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**China's Military Build-up in the Early Twenty-first Century:
From Arms Procurement to War-fighting Capability**

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Abstract

Since the late 1990s, China's military arsenal has been dramatically modernised. However, the actual military value of the newly developed systems has yet to be clarified. This study attempts to do so, on the basic assumption that technological military progress per se is not sufficient to increase military strength. Instead of evaluating arms development in technological terms, it therefore adopts an alternative approach to consider its adaptability to the country's strategic situation.

To this end, the study employs the concepts of military procurement and military readiness, and makes two assumptions. First, the value of a weapon system is measured by its suitability to the country's military, economic and technological conditions, and the degree to which it is supplied to the military in the required quantities, timeframe and with the appropriate sustaining support. Second, the country's ability to meet these requirements depends to a large extent on conditions related to the procurement process.

Exploring China's recent military procurement approaches, the study finds that the relationship between China's strategic conditions and its procurement efforts tends to be tenuous, China's inclination towards self-reliance is strengthening, and the technological ambition of its military procurement is ever-increasing. Under these conditions, the paper concludes that in remote and complex conflicts, China's military procurement process could reduce the actual military value of the newly developed weapon systems.

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China's Military Build-up in the Early Twenty-first Century: From Arms Procurement to War-fighting Capability

Introduction

The intensive modernisation that the People's Liberation Army (PLA) has been undergoing over the last three decades has attracted great interest worldwide. One development that has drawn particular attention is the advancement of China's military technology. Since the late 1990s, China's defence industry and the PLA's procurement system have initiated several reforms, which have dramatically upgraded the Chinese military arsenal: it developed a variety of solid-fuel ballistic missiles, fourth generation aircraft, submarines, military satellites, anti-satellite weapons, airborne early warning system, cruise-missiles and other advanced weaponry systems.¹ However, one question that has yet to be addressed is: what is the actual military value of these systems? For example, to what degree do they fit in with the PLA's doctrine and organisation? In what quantities are they deployed? How fully are they assimilated into the forces? And, do military units get enough training to operate them properly? The purpose of this study is to analyse China's technological military progress in terms of its contribution to the PLA's war-fighting capabilities.

This study's basic assumption is that technological military progress per se is not sufficient to increase military strength. This is because, to a large extent, military strength is a contextual concept that must be measured against a concrete situation,² and the same can be said of military procurement. Any military procurement decision directed at a specific strategic situation, can be implemented in various ways and has various trade-offs. Moreover, the theoretical literature suggests that extremely sophisticated systems do not necessarily have a high strategic value.³ Therefore, instead of evaluating arms development in technological terms, an alternative

¹ For academic works on China's recent military modernisation, see Richard D. Fisher, *China's Military Modernization: Building for Regional and Global Reach* (Westport: Praeger Security International, 2010); Anthony H. Cordesman and Martin Kleiber, *Chinese Military Modernization: Force Development and Strategic Capabilities* (Washington, D.C.: Center for Strategic and International Studies, 2007); Dennis J. Blasko, *The Chinese Army Today: Tradition and Transformation for the 21st Century* (New York: Routledge, 2006); Keith Crane, Roger Cliff, Evan Medeiros, James Mulvenon and William Overholt, *Modernizing China's Military: Opportunities and Constraints* (Santa Monica: RAND, 2005); David Shambaugh, *Modernizing China's Military: Progress, Problems, and Prospects* (Berkeley: California University Press, 2002).

² Ashley J. Tellis, Janice Bially, Christopher Layne and Melissa McPherson, *Measuring National Power in the Postindustrial Age* (Santa Monica: RAND, 2000), p. 135.

³ Lauren Holland, "Explaining Weapons Procurement: Matching Operational Performance and National Security Needs", *Armed Forces and Society* 19 (3) (Spring 1993), pp. 355–356.

approach is to analyse it through a wider perspective, which considers its adaptability to the country's comprehensive strategic situation. When strategic considerations dictate procurement decisions and their implementation, then technological development can enhance the country's military strength. Conversely, when military procurement is imperfect, or even irrational, not only is the potential operational value of the weaponry systems not realised, but such acquisitions may also have a negative influence on the armed forces' ability to achieve military goals.

To evaluate the association between military procurement and military strength, this study uses a broad definition of military procurement. According to this definition, military procurement includes three phases: (i) the system design-to-prototype, including research and development (R&D); (ii) production; and (iii) through-life support.⁴ This definition considers not only the technological aspects of procurement, but also its operational implications, such as the capacity to deploy an adequate number of systems on time, and to maintain them in operational condition for as long as required. This definition also acknowledges the internal tension between the phases of the procurement process, as R&D may not necessarily consider the requirements related to production and support, and all three phases may compete over the same resources.

The next term to be conceptualised is military strength. To this end, the paper relies on the concept military readiness, generated by Richard K. Betts.⁵ According to Betts, military readiness refers to a country's capability to deploy the adequate mass of combat efficient forces, in the required timeframe, to realise its military objectives.⁶ In this context, the utility of a weapon system is measured not necessarily by its level of sophistication, but by its compliance with the specific conditions that shape the country's military readiness demands. Accordingly, the quality of military procurement is measured here by its ability to provide, in a given timeframe, weapons

⁴ Stefan Markowski and Peter Hall, "Challenges of Defence Procurement", *Defence and Peace Economics* 9 (1) (1998), pp. 25–26.

⁵ For alternative conceptualisations, see for example Tellis *et al.*, *Measuring National Power*, pp. 133–176; Risa A. Brooks, "Introduction: The Impact of Culture, Society, Institutions, and International Forces on Military Effectiveness", in Risa A. Brooks and Elizabeth A. Stanley (eds.), *Creating Military Power: The Sources of Military Effectiveness* (Stanford: Stanford University Press, 2007), pp. 9–22.

⁶ Richard K. Betts, *Military Readiness: Concepts, Choices, Consequences* (Washington, D.C.: The Brookings Institution, 1995), p. 39. In the context of PLA studies, Betts' military readiness concept was also used by Ka Po Ng in his study *Interpreting China's Military Power: Doctrine Makes Readiness* (New York: Frank Cass, 2005).

of adequate quantity, quality and maintenance to enable the various military forces to accomplish their missions.

This study focuses on China's military procurement approach. While the study of military procurement often focuses on procurement decisions and processes related to the acquisition of specific weapon systems,⁷ in China's case the limited access to reliable data does not allow for this perspective.⁸ Instead, the study addresses China's general approach to military procurement. Thus, drawing on the published assumptions about the impact of misguided procurement decisions on military readiness, the study analyses the possible implications of China's procurement approach on its actual military strength.

