomatically and politically when it comes to regional presence and prestige. Bitzinger (2007) wrote in 2007 that Chinese military modernization was not the main driving force to Southeast and East Asian countries' own military modernization efforts. However, evidence suggests that such a trend has not been holding much water recently and the various disagreements and rhetorical clashes between the countries of the regions concerning the legitimacy of islands and influence over sealanes are just but a few cases in point and attest to what I contend. Gill (1998)

arguments that Chinese military modernization, although not the main factor driving military choices in the countries of the regions, is considered a substantial source of concern. Tow and Rigby (2011) argument that such trend is already in motion when it comes to China-Australia and China-South Korea relations. China has been courting these two middle powers economically for quite some time, what caused a steep increase in economic interdependence. This just makes them even more vulnerable to Chinese political strategies. Raising the stakes these countries have in their relations with Beijing can make them more prone to political acquiescence or, at least, lack of intense resistance to Chinese political choices in the region, even despite maintaining close relations with Washington. However, other countries are even more vulnerable to Chinese preferences because their stakes are even higher. These are mainly countries geographically adjacent to Chinese borders. This can potentially yield to political tensions and redistribution in regional prestige, favoring Beijing to the detriment of Washington and, perhaps, Tokyo. Shambaugh (2005-6), suggested, 10 years ago, that the process of Chinese military modernization would yield changes in regional balance of power. His analysis held water for this is exactly what is happening today.

### 3 People's Republic of China Military Structure and Historic Evolution of Forces

The PLA is but a part in PRC's security apparatus, though responsible for the bulk of the country's security. The Ministry for State Security is the Chinese intelligence agency, conducting domestic and international operations. The Ministry for Public Security is responsible for domestic security and commanding police forces. Both ministries function under PRC's State Council. The People's Armed Police (PAP), although not formally part of PLA, is also subordinated to the Central Military Commission (CMC). The 2010 White Paper refers to it as a "[...] shock force in handling public emergencies" (Zhōngguó de Guófāng 2010). This is not surprising for political work is also carried out regarding PAP. Moreover, it can act as light infantry reserve in case of conflict and in reconstruction and rescue efforts after national emergencies. There is logic behind a large PAP force<sup>4</sup>. Chinese leaders have to tackle large resistance from separatist groups operating in Tibet and the so-called Uygurstan. Thusly, the force would also be intended to quell domestic resistance. Scobell (2000) also considers the political challenge such groups pose to Beijing's central planning and even go so far as to state that

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4 Estimated at 600000 people (Cordesman and Yarosh 2012)

PAP also has a paramilitary character.