These conclusions, however, pertain mainly to large-scale military campaigns beyond China's borders, in which at least two services (army, air-force, navy and ballistic missiles) are involved. Procurement decisions may have significant implications for this type of conflict, as it requires the deployment, assimilation, integration, operation and maintenance of a large variety of advanced weapons. By contrast, inappropriate procurement decisions may be less crucial to local incidents and conflicts along national borders, in which the PLA's ground forces can play a prominent role, compensating for technological inferiority by relying on the PLA's more traditional advantages. These include the high level competence of individual PLA officers and soldiers, the capacity for mass deployment of soldiers and equipment (a large part of it outdated), and the massive support of the civil sector.⁹

From Military Procurement to War-Fighting Capabilities: An Analytical Framework

In his conceptualisation of the term military readiness, Richard Betts argued that to realise its military objectives, a country must have the ability to maintain a large

⁷ For example, Aaron Plamondon, *The Politics of Procurement: Military Acquisitions in Canada and the Sea King Helicopter* (Vancouver: UBC Press, 2010); Obaid Younossi, *F-22A Multiyear Procurement Program: An Assessment of Cost Savings* (Santa Monica: RAND, 2007); Nick Koltz, *Wild Blue Yonder: Money, Politics, and the B-1 Bomber* (New York: Pantheon Books, 1988).

⁸ "China", in Ravinder P. Singh (ed.), *Arms Procurement Decision Making*, vol. I (Oxford: Oxford University Press, SIPRI, 1998), p. 9.

⁹ On the relations between the human factor and technology in large and prolonged ground operations, see for example Frederick W. Kagan, "Protracted Wars and the Army Future", in Gary Schmitt and Tom Donnelly (eds.), *Of Men and Materiel: The Crisis in Defense Spending* (Washington, D.C.: AEI Press, 2007), pp. 37–39.

variety of actual and potential military resources at different levels of readiness.¹⁰ Therefore, any constellation of military readiness gives priority to certain forces and capabilities, and requires the military planners to consider a complex set of trade-offs between various levels, scopes and directions of readiness. Procurement requirements differ accordingly and bear similar compromises, since they are defined both in terms of what is to be developed and produced, and the manner in which the procurement efforts are distributed among R&D, production and support. Clearly, as procurement budgets are limited, a preference for a certain type of weapon or for specific phase of procurement has some trade-offs in terms of the direction and scope of war preparations.

One such trade-off is between military readiness and long-term economic efficiency. For example, the production of a large variety of weaponry, intended to enhance preparedness against a wide spectrum of threats, precludes the possibility of conducting economics of scale. Additionally, the production of a large stock of spare parts raises inventory costs. Another trade-off concerns the zero-sum relations between different stages of procurement. Investing more resources in R&D leaves fewer resources for production and support. A third type of trade-off concerns the allocation of procurement resources among different kinds of preparation. Increasing the readiness of certain military branch may automatically reduce the capability of others.¹¹

Under such complex conditions and calculations, ill-guided procurement decisions can obviously have a limited effect on military readiness, or in some cases even reduce it. According to the literature, whether procurement decisions enhance

¹⁰ Betts divides military readiness into operational, structural and mobilisation levels. Operational readiness, measured in hours or days, means the conversion of certain military forces, from peacetime alignment to wartime alignment, and their deployment in the battlefield. Structural readiness, measured in weeks or months, refers to the conversion of potential military capabilities to operational ones, and their deployment in the battlefield. Mobilisation readiness, measured in years, is a country's capability to convert and deploy its civilian resources into military resources, in a given timeframe. Betts, *Military Readiness*, pp. 40–43.

¹¹ The trade-offs analysis is based on Betts, *Military Readiness*, pp. 43–53. For an example of the military procurement trade-off dilemma, see Loren Thompson, "Age and Indifference Erode U.S. Air Power", in Schmitt and Donnelly (eds.), *Of Men and Materiel*, pp. 65–77.

the armed forces' capability to realise the country's strategic objectives depends largely on the following factors.¹²

1. The weapon system in question should be adequate to the country's basic military conditions, including doctrine, security environment and military organisation. This demand may seem obvious, but considering the high level of uncertainty about future threats and the lack of consensus on doctrinal and strategic matters among decision makers,¹³ it is not easily met.
2. The more technologically ambitious the weapon system is, the smaller the chances that it will be deployed and assimilated successfully. Sophisticated systems are often driven by technological ambition rather than by strategic needs, and their R&D process might be highly complicated. Therefore, as Holland argues, "[t]he more uncertain the technology, the more likely it is that the weapon's performance will fall short of the original expectations".¹⁴
3. A monopolistic and poorly regulated client-supplier relationship (i.e. military establishment-defence industry) blurs the requirements and conditions that guide the transaction and thus impairs the procurement process. When this happens, it can lead to problems of cost containment, quality assurance, poor information flow between the parties and the producer's failure to comply with customer's specifications and requirements.
4. The greater the number of organisations and parties involved in the process, the greater the chances that the procurement decision will be directed by concerns other than doctrinal and strategic calculations. Nevertheless, it is noteworthy that given the unique characteristics of the defence sector, procurement decisions are repeatedly exposed to unrelated calculations.¹⁵ Therefore, the negative impact of this factor can be expected to increase in correlation with the following factors: the vaguer the strategic requirements of the weapon system, the higher its

¹² The analysis of military procurement decision making is based on Holland, "Explaining Weapons Procurement", pp. 353–376; Markowski and Hall, "Challenges of Defence Procurement", pp. 3–37.

¹³ Barry R. Posen, *The Sources of Military Doctrine* (Ithaca: Cornell University Press, 1984), p. 30.

¹⁴ Holland, "Explaining Weapons Procurement", p. 362.

¹⁵ The defence sector lacks free market conditions as client (military establishment) and vendor (defence industries) have strong monopolistic powers, and the level of transparency is low. On the sector's exposure to external intervention and political pressures, see Ronald J. Fox, *The Defense Management Challenge: Weapons Acquisition* (Boston: Harvard Business School Press, 1988), pp. 300–308; Thomas L. McNaugher, *New Weapons Old Politics: America's Military Procurement Model* (Washington, D.C.: The Brookings Institute, 1989); Karl Derouen and Uk Heo, "Defense Contracting and Domestic Politics", *Political Research Quarterly* 53 (4) (December 2000), pp. 753–767.

technological sophistication, and the more monopolistic and non-institutionalised the client-supplier relationship.

These theoretical assumptions, as well as the trade-off concept, lay the groundwork for analysing the empirical evidence regarding China's military procurement. The less it meets the conditions described, the less it is expected to serve China's strategic and military objectives. As for the implications that a distorted procurement process may have for China's military capability, this issue can be addressed through the trade-off concept embedded in military readiness, supported by the partial evidence available on China's actual procurement efforts.

The Conditions that Inform China's Military Procurement Approach

Military procurement can be explained in various ways. Realists tend to explain it in terms of threat level and balance of power, liberalists would incline toward explanations that underscore organisational interests, and constructivists may emphasise the country's identity sentiments.¹⁶ However, empirical evidences demonstrate that these explanations do not necessarily contradict each other and may even be complementary.¹⁷ Accordingly, the conditions that are examined in this study are China's threat perception and strategic objectives, the PLA's bargaining power vis-à-vis the leadership, and China's traditional inclination towards military self-reliance. These conditions can be described also as strategic, political and cultural factors, respectively.

¹⁶ On the realist approach to military procurement, see Lewis F. Richardson, *Arms and Insecurity: A Mathematical Study of the Causes and Origins of War* (Pittsburgh: Boxwood Press, 1960); J. David Byers and David A. Peel, "The Determinants of Arms Expenditures of NATO and the Warsaw Pact: Some Further Evidence", *Journal of Peace Research* 26 (1) (1989), pp. 69–77; Dagobert L. Brito and Michael D. Intriligator, "Arms Races and Proliferation", in Keith Hartley and Todd Sandler (eds.), *Handbook of Defense Economics*, Vol. 1 (Amsterdam: Elsevier, 1995), pp. 114–117. On the liberalist approach to military procurement, see William P. Rogerson, "Incentive Models of the Defense Procurement Process", in Hartley and Sandler (eds.), *Handbook of Defense Economics*, pp. 339–340; Derouen and Heo, "Defense Contracting and Domestic Politics". On constructivist explanations to military procurement, see Sylvie Matelly, "The Determinants of U.S. Military Expenditures in the Context of Arms Race", in Paul Levine and Ron Smith (eds.), *Arms Trade, Security and Conflict* (London: Routledge, 2003), p. 169; James L. Payne, *Why Nations Arm* (Oxford: Basil Blackwell, 1989), pp. 95–96.

¹⁷ Matthew A. Evangelista, "Why the Soviets Buy the Weapons They Do", *World Politics* 36 (4) (July 1984), p. 610; David Kinsella, "Rivalry, Reaction, and Weapons Proliferation: A Time-Series Analysis of Global Arms Transfers", *International Studies Quarterly* 46 (2002), pp. 209–230.

The Strategic Factor: Aspiration for Great Power Status

The major development that has influenced China's strategic environment is the easing of tensions in the Taiwan Strait. Immediately after his election in May 2008, Taiwan President Ma Ying-jeou shifted away from his predecessor's independence policy and clarified that Taiwan would have no separatist intention. He further declared that Taiwan would not engage in an arms race with China.¹⁸ China's major external threat, a military conflict in the Taiwan Strait with probable American intervention, was thus drastically diminished. Nevertheless, China still has unsettled territorial disputes and other open conflicts and threats, such as a regional competition with the United States. However, due to the dominance of economic calculations by all the relevant countries and the proclaimed intentions of all sides to maintain stability, none of these threats is likely to be realised in the near term.¹⁹

Yet, the level of perceived threats is not the only factor in China's strategic calculations. Since its establishment in 1949, China's strategic perspective has been largely defensive; however, it appears that some adjustments to this approach were recently introduced. According to a report delivered in the Fourth Plenary Session of the 17th CCP Congress in 2009, China's leadership assessed that the global power structure had been transformed in the wake of the 2008 global financial crisis, and that the ability of the United States to continue leading the international order had decreased. According to the same report, countries around the world are seeking development paths other than the one led by the United States. Therefore, China sees the current period as "a period of great development, great change and great adjustments". The assessment further maintained that this is a period in which "the competition among major powers for a position of overall, comprehensive strength is becoming an important feature of the changes in the global situation".²⁰ Clearly, one implication of this global reorientation might be the expansion of China's strategic

¹⁸ "President Ma Ying-jeou says Taiwan will not Enter Arms Race with China", *AFP*, 19 May 2010, World News Connection (WNC) 201005191477.1_348a005c3e689870.

¹⁹ China's unresolved territorial disputes include the dispute with Japan over Exclusive Economic Zones (EEZ) rights and the Senkaku Islands in the East China Sea, the disputes with Brunei, the Philippines, Malaysia, Indonesia, and Vietnam over the Spratly and Paracel island groups and the adjacent waters in the South China Sea, and the dispute with India over the Arunachal Pradesh and Askai Chin regions along their border. For a comprehensive analysis of China's security threats, see Susan L. Craig, *Chinese Perceptions of Traditional and Nontraditional Security Threats* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2007).

²⁰ Wei Zhong and Fu Yu, "China's Foreign Strategy: Constantly Deepening and Broadening", *Contemporary International Relations* (Beijing) 20 (2) (March/April 2010), pp. 80–81.

presence beyond its region; another is a bolder and more proactive Chinese foreign policy.

Within the Chinese leadership, there are doubts whether China's economic base and internal challenges allow it to establish a military presence beyond the East Asia region. Apparently, the prevailing position in Beijing is that the conditions have not yet ripened for such an endeavour.²¹ Nevertheless, it seems that rather than debating whether such a shift is in China's best interest, the question is focused on when this step should be taken. Meanwhile, there are increasing demands from within to adjust China's military power to match both its rising diplomatic influence and its expanding economic interests worldwide. Thus, while the United States is requesting that China shares the burden of global leadership, there are concurrent calls, mainly from military and academic circles, in China, to build and increase military capabilities.²² The dispatching of Chinese warships to the Gulf of Aden in January 2009, and China's apparent effort to increase its naval presence in south Asia can be seen as an expression, or an outcome, of this trend.²³

The Political Factor: Confirming the Regime's Power and Feeding the PLA

Confirming the Chinese Communist Party's (CCP) monopoly over political power is the regime's supreme goal.²⁴ Maintaining internal security is key to the fulfilment of this goal, since it is a precondition for continued economic growth, which is the underpinning of the Party's legitimacy. In this regard, the PLA, as well as China's other security forces, plays a critical role. However, the PLA has another function in securing the CCP's position. As nationalism plays a greater role in the CCP's base of legitimacy, strengthening the PLA's prestige becomes a political necessity. According to Robert S. Ross, "military nationalism has become increasingly important to the

²¹ Communication with Chinese officials. Tel-Aviv, March 2010.

²² Huang Ruixin and Zhang Xibin, "Understand Anew the Nature of Growth of China's Military Spending", *Jiefangjun Bao*, 2 February 2008, WNC 200802281477.1_bd770a06d055b297.

²³ In late August 2010, the Chinese navy conducted its first-ever port call to Myanmar. For assessment of this move, see B. Raman, "A Chinese Call for Naval Trust-Building in Asia", *South Asia Analysis Group*, Paper no. 4014 (1 September 2010), www.southasiaanalysis.org/papers41/paper4014.html (accessed 5 September 2010). On China's navy mission in the Gulf of Aden, see Mingjiang Li, "China's Gulf of Aden Expedition and Maritime Cooperation in East Asia", *China Brief* 9 (1) (12 January 2009).

²⁴ M. Taylor Fravel, "China's Search for Military Power", *The Washington Quarterly* 31 (3) (Summer 2008), p. 127.

Chinese Communist Party's domestic prestige".²⁵ Similarly, Hua Di argued that upholding internal stability requires that the PLA possesses not only operational capability but also prestigious military technology.²⁶ From this perspective, the launching of mega-military projects such as the atomic bomb, an intercontinental missile, the space programme and probably an aircraft carrier in the near term, is largely motivated by political considerations.

The PLA is not only an instrument of the CCP, but also a bureaucratic organisation, and despite its unconditional loyalty to the Party, it has increasingly adopted an interest group pattern of behaviour.²⁷ Taking advantage of the lacklustre character of China's current leaders—especially as compared to that of their eminent predecessors, Mao Zedong and Deng Xiaoping—and riding on inflaming nationalist sentiments, military leaders have increased their demands for resources and procurement. Compelled to be more attentive to the army's demands while simultaneously attempting to reaffirm the PLA's discipline, Party leaders are inclined to allocate abundant resources to foster the military modernisation.²⁸

Nonetheless, China's ascendant path relies on continuous economic growth, which in turn requires political stability and restrained military expenditure. Thus, resources for PLA modernisation, among them procurement initiatives, are expected to be available, but under a restrained budgetary framework.