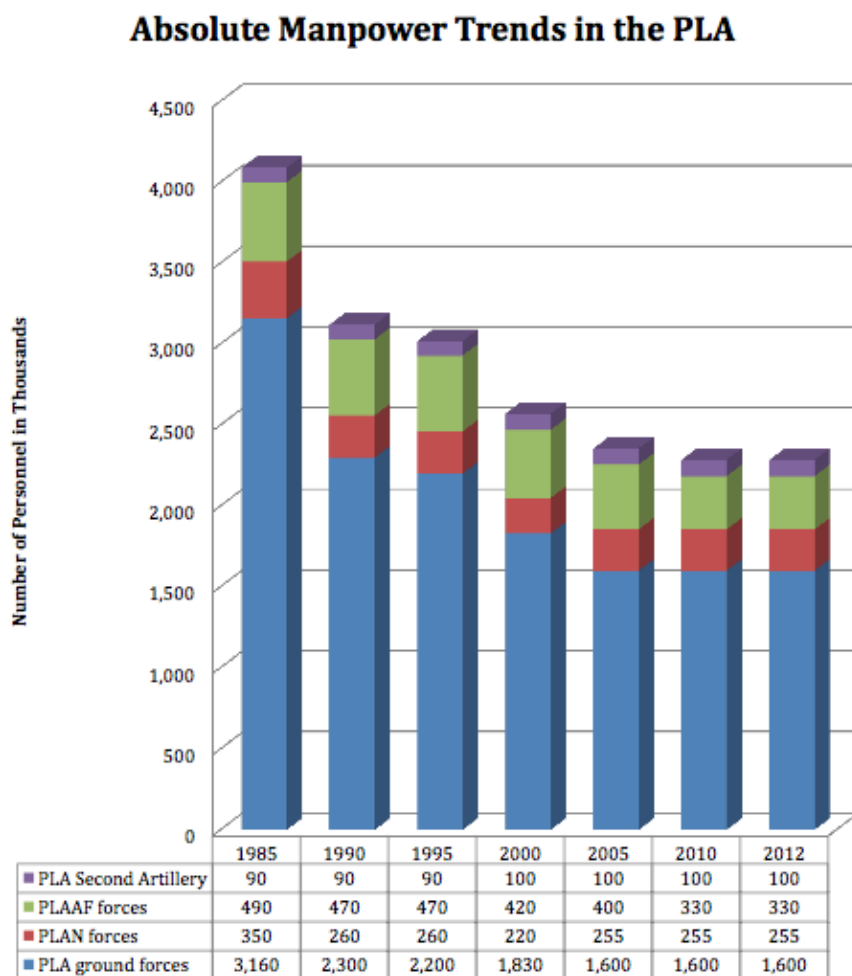
The most prominent Chinese security institution is the PLA. According to the *Zhōngguó de Guófǎng* 2010, after the creation of the “New China”, in 1949, the PLA set as its goal ensuring Chinese self-defense capabilities. As time went by, another objective was added: deter Taiwanese independence (Panda 2007). Over the years, the adoption of a scientific/technological force modernization posture motivated a change in focus: from scale and quantity of forces to quality and efficiency. Thus the “labor-intensive” approach was substituted for one more “technology-intensive”. This shift in paradigms influenced, in the long-run, various PLA manpower reductions. Evidence supporting this can be found in IISS Military Balance publications from 1985-2014. Despite being called People’s Liberation Army, it comprises four branches: the Army (PLAA), the Navy (PLAN), the Air Force (PLAAF), and the Second Artillery Corps. (PLASAC).

The *Zhōngguó de Guófǎng* 2006 sets the PLA’s command structure, which has the CMC as its most important agency. According to the document and to Cordesman and Yarosh (2012), the CMC has the role of planning and deciding over security policy in all issues regarding the armed forces. It is an organ that derives, directly, from the CCP Central Committee, what puts the PLA under party control.

The CMC bears great responsibility: from the armed forces, *per se*, to the development of military doctrines, to logistics, and finally, to the civil-military relations. However, there are actually two CMCs, one for the CCP and the other for the State. They exist next to one another even though they are not identical as to membership.

This heavily influenced PLA’s force frame, impacting further the number of total available personnel. Severe manpower cuts were carried out as China moved its focus from quantity to quality and efficiency. All branches, except the SAC, suffered substantive personnel cuts, as shown in graph 1. The numbers are very representative of doctrinal change. The PLAA had in 1985, 3160000 men; in 2012, 1600000. The PLAN had in 1985, 350000 men; in 2012 255000. The PLAAF had in 1985, 490000 men; in 2012, 330000. The SAC had a total force of some 90000 men, in 1990. In 2012 the numbers had risen to 100000 men (IISS 1985-2012).

Graph 1: Absolute Force Tendencies of the PLA over the Years



Source: IISS, Military Balance, 1985-2012 *apud* Cordesman and Yarosh (2012, 50).

\* After Cordesman and Yarosh (2012, 50), the data for the manpower of the Second Artillery Corps, in 1985, were not found. Therefore, for this graph were used the numbers for the year of 1990.

In 2012, Chinese military forces numbered 2285000-odd PLA members, 660000-odd active PAP members, and, at least, 510000-odd reserve military forces, not to mention the 8000000-plus militias (Cordesman and Yarosh 2012).

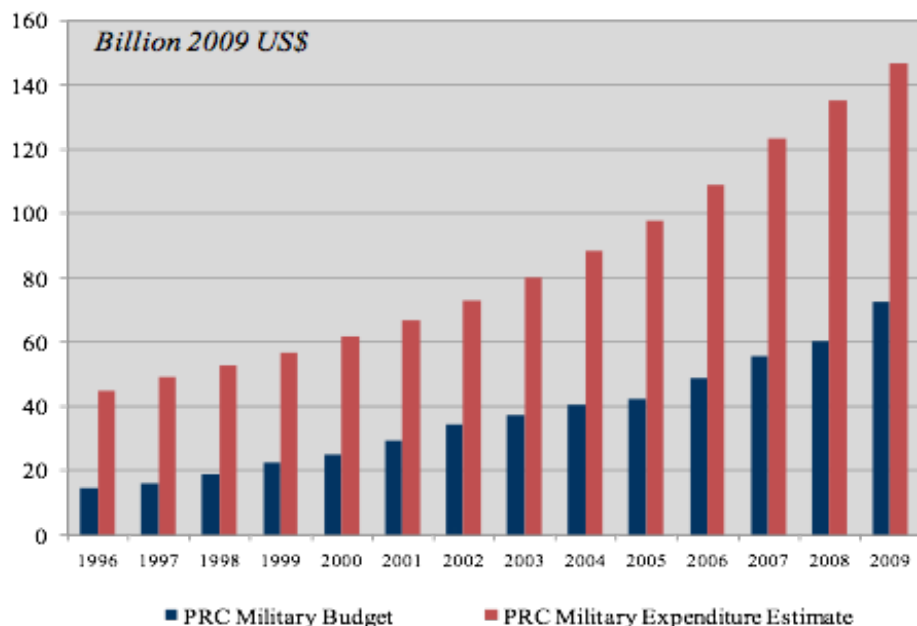


Increasing the numbers of highly educated officials in all branches is also a concern. In order to do this, aside from the already mentioned policies (amongst them opportunities for the talented, closer relationship with universities, military educational institutions quality enhancing), the Chinese are trying to implement an initiative not strange to other military: a body of non-commissioned officers. Such measure would heighten the “years of education” average among the officers “[...] by rebalancing the personal system, recruiting high human capital into the PLA, providing opportunities for increased qualification among the non-conscript PLA, and offering greater compensation for the entire force” (Cordesman and Yarosh 2012, 54).

In addition, reserve and militia structures are also experiencing shifts, even though less attention is being currently assigned to the matter. These changes come in the bulge of the “Revolution in Military Affairs”, much like the changes taking place in the PLA: reserves and militias are also being reduced. Even though there is no precise information about the issue Beijing’s official positioning, evinced on the White Papers, is that these two organizations are going to give support to PLA regulars. Cordesman and Yarosh (2012) go even further, stating that instead of reinforcing the maneuver forces of the PLA (for which role they would need to be massive) they now take over auxiliary roles, being responsible for logistics, technical and air defense making scale redundant. They were, thus, reduced, becoming more compact and smaller. There seems, however, to be more mundane reasons for paramilitary downsizing. Crane’s *et al.*’s (2005) evidence is conclusive. A substantial parcel of the money flowing to paramilitaries does not come from central establishment but, rather, from municipalities and lower instances of government. Thus, these lesser sectors of administration became less than satisfied with the situation and, ergo openly voiced their preference for the reduction of such burden. Evidence suggests that the Chinese regime is heeding the call. This can contribute to a more transparent presentation of military budgets in the future for expenses such as these (and many others) do not figure in officially disclosed figures.

Chinese military expenditure is one of the most complicated matters surrounding the whole process of force modernization. The Chinese omit a series of elements that would figure in most countries’ calculations. Consequently, official military expenditures are artificially lower. This can be evinced when one compares the official figures with estimates from other countries’ and foreign institutions’ assessments, such as the DoD and SIPRI. After DoD data (2010), in some periods (1996 and 1997), the estimated expenditure arrives at twice the amount of officially published numbers, as shown in Graph 2 and Table 1.

Graph 2: The Evolution of PRC Military Expenditure between 1996-2009



Source: DoD 2010, 4.

SIPRI also presents numbers very different from official estimates. After the Institute, “[...] the figures for China are for estimated total military expenditure, including estimates for items not included in the official defense budget” (SIPRI, China’s Military Expenditure Data<sup>5</sup>).