The Cultural Factor: Inclination towards Self-Reliance

China's self-reliance approach is part of its historical experience, self-image and its perception of international relations dynamics.²⁹ Its roots can be traced to the

²⁵ Robert S. Ross, "China's Naval Nationalism: Sources, Prospects, and the U.S. Response", *International Security* 34 (2) (Fall 2009), p. 64.

²⁶ Hua Di, "Threat Perception and Military Planning in China: Domestic Instability and the Importance of Prestige", in Eric Arnett (ed.), *Military Capacity and the Risk of War: China, India, Pakistan and Iran* (New York: Oxford University Press, 1997), p. 26.

²⁷ Ellis Joffe, "The Chinese Army in Domestic Politics: Factors and Phases", in Nan Li (ed.), *Chinese Civil-Military Relations* (London: Routledge, 2006), pp. 8–24.

²⁸ On Hu Jintao's relations with the PLA, see Bin Yu, "The Forth-Generation Leaders and the New Military Elite", in David M. Finkelstein and Kristen Gunness (eds.), *Civil-Military Relations in Today's China* (Armonk, NY: M.E. Sharpe, 2007), pp. 74–95.

²⁹ A country's capabilities to design, develop, and produce all of its military needs is described sometimes as technological self-sufficiency, rather than self-reliance. According to this distinction, a self-reliance capability is regarded as possessing production capability only. This study uses the term *self-reliance* to describe a country's comprehensive capability to both develop and produce all its military requirements. See Raju G. Thomas, "Arms Procurement in India: Military Self-Reliance

nineteenth century, during the modernisation campaign to foster military strength and economic growth (the Self-Strengthening, 1861–1895). At that time, local leaders were willing to compromise on product quality for the sake of locally produced technology.³⁰ Following the failure of the self-strengthening campaign and the years of foreign dominance that followed the collapse of the Chinese empire in 1911, technological progress became a symbol of power and prestige for China's leaders. Many years later, Deng Xiaoping declared: "It has always been, and will always be, necessary for China to develop its own high technology [...]. If it were not for the atomic bomb, the hydrogen bomb and the satellites [...] China would not have its present international standing as a great, influential country."³¹

The experience of the Soviet assistance reinforced these sentiments. During the 1950s, the Soviet Union and China launched a gigantic cooperation programme, within the framework of which the Soviets transferred to China the know-how and hardware required to establish a comprehensive defence industry based on Soviet models, parts and materials. Even before the breakdown in cooperation, once the first stage was completed and China was able to assemble major weapon systems, it established research institutes and factories to develop and produce parts and materials independently, in order to decrease its reliance on the Soviet Union.³² The general plan was to acquire a comprehensive military self-reliance capability in less than two decades. Simultaneously, Beijing decided that the import of hardware should be limited to a minimum; all efforts should be made to obtain foreign scientific and technological knowledge, using any means and for a minimal cost.³³ Ever since, that concept has remained valid, insofar as it concerns military products. Eventually, in 1960, the Soviets abruptly halted the cooperation, in an act that not only had a

versus Technological Self-Sufficiency", in Arnett (ed.), *Military Capacity and the Risk of War*, pp. 110–129.

³⁰ Teng Ssu-yu and John K. Fairbank, *China's Response to the West: A Documentary Survey 1839–1923* (New York: Atheneum, 1971), pp. 64–65.

³¹ Deng Xiaoping, "China Must Take its Place in the Field of High Technology", in *Selected Works of Deng Xiaoping (1982–1992)* (Beijing: Foreign Languages Press, 1994), p. 273.

³² Yu Yongbo, *China Today: Defense Science and Technology*, vol. 1 (Beijing: National Defense Industry Press, 1993), pp. 13–15, 21–22; Sergei Goncharenko, "Sino-Soviet Military Cooperation", in Odd Arne Westad (ed.), *Brothers in Arms: The Rise and Fall of the Sino-Soviet Alliance, 1945–1963* (Stanford: Stanford University Press, 1998), pp. 141–164.

³³ That principle was formulated in 1956, during the preparatory discussions of the National Plan on the Prospect of the Development of Science and Technology (1956–1967), also known as the 12-Year Plan. See Nie Rongzhen, *Inside the Red Star: The Memoirs of Marshal Nie Rongzhen* (Beijing: New World Press, 1988), pp. 666–671.

catastrophic effect on China's economic, technological and military development, but also taught the Chinese leadership a bitter lesson regarding the purchase of military products and technology.

In the late 1970s, after the launching of the Open Door policy and the initiation of military modernisation, the PLA dramatically increased its demands for foreign weapons. In response, Nie Rongzhen, the founding father of China's strategic weapon programme sent a letter to army leaders, clarifying that "it was impossible to buy an imported modernisation, and we must embark on China's road of developing weapon systems and equipments mainly on our own efforts while importing a few critical technologies".³⁴

Although this guideline has been followed ever since, the limitation on military import was somewhat relaxed during the early 1990s, mainly due to developments such as China's increasing sense of threat, the PLA's improved bargaining position and China's increased financial means. Yet, as the following section demonstrates, the basic inclination towards self-reliance has not changed.

China's Military Procurement Trends in the Early Twenty-first Century

The combination of ambitious foreign policy, the PLA's increasing bargaining power, and the inherent self-reliance approach reinforce two existing trends in China's military procurement. The first concerns the demand aspect: the military establishment has the ambition to acquire the spectrum of weapons and equipment fit for a great power. The second and complementary approach concerns supply: China's ongoing inclination to develop and produce all its military means. As the following section demonstrates, these tendencies leave much room for non-strategic considerations to influence China's military procurement efforts.

An Increasing Aspiration for Military Build-up

As China's threat perception becomes more abstract, it seems that despite the remarkable progress of its doctrinal and strategic thinking over the last two decades,³⁵

³⁴ Yu, *China Today*, pp. 118–119.

³⁵ David M. Finkelstein, "Thinking About the PLA's 'Revolution In Doctrinal Affairs'", in James Mulvenon and David Finkelstein (eds.), *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army* (Alexandria, VA: CNA Corporation, 2005), pp. 1–26.

the gap between the theoretical and practical dimensions of its military build-up has remained wide. To begin with, despite the emphasis placed on fighting high-tech wars and conducting joint operations, the PLA is still about two decades away from achieving these goals. For instance, it is not yet capable of conducting joint integrated operations and it lacks real-time command and control capabilities, two interrelated elements that play a central role in the PLA's build-up programmes.³⁶

One reason for this lag is a lack of understanding of the exact nature of the current battlefield, owing to lack of experience. As one Chinese military analyst argued, "in the domain of military theory research, there is [in China] much emphasis on form and emulation, with a blind pursuit of high level pursuits and shallow theorising [...]".³⁷ According to this analysis, there is no clear understanding on the part of the PLA of how to adapt to the massive transformations dictated by the global strategic developments, how to implement Hu Jintao's conceptual guidelines on national defence and army building, or of the proper relationship between the international strategic arena and China's national interests.