Table 1: PRC’s Military Expenditure (Continues)

People’s Republic of China	Military Expenditure — Millions of Constant 2011 U.S. Dollars	As % of GDP
1996	25345	1,7
1997	26251	1,6
1998	29819	1,7

<sup>5</sup> Available at: <http://milexdata.sipri.org/result.php4>

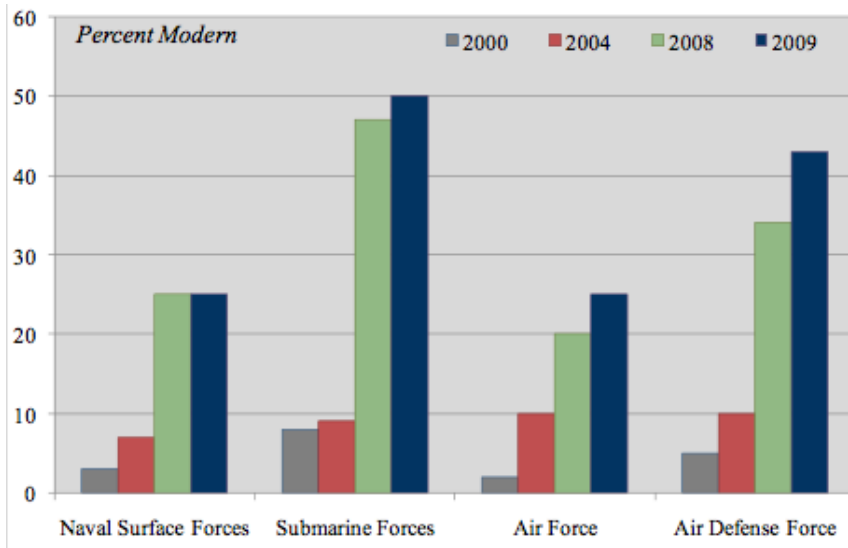
1999	34364	1,9
2000	36995	1,9
2001	45367	2,07
2002	52796	2,17
2003	57325	2,11
2004	63503	2,06
2005	71425	2,02
2006	83850	2,03
2007	96702	2,05
2008	106592	2,02
2009	128701	2,19
2010	136220	2,07
2011	147258	2,01
2012	161409	2,02
2013	174047	2,02
2014	190974	2,06

Source: SIPRI, China's Military Expenditure Data. Accessed October 08, 2015. [http://www.sipri.org/research/armaments/milex/milex\\_database](http://www.sipri.org/research/armaments/milex/milex_database).

The issue is so surrounded in uncertainty that a multitude of assessments regarding Beijing's military expenditure are carried out. Each of which presents different figures concerning the theme. As a result, one can only reach a tentative conclusion regarding the issue. This is evidenced by Crane *et al.*'s (2005) assessment on the matter: officially disclosed figures (the lowest) present a more-than-10-times-over divergence in relation to the highest arrived-at figures.

Equipment modernization rates are another important point of the process. DoD data regarding four segments of Chinese forces (Naval Surface Forces, Submarine Forces, Air Forces, Air Defense Forces) is surprising. In terms of modernization, none of them presented "hardware" modernization rates superior to 10%, in 2000. However, modernization rates, by 2009, for the Air Force and the Naval Surface Forces, the two most delayed "cantles", had reached 25% modernization rate, as shown by Graph 3:

Graph 3: Modernization Rates of Segments of the PLA



Source: DoD 2010, 45.

Weaponry imports is a crucial aspect of Chinese military modernization process. After SIPRI data the PRC presented quite an irregular pattern of arms coming-ins between 1993-2014. The peak happened between the years of 2000 and 2006, in terms of total expenditure. Before this interregnum, imports would rise and fall, alternately. After it they would fall only to begin rising again in 2011, as shown by Table 2.

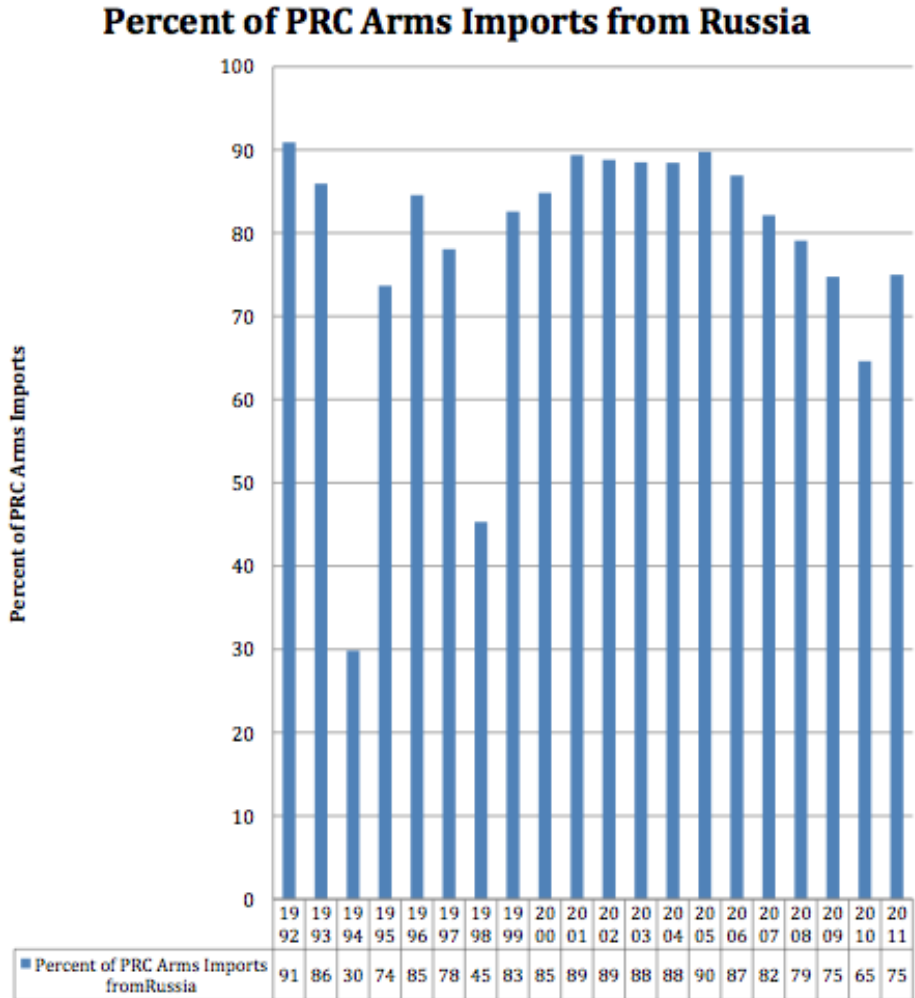
Technology transfers always come to mind when one talks about armament and equipment imports. As evinced by Table 2 the Chinese are diminishing their imports of armament and equipment since 2006. However, for Cordesman and Yarosh (2012), the country did not abandon its old practice of reverse engineering foreign weapons systems. According to SIPRI's data and the aforementioned authors, Russia is the main Chinese partner regarding technology transfers. They both present a very interesting graph about Russian relative participation in Chinese total armament and equipment imports.

Table 2: Imports of Armaments and Equipment by Source, performed by PRC between 1993-2014, in TIV (Trend Indicated Values) in U.S.\$ m. 1990 Constant Dollars

Year	Germany (FRG)	U.S.	France	Israel	U.K.	Russia	Switzerland	Belarus	Ukraine	Total
1993	16	0	113	28	---	1011	---	---	18	1187
1994	12	35	117	28	---	72	---	---	11	274
1995	12	2	141	28	---	498	---	---	---	680
1996	18	2	141	28	---	1241	---	---	65	1494
1997	8	---	97	28	---	732	33	---	3	900
1998	8	---	102	38	20	175	33	---	8	383
1999	14	---	148	38	40	1465	65	---	18	1787
2000	8	---	132	28	60	2233	65	---	29	2555
2001	8	---	149	28	60	2486	65	---	41	2836
2002	6	---	186	---	50	2528	65	---	58	2893
2003	8	---	172	---	50	2076	65	---	3	2373
2004	20	---	264	---	50	2888	65	---	33	3320
2005	12	---	218	---	70	3107	65	---	82	3554
2006	12	---	183	---	40	2472	65	---	128	2900
2007	10	---	176	---	40	1324	65	---	64	1678
2008	3	---	215	---	40	1529	65	---	54	1906
2009	3	---	169	---	40	1102	65	---	28	1407
2010	3	---	193	---	40	636	65	---	---	937
2011	3	---	208	---	40	703	65	---	---	1020
2012	3	---	223	---	40	689	65	---	632	1651
2013	11	---	210	---	40	1133	65	---	86	1715
2014	7	---	204	---	40	909	65	170	132	1357
Total	206	39	2581	268	760	31008	1105	170	1492	38807

Source: SIPRI, TIV Arms Exports to China, 1993-2014. Accessed October 08, 2015. [http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php).