Additionally, since 2004, the PLA's mission has been extended and diversified. First, it was the introduction of the "New Historic Missions" that charged the PLA with broader and more elusive responsibilities, such as safeguarding the national development and protecting world peace and common development. Then, in 2006, its mission was defined by the concept "Diversified Military Tasks", which combined the New Historic Missions with the more focused, military oriented task of fighting local wars under conditions of informatisation. Finally, the 2008 national defence white paper charged the PLA with the responsibility for "Military Operations Other Than War", which left more room for non-military assignments, such as disaster relief, maintaining social stability and conducting military diplomacy.³⁸

³⁶ United States Department of Defense, *Annual Report to Congress: Military Power of the People's Republic of China 2009* (Washington D.C.: Office of the Secretary of Defense, 2009), p. 15; Kevin Pollpeter, "Towards an Integrative C4ISR System: Informationization and Joint Operations in The People's Liberation Army", in Roy Kamphausen, David Lai, and Andrew Scobell (eds.), *The PLA at Home and Abroad: Assessing the Operational Capabilities of China's Military* (Carlisle: Strategic Studies Institute, U.S. Army War College, 2010), pp. 199–201, 206–207.

³⁷ Liu Shenyang, "Major Ways to Realize Scientific Development Concept in Army Building", *Jiefangjun Bao*, 1 November 2006, WNC 200611011477.1_c96203af84cadbad.

³⁸ Andrew Scobell, "Discourse in 3-D: The PLA's Evolving Doctrine, Circa 2009", in Kamphausen, Lai, and Scobell (eds.), *The PLA at Home and Abroad*, pp. 104–105, 110–117.

The lack of a clear source of threat, the amorphous strategic thinking and China's expanding strategic objectives have also resulted in a debate inside the PLA on the direction of its future build-up. While the dividing line between the debating parties is not entirely clear, it is possible to identify two main directions. The first, probably associated with the ground forces, claims that the PLA should concentrate on building its core military capabilities in order to defend the country's basic interests in and around its territory. The second direction claims that China should prepare for a variety of traditional and non-traditional security missions, both near and far from its borders, and adopt a proactive approach. A reflection of this debate can be found in the assertion made by the deputy commander of Chengdu Military District Group Army, Zhang Zhaoyin, in late 2008:

[A]s the country faces increasingly diversified security threats, it is easy for people to unconsciously relax core military capacity building and misread the relationship between core military capacity and other capabilities. [However...] Among diversified military tasks, winning local wars under informatized conditions is still the top priority. If we are able to complete this important task, then other tasks can be completed as a result.³⁹

On the other hand, reflecting the "complex threats" approach, Chen Zhou, an expert from the Academy of Military Sciences, claimed that "the PLA must respond to traditional security (threats), and at the same time, to non-traditional security (threats)".⁴⁰

This conflict is closely associated with procurement issues, as was partly reflected through the debate on how to set priorities between the PLA's two main development paths: mechanisation and informatisation of the forces. Basically, mechanisation refers to core military capabilities, such as increasing the forces manoeuvrability and fire-power, and is associated with a basic stage of modernisation. Informatisation, in contrast, requires highly advanced means, such as advanced

³⁹ Zhang Zhaoyin, "Make Ceaseless Efforts to Strengthen Core Military Capacity Building—Important Experience from 30 Years of Reform, Opening Up", *Jiefangjun Bao Online*, 11 December 2008.

⁴⁰ Chen Hui and Wang Jingguo, "Promoting an Active Defense Military Strategy", *Liaowang*, 19 August 2008, WNC 200808191477.1_b310069f0d41f768.

communication systems, computers and space systems, and is relevant to a large variety of military missions—both traditional and non-traditional. Therefore, the demand to promote simultaneously mechanisation and informatisation can be identified with the “complex threats” approach. And indeed, amid the calls to develop the core military capabilities first and advanced capabilities later, others have argued that China should “get rid of the gradual approach” and expedite the informatisation of the PLA even before the PLA’s full mechanisation is achieved.⁴¹

This debate became even more explicit as arms and services attempted to emphasise their relative importance under China’s strategic conditions. For instance, in a discussion held in 2009 in the National People’s Congress (NPC) on the relation between China’s economic situation and its military development, the political commissar of the Navy’s South Sea Fleet argued: “China has thousands of enterprises spreading over the globe. We must seriously consider how to effectively protect [them].”⁴² Obviously, any attempt to protect China’s overseas interests requires an increase in maritime capabilities.

The aerial arm had a different viewpoint. Giving an interview in 2007, the Deputy General Manager of China Aviation Industry Corporation I (AVIC I)—China’s leading aviation industry before it remerged in 2008 with the other aviation corporation, AVIC II—said that “there is no doubt that air superiority is critically important. In the battlefield, gaining air superiority can have a pivotal effect on the outcome of the war, [and] without air superiority, there is absolutely no way to gain control of the sea”.⁴³

In response to this debate, China’s leadership made a typical consensual decision. As China National Defence 2008 put it: “China’s national defence policy for the new stage in the new century basically includes: upholding national security and

⁴¹ Sui Junqin, Liu Qinghua and Chang Xianqi, “Zhongguo Tese Junshi Biange yu Wuqi Zhuangbei Fazhan” [China Characteristic Military Revolution and the Development of Weaponry], *Journal of the Academy of Equipment Command & Technology* 16 (4) (August 2005), pp. 2–4.

⁴² Kang Geng, “Contribute to Stability of China’s Reform and Development: Military NPC Representatives Actively Discuss this Year’s Government Work Report”, *Jiefangjun Bao*, 6 April 2009, WNC 200904061477.1_f70103a02cf7271b.

⁴³ Pei Yi, “Official Unveiling of Jian-10 Fighters to Help China Gain Air Superiority”, *Zhongguo Tongxun She*, 17 January 2007, WNC 200701171477.1_be5b00d1087c7e39.

unity, and ensuring the interests of national development [...].”⁴⁴ In other words, instead of setting clear priorities between the approaches, the leadership combined them together. In fact, China decided to build military capabilities to suit the needs of a large and powerful nation. In 2009, the Minister of Defence, Liang Guanglie, said:

The Army’s mobility level will be upgraded to give greater regional capabilities, and Navy will be capable of both a strong coastal defence and certain measures for blue water combat [...]. The Air Force will be transformed from a fleet that could only provide homeland air defence to an aerial power capable of a combination of offensive and defensive operations, and the Second Artillery Corps will become a truly efficient force with both nuclear and conventional striking power [...].⁴⁵

Now that the general direction was designated, demands and suggestions for procurement were put forward. For example, in 2009, the military analyst Liu Jiangping made a list of the aerial military capabilities that China should acquire. The list included “new model aerial refuelling aircraft, new model electronic warfare aircraft, new model strategic bombers and large transport aircraft used for air landing”. Otherwise, he warned, China would not be able to implement its future military strategy.⁴⁶

Another military expert said that “the air force needs to develop into a strategic air force that is in line with China’s status as a major nation [... yet] compared to the United States and Russia, it is hardly worthy of mentioning in the same sentence”. To fix the situation, he pointed to various capabilities that China should acquire, including its own global positioning system (“Beidou 2”), precise striking means and strategic bomber platforms.⁴⁷ Other officers were less specific and argued that amid the pace of both the global and regional armament, China’s military

⁴⁴ *China’s National Defense in 2008* (Beijing: Information Office of the State Council of the PRC, January 2009), ch. 2.