Graph 4: Russian Participation in PRC's Total Armament and Equipment Imports



Source: SIPRI, Arms Transfers Database, Importer/Exporter TIV Tables <http://armstrade.sipri.org/armstrade/page/values.php>. *Apud* Cordesman and Yarosh (2012, 73).

The acquisition of dual-use goods poses a serious problem when constructing a comprehensive picture of the PLA's overall technological capabilities. The 2012 DOD report states that China is pursuing a systematic effort to exploit dual-use goods for modernizing its armed forces. The dominance of state-run companies, in combination with a government-mandated policy to secrecy, makes it very difficult to track down the potential applications of single items. In light of the information provided in the early DOD reports, it seems likely that China is undertaking systematic efforts to exploit du-

al-use goods for military purposes (Cordesman and Yarosh 2012, 74).

In conformity with its new doctrinal tenets and guidelines, the PRC has been implementing wide-ranging modernizing efforts recently. The 2006 White Paper explains that China is going to go through a three-step modernization program. The first step, concluded in 2010, sought the creation of a “solid foundation” (sic); the second, scheduled to end in 2020, seeks to reach a “great progress” (sic); the third step establishes an ambitious objective: “win informatized conflicts by mid-21st Century” (sic).

Eland (2003) and Crane *et al.* (2005) questioned what they termed somewhat alarmist analyses by the DoD and other authors and that China’s military modernization was not so wide-ranging. However, evidence, as presented throughout this piece, strongly suggest that the changes encompass substantial parcels of the armed forces and the results they produced and will produce in the future are surely to be noteworthy. According to Cordesman and Yarosh (2012), trend analyses have been showing that progresses at quicker paces than previously envisaged are taking place in some areas. On the other hand, other areas are still lacking and strides are ensuing at a slower pace. Another factor that, despite its importance, is always neglected is that “[...] the results of equipment modernization are strongly influenced by the PLA’s ability to modernize its tactics, strategy, training, and communications networks” (Cordesman and Yarosh 2012, 68).

## 4 Conclusion

In light of the discussion presented one realizes that Chinese military modernization could not have come to fruition without doctrinal changes, mainly those put forth by the Strategic Military Guidelines, but also by the White Papers and by other documents that, taken as a whole, form the Science of Military Strategy.

However, cornerstones to the entire process were shifts in international conjuncture, which resulted from USSR’s collapse. Moreover, the Gulf War, at the outset of the 1990’s, impressed the Chinese greatly, making them realize that they were not prepared for the latest twist in the “Revolution in Military Affairs”. The first event had pivotal influence regarding shifts in conflict character that, now, tend to be limited geographically, in scope, and in political objectives. Such a development brought with it demands that needed to be met such as being aware of whatever happens inside combat space, almost instantly, not to mention the capacity to project force with unprecedented speed. Thence the necessity of high mobility rates, uncommon to previous

conflicts, which also found expression in the second event.

In order to meet all of these requisites it was needed that the potential combatant understood the precepts of the Revolution in Military Affairs, took them to heart, and put himself carefully in its school.

These two events showed that the Chinese were not prepared to wage modern warfare. Even though they still counted on the massive scale of their manpower, force coordination, in relation to the countries that had already mastered the “Revolution” was unsatisfactory, at best. Another critical Chinese flaw, one that could prove to be fatal should they had faced “modern” forces in the sense of the aforementioned “revolution”, was their exceptionally low force mechanization and informatization rates. Thus, mobility and communication capacities, paramount in modern combat, could have proven to be Chinese Achilles’ heel.

All this considered, one could label these events as being of pivotal importance in the advance of new tenets in military doctrine. The reformulated body of doctrine is intended at modernizing Chinese forces according to the premises of the “Revolution”. The results of such policies start to bear fruit in the mid- to long-run. Thus, China, today, reaps the benefits of past decisions, took at the outset of the 1990’s and even earlier.

A tenet, however, does not replaces others, what shows great strategic vision, obstinacy, and persistence on the part of Chinese decision-makers, as evinced by Evron’s (2009) evidence. But this also constitutes a problem to analysis in that tenets are advanced by different command instances, making so that some be more important than others, what often leads to confusion. All in all, Chinese decision-makers continually show extreme pragmatism and realism in their expectations.

Also notorious was force modernization and operating personnel improvement. Beijing made great strides in developing state-of-the-art weapons systems, e.g., the Yuan-class submarine, the SC-19, the Dongfeng-21D and the Chengdu Jian-20. However, it is important to stress that technology, armament, and equipment imports, mainly from Russia, played and continue to play a great part as the Chinese are still committed to reverse engineering as a means of technology internalization. International concern, especially American, about the recent-acquired Chinese capabilities is grounded, also, in considerations deriving from Chinese force augmentation. For Cliff *et al.* (2007), in the bulge of the country’s military modernization comes, too, an increase in access denial capabilities to areas adjacent to Chinese borders and to remoter areas.

The DoD (2012) made a similar analysis and went even further as to



state that even though the Chinese are already able to produce advanced weaponry with indigenous technology, their use of reverse engineering could make them dependent on technology, armaments, and equipment imports for still some time in the future.

In 2006 Kogan (2006) stated that the Chinese faced some great basic hurdles in their military modernization efforts. He specifically mentioned avionics; motors; ship-based air defense and anti-ship advanced weapons systems; electronic warfare advanced capacities; propulsion systems and sub-systems; AWACS; real-time strategic alert surveillance; reconnaissance systems; and, heavy cargo transport helicopters. This further evidences the importance of technology, armament, and equipment imports. Notwithstanding, evidence show that the Chinese are taking care of these problems at amazing speeds, even though that country's secrecy policy and "creative accounting" makes so that only a small amount of information escape.

Examples of this evidence were the CSBA studies, quoted by "The Economist", in April 7, 2012. After the magazine article, CSBA reports stated that, by 2020, the Chinese would already have:

[...] satellites and reconnaissance drones; thousands of surface-to-surface and anti-ship missiles; more than 60 stealthy conventional submarines and at least six nuclear attack submarines; stealthy manned and unmanned combat aircraft; and space and cyber warfare capabilities. In addition, the navy has to decide whether to make the (extremely expensive) transition to a force dominated by aircraft-carriers, like America ("The Dragon's new teeth: A rare look inside the world's biggest military expansion." 2012. *The Economist*, April 07. Accessed October 08, 2015. <http://www.economist.com/node/21552193>)

Moreover, after RAND and CSBA studies quoted by The Economist (*ibid*), by 2020 the Chinese would already be able "[...] to deter American aircraft-carriers and aircraft from operating within what is known as the "first island chain"—a perimeter running from the Aleutians in the north to Taiwan, the Philippines and Borneo".

The issue has also been receiving extensive international media coverage. Examples are articles from a multitude of media vehicles including the Spanish *El País*, the French *Le Monde*, the Germans *Spiegel Online* and *Zeit Online*. The Chinese are also covering their military activities, and Chinese official news agency is not always reliable for *Xinhua* News Agency is state-controlled. Furthermore, that many authors confront only shows in a rather crystal-clear way how important the subject is.

Strategic vision, alone, would never have accomplished so much. A

factor that cannot be left out of the analysis is the high growth rates of the Chinese economy. While it enabled substantive raises in military budgets, year in and year out, it also encouraged state investments in key-areas such as energy and industry, indispensable to the proper functioning of the Chinese war industry, as well as to the military modernization process.

It is very difficult to analyze Chinese military modernization for it is multifactorial. Beijing's military reality has profoundly moved away from that at the outset of the 1990's. And it is going, however, to move even farther away, it seems. Whilst one should not make long-run forecasts as to the condition of international conjuncture in, say, 35 to 40 years, I believe that it would be rather safe to state that, should the current trends continue, the Chinese armed forces are going to be one of the most powerful in the world, in not so distant a future, and a force to be reckoned with. Anyhow, it is going to be interesting to confer what course are the Chinese are going to take, as to their armed forces modernization process.

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## **ABSTRACT**

Chinese military modernization came with doctrinal changes, improvements in armament and operating personnel, and the import of hardware. It increased China's access denial capabilities to areas adjacent to its borders and to farther locations. High GDP growth, in the last years, has been indispensable to the process.

## **KEYWORDS**

PRC Military Modernization; Military Doctrine; GDP Growth.

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