⁴⁵ “PRC Defense Minister Touts PLA’s Achievements Under CPC in Past 60 Years”, *Xinhua*, 21 September 2009, WNC 200909211477.1_860b00adef8d198b.

⁴⁶ Liu Yueshan, “Air Force Combat Strength Boosted to Adapt to Three-Dimensional Operations”, *Wen Wei Po*, 3 December 2009, WNC 200912031477.1_26c10d58d1e412ba.

⁴⁷ *Ibid.*

R&D and weapons deployment to all arms and services should be expedited and broadened.⁴⁸

Additionally, there is the relentless cross-institutional and cross-sector pressure to build an aircraft carrier fleet as a symbol of the country's rise to super power status. While the aircraft carrier proponents raise strategic explanations why China should acquire such a fleet, it is not clear if it has access to the required financial and technological resources, or to what degree aircraft carriers actually meet China's strategic conditions. Contrary to the increasing demands to acquire such an extravagant apparatus, some Chinese strategists regard aircraft carriers as one of the U.S. military's sources of vulnerability, as they are relatively easy targets.⁴⁹ If this is the case, why should China acquire this means? And yet, as Robert Ross argues, "Chinese leadership has already succumbed to the combination of mass nationalism and the military pressure [...]. Thus, the issue is no longer if, but when, China will build one."⁵⁰

The strongest manifestation of China's ambitions in the area of military procurement was its national plan, launched in 2006, to develop high-tech weapons capability within 15 years. The plan includes "new and high-end technologies for the space industry, aviation, ship and marine engineering, nuclear energy and fuel, and information technology for both military and civilian purposes", and it mentions the specific projects of large aircraft, nuclear power stations of new type, manned space missions and lunar probes.⁵¹ Probably, the only countries that have ever attempted to undertake simultaneously such demanding projects were the United States and the Soviet Union, which had more access to scientific and technological capabilities, and were motivated by the fierce arms race and a strong sense of threat.

⁴⁸ For example, see Ling Shengyin, "Guanyu Fazhan Woguo Junshi Gao Keji de Jige Wenti" [Some Questions About the Development of Military High-Technology in China], *Engineering Science* 9 (1) (January 2007), pp. 15–22.

⁴⁹ For example, see Sun Zian, "Strategies to Minimize High-Tech Edge of Enemy", *Xiandai Bingqi* 8 (8) (August 1995), in FBIS-CHI-96-045, 6 March 1996, pp. 63–65; Tseng Shu-wan, "Beijing Military Observer Analyzes that PLA is Entirely Capable of Dealing with Foreign Aircraft Carrier should they Start Trouble Offshore", *Wen Wei Po*, 21 March 1996, in FBIS-CHI-96-056, pp. 30–31.

⁵⁰ Ross, "China's Naval Nationalism", pp. 64–65. See also Andrew F. Diamond, "Dying with Eyes Open or Closed: The Debate over a Chinese Aircraft Carrier", *The Korean Journal of Defense Analysis* 18 (1) (Spring 2006), pp. 35–58.

⁵¹ "China Plans for High-Tech Army", *China Daily*, 26 May 2006, www.chinadaily.com.cn/china/2006-05/26/content_600631.htm (accessed 27 June 2006).

The Quest for Self-Reliance

As mentioned, China's aspiration for military self-reliance is a long-standing goal. Yet, the pursuit of this goal has been occasionally disturbed by the country's sense of threat or limited access to advanced technologies. Recently, due to China's increasing self-confidence, its improved access to technological and financial means, its emerging nationalism, and its prolonged endurance of the Western military embargo, it seems that its tendency towards self-reliance is becoming firmly entrenched.

One indication of this escalating tendency is the recent development of programmes for national defence. China's Eleventh Five Year Plan (FYP) for the defence industry (2006–2010) strongly promoted the principle of China's independent military innovation. In a working conference of the Commission of Science, Technology and Industry for National Defence (COSTIND), held in January 2006, Vice Premier Huang Ju said: "China should enhance the capacity for independent innovation in its defence-related scientific and technological research." He also noted that the defence industry is "a significant force of the country's scientific and technological innovation system".⁵² The COSTIND spokesperson made a similar claim: "The [defence industry] sector will meet the basic needs of the country's armed services for high-tech weaponry."⁵³

Underlying these statements and national procurement plans is the assumption that China is increasingly capable of supplying its needs for weaponry and equipment, because of the defence industry's recent competence upgrade in the fields of technology and management. A report by the China Association for Science and Technology, probably issued in early 2009, stated that "in some areas, Chinese weapons have either achieved or are very close to achieving international advanced

⁵² In March 2008, as part of a larger process of State Council ministry reorganisation, COSTIND was dissolved and many of its functions were shifted to a new State agency, called Administration for Science, Technology, and Industry for National Defence (SASTIND), operated under the newly created Ministry of Industry and Information Technology (MIIT). For the above quote, see "Vice Premier Calls for Innovation in Defense Industry", *Xinhuanet*, 4 January 2006, http://news.xinhuanet.com/english/2006-01/04/content_4009370.htm (accessed 18 January 2006).

⁵³ "China Sets 2006–2010 Targets for Defense Industry", *PLA Daily*, 6 January 2006, http://english.chinamil.com.cn/site2/news-channels/2006-01/06/content_377935.htm (accessed 19 March 2006).

standards”.⁵⁴ The report mentioned the J-10 jet fighter, the DF-31 intercontinental ballistic missile and the mastering of the Su-27 technology.

The sense of gradually bridging the technological gap between China and Western developed countries was also reflected in the analyses of Du Wenlong, a researcher at the Academy of Military Science (AMS). While acknowledging that such a gap still exists, he argued that “China’s national defence science and technology and military industrial technology have made tremendous progress, so they are capable of not only satisfying the army’s general equipment manufacturing and supply needs but also maintaining independent research, development and improvement of the next generation of weapons and equipment”.⁵⁵

Similar claims have been made by the Party secretary of the Second Academy of the China Aerospace Science and Industry Group, Dr. Liu Erqi, who stressed both China’s military technological advancement and its increased self-reliance capability. After underscoring the academy’s scientific, technological and managerial achievements, he explained:

The research [and] development of missiles is a complicated engineering project [...]. Many critical technologies in missile production were controlled and monopolized by several countries for a long time. The Academy has always been self-reliant and innovative in its strategy of development. Based on [...] domestic and international advanced design concepts, and on the learn-digest-absorb process, the Academy has accomplished over a hundred major critical technologies for missile production.⁵⁶

China’s 60th National Day Military Parade was largely intended to demonstrate these achievements. Referring to the parade just before it was held, Lt. General Fang Fenghui, the parade’s general director, said, “52 types of new weapon systems developed with China’s own technology will be showcased [...]. China will unveil for the first time the PLA’s airborne early warning and control (AEWC) aircraft,

⁵⁴ Christopher Bodeen, “China Says Domestic Armaments are World-Class”, *Washington Post*, 13 April 2009.

⁵⁵ Sun Zifa, “Military Expert: Not All New Weapons in National Day Military Parade have been Officially Deployed on Large Scale”, *Zhongguo Xinwen She*, 25 October 2009, WNC 200910251477.1_4a6201675d84b346.

⁵⁶ Liu Erqi, “The Pioneer of Aerospace Defense of the Republic”, *Liaowang*, 9 October 2009, WNC 200810091477.1_77e309f501da3e4.

unmanned aerial vehicles (UAV) and other novel military hardware [...].⁵⁷ China's defence minister, Liang Guanglie, put it even more bluntly. According to him, the Chinese defence industry has shifted from copying Russian made weapons in the 1950s and 1960s "to a self-reliance on designing and manufacturing from the 1970s onward" and the parade showed "a distinctive theme of 'Made in China' [...]."⁵⁸

However, no matter how great the leap China's defence industry has made, it still has not overcome its long-term impediments. Observing the reforms China's defence industry has been going through during the last decade, Tai Ming Cheung recently concluded that

There are major gaps in the reform process that has allowed residual remnants of the central planning system to remain in place. Competitive mechanisms are under-developed, the pricing system has yet to be reformed and remains tightly regulated, and major bottlenecks exist in the diffusion of innovation, especially the application of basic and applied R&D output from research institutes for operational development.⁵⁹

As a result, Cheung argues that while "In a select number of high priority areas [...] technological capabilities reach[ed] early-fourth generation levels (1980s), [...] the Chinese defence industry still lags as much as two generations behind the latest global standards in most areas".⁶⁰ This evaluation, for the most part, is reflected in other analyses of China's defence industry,⁶¹ and even those who credit China with significant military technological progress share the opinion that it has not yet acquired the capabilities required to reach world-class level.⁶²

⁵⁷ "PRC Defense Minister".

⁵⁸ *Ibid.*

⁵⁹ Tai Ming Cheung, "Dragon on the Horizon: China's Defense Industrial Renaissance", *Journal of Strategic Studies* 32 (1) (February 2009), pp. 62–63.

⁶⁰ *Ibid.*, p. 62.

⁶¹ For example, see Richard A. Bitzinger, "Reforming China's Defense Industry: Progress in Spite of Itself?" *The Korean Journal of Defense Analysis* 19 (3) (Fall 2007), pp. 99–118; Arthur S. Ding, "Civilian-Military Relationship and Reform in the Defence Industry", Working Paper No. 82 (Singapore: *Institute of Defence and Strategic Studies*, June 2005); Evan S. Medeiros, Roger Cliff, Keith Crane and James C. Mulvenon, *A New Direction for China's Defense Industry* (Santa Monica: RAND, 2005).

⁶² For example, see Richard Fisher's reservation regarding China's ability to acquire an indigenous fourth to fifth generation fighter aircraft. Richard Fisher, Jr., *China's Aviation Sector: Building Toward World Class Capabilities*, Testimony for the U.S.-China Economic and Security Review Commission Hearing on China's Emergent Military Aerospace and Commercial Aviation Capabilities (20 May 2010), www.strategycenter.net/research/pubID.226/pub_detail.asp# (accessed 14 August 2010).

Additionally, the various steps that China took since the late 1990s to regularise and rationalise client-vendor relations between the PLA and the defence industry have borne limited results. Measures taken included the establishment of a PLA purchasing agency (the General Armament Department, GAD); the transformation of the military industry complex from “series of machine-building industries” into large state owned corporations; the splitting of the five out of six defence industry corporations into ten corporations in order to foster internal competition; the selective opening of military bids to civilian companies; the formation of the Ministry of Industry and Information Technology (MII) in 2008 as a super-ministry, which among other things was supposed to enhance civil-military technological integration; and the reduction of the defence industry’s autonomy by downgrading COSTIND to a sub-unit (SASTIND) of MII.⁶³ However, following the realisation that splitting the defence corporations led to increased bureaucratisation and waste rather than to heightened competition, the ten corporations were remerged. Likewise, due to high bureaucratic barriers, only a few private companies have since had access to the military market, and the defence industries’ intent to raise funds through the stock exchange is slower in producing results than was initially expected. Finally, SASTIND apparently preserved much of COSTIND’s bureaucratic power, despite the 2008 ministerial reforms.⁶⁴

Despite the deficiency and technological gaps that still exist in China’s defence industry, China’s reliance on this same source is increasing. The clearest indication of this is its deteriorating military transfer relations with Russia, which since the 1990s has been China’s only reliable large supplier of advanced military technologies. Beginning in 2007, China stopped placing orders for main weapon systems from Russia, and that year its arms import from Russia decreased by almost 65 per cent compared to the previous year. In 2009, the arms import from Russia totalled USD 401 million, compared to over USD 3.5 billion in 2006.⁶⁵

⁶³ On COSTIND’s organisational transformation in 2008, see note 52. On the aforementioned reforms, see Bitzinger, “Reforming China’s Defense Industry”, pp. 108–109; Ding, “Civilian-Military Relationship”, pp. 24–26; Eric Hagt, “Emerging Grand Strategy for China’s Defense Industry Reform”, in Kamphausen, Lai, and Scobell (eds.), *The PLA at Home and Abroad*, pp. 488–491.

⁶⁴ Yu Chunguang, Zhao Bo and Zou Fanggen, “What Private Enterprise Enlistment has Brought to the Table?” *Jiefangjun Bao*, 24 December 2008, WNC 200812241477.1_511316516adbbfac; Hagt, “Emerging Grand Strategy”, pp. 491–492, 494–496.

⁶⁵ SIPRI Arms Transfers Database, <http://armstrade.sipri.org/armstrade/page/values.php> (accessed 15 July 2010).

The spirit of cooperation between Beijing and Moscow deteriorated as well. Moscow accused Chinese defence industries of copying Russian models without permission. The most notable case was the unauthorised development of a Chinese version of the Su-27SK aircraft, the J-11B, after Russia assigned China the right to produce a limited quantity of this aircraft, under the name J-11, using Russian key parts. Other Russian allegations referred to the Chinese A100 multiple launch rocket system (MLRS), the PLZ05 155-mm self-propelled gun (SPG) and the radar of the F8IIM fighter.⁶⁶ As a result, in 2006, Russia postponed the shipment of Su-27SK kits to China and refused to conclude a deal to sell China the Su-33 aircraft that was intended for use on future Chinese aircraft carrier fleet.

Although China still imports some military systems, parts and technologies from the Ukraine and Western European countries,⁶⁷ these suppliers cannot provide an equivalent replacement for the quantities once supplied by Russia. Ukraine can mainly deliver Russian technologies and therefore depends to a certain extent on Moscow's consent, while military cooperation with the Western European countries is subject to strict limitations set by the military embargo imposed on China. Therefore, the deterioration of Sino-Russian military cooperation surely intensifies the sense of siege China already feels from two decades of Western military embargo. Undoubtedly, the impact of that embargo on China's self-reliance sentiments is strong and the country has taken measures to prove to the world that it can supply its military by its own means. According to Kanwa Defence Review,

When Israel terminated the [Phalcon airborne early warning system] contract, Jiang Zemin and all members of the CMC were enraged. At the end of 2000, officers from China's aerospace industry expressed [...] that development of early warning aircraft became a serious political issue; China determines to mainly

⁶⁶ "Chinese Time-out for Russian Weapons", *Vlasti.net*, 6 June 2008, WNC 200806061477.1_37b901869ab0b1e1; "The Total of VTS between Russia and China has Amounted to 416 Billion in the Last Eight Years", *RIA-Novosti*, 17 April 2009, WNC 200904171477.1_e3460070b9c5cc46; "Russia Downplays Chinese J-15 Fighter Capabilities", *Rianovosti*, 4 June 2010, http://en.rian.ru/military_news/20100604/159306694.html (accessed 14 July 2010).

⁶⁷ SIPRI Arms Transfers Database.

depend on its own efforts in development and create its own aircraft at any price.⁶⁸

China's recent experience strengthens its self-reliance sentiments even further. As military delegates to China's National Congress in 2007 asserted, "If a country failed to establish an independent and powerful system for military industrial development and the army did not completely operate under an independent military equipment and logistics service system, then that country's army cannot be regarded as a strong army, and the military power of the country cannot be further enhanced".⁶⁹

Possible Implications of China's Military Procurement Approach

The aspiration for great power military status and the increasing reliance on its own defence industry are the major drivers of China's military procurement today. Consequently, the defence industry encounters ever-increasing demands for new weapons and is compelled to constantly acquire new scientific, technological and managerial capabilities. At the same time, as this procurement trend is combined with inherent market failures in the defence industry sector, the defence industry's bargaining power vis-à-vis the military increases and creates a potential for abuses in the procurement process.

The question that arises is: what might be the implications of these trends for China's actual military capability? As the data on China's military R&D, production and deployment of new systems are scarce, this question cannot be addressed directly. Instead, the limited data available should be examined through analytical assumptions, in an attempt to comprehend their broader, albeit somewhat speculative, meaning. Given this constraint and the available empirical evidence, it seems reasonable to conclude that the relationship between China's military doctrine and strategic objectives on the one hand and its procurement efforts on the other hand is likely to be tenuous. This conclusion is inferred from the following:

1. China's external threat perception becomes less focused; it has no relevant combat experience; its strategic objectives are defined in abstract terms; and there are

⁶⁸ Pinkov, "Development of Chinese Air Force Early Warning Aircraft", *Kanwa Defense Review*, 24 November 2006, WNC 200611241477.1_14a2175428654c9f.

⁶⁹ Chang Hsin, "China Cautious Allowing Foreign Capital Access to Military Industry", *Wen Wei Po*, 14 August 2007, WNC 200708141477.1_1f4b02507c03c455.

indications of disagreement over military build-up directions among its military leadership. For instance, the dilemma whether to strengthen core defensive power or to extend power projection capabilities.

2. Given the Western military embargo and the deteriorating military transfer relations with Russia, China's inclination towards self-reliance strengthens the local defence industry's bargaining power vis-à-vis the military. Moreover, since the local defence industries face little internal or external competition, it is doubtful whether the organisational reforms that the Chinese government frequently introduces to the sector can effect a profound change. Under such conditions, in addition to the low level of threat and the blurred strategic guidelines, the procurement process can be expected to be opened to non-strategic considerations.
3. China's quest for self-reliance together with its relatively low technological base (despite the significant technological progress it has undergone during the last decade) suggests that the procurement projects it undertakes are highly ambitious technologically, while simultaneously at least some of them are outdated compared to the world-class level. An apt example is China's struggle to develop a fourth-generation aircraft while developed countries are already equipped with fifth-generation aircrafts.

Apparently, China's military procurement approach increases the technological challenges facing the defence industry, while weakening its vital connection to strategic, doctrinal and organisational imperatives. This situation leads to the following outcomes. First, as China launches an increasing number of technologically ambitious programmes, it is likely to have fewer resources available for other stages of procurement, namely production, assimilation and support. According to Holland, "the high costs that advanced technology extracts [...] limit the number of weapons that can be purchased, jeopardising the performance of the weapons as part of a total system".⁷⁰ Empirical evidence suggests that this assumption has a basis. While the 60th anniversary of the National Day military parade displayed a large variety of new and advanced armaments, according to Chinese military sources, the fact that those systems were exposed in public "does not mean that they have been fitted out in service throughout the whole army, nor does it mean that these armaments have been

⁷⁰ Holland, "Explaining Weapons Procurement", p. 356.

deployed on a large scale”.⁷¹ If these systems have not been deployed in peacetime, how quickly and to what degree of success can they be deployed and operated during wartime? How can anyone be sure that they fit the PLA’s doctrine, strategies and organisation? And even if they are successfully deployed in times of peace, it remains unclear to what degree they can be supported during wartime, when no trained technicians and spare parts inventory are available.

Secondly, as China undertakes increasingly complex procurement projects (in relative terms), and its R&D and production processes have yet to overcome standardisation, quality assurance, testing and assessment problems, the process of developing its most advanced systems can be expected to be so extended that by the time the deployment stage is reached—if not earlier—these systems will already be obsolete. Moreover, according to the analysis of a COSTIND expert, even as the R&D stage is completed, there may be serious issues of engineering reliability.⁷²

The case of the J-10 fighter can demonstrate this. As mentioned, China considers the J-10 its first indigenous, third generation aircraft (or fourth, depending on the classification method), as well as a proof of its ability to develop and produce its own advanced weaponry systems.⁷³ However, while the aircraft was originally planned to be powered by the indigenous WP-15 turbojet engine, the engine development plan was cancelled and instead it was fitted with a Russian Salyut AL-31F turbofan engine. Simultaneously, AVIC Aviation Engine Institute (Institute 606) and Shenyang Liming Aero-Engine Group carried on with the development of the indigenous WS-10A, “Tai Hang” jet engine (and the newer WS-13, “Tai Shan”, model), to be installed in the J-10, thus completing its “localisation” process. Yet, there are no indications that the development of a local engine has been completed,⁷⁴ and thus the declared goal of indigenous Chinese fighter is somewhat hollow.⁷⁵ Meanwhile, as the efforts to develop the WS-10A jet engine continue to consume

⁷¹ Sun, “Military Expert”.

⁷² Ma Hengru, “Zhongguo Guofang Keji Gongye Kekaoxing Gongcheng de Xianzhuang yu Fazhan” [Current Status and Development of Reliability Engineering in China Defence Science and Technology Industry], *Aviation Engine* 32 (3) (2006), pp. 1–4.

⁷³ See also Fan Junmei, “PLA Evolves over 30 Years”, *Zhongguo Wang*, 15 October 2008, WNC 200810151477.1_ce5800f6d54aba07.

⁷⁴ “LM WS10A Tai Hang”, *Jane’s Aero-Engines*, 26 January 2010; Sinodefence.com, “Jian-10 Multirole Fighter Aircraft”, 21 March 2009, www.sinodefence.com/airforce/fighter/j10.asp (accessed 14 July 2010).

⁷⁵ Liu, “Air Force Combat Strength”.

resources, the air force is equipped with only a partially indigenous fighter that already lags some two decades behind the world level.

Finally, aspiring to produce a wide spectrum of weapons and having relatively small (albeit growing) export markets, China's production facilities are expected to be stretched over a broad variety of systems, a large part of which is produced in small quantities. When this problem is combined with all other impediments, it can be expected that weapons and equipment, especially the more sophisticated ones, will not be sufficiently supported.

Conclusion

As China's military modernisation has shifted gears during the last decade, the Chinese defence industry's recent achievements have drawn extensive interest and have been used as the basis for assessing China's warfare capabilities. However, less attention has been devoted to the question of how and to what extent these developments in fact promote China's capability to handle its military challenges. In an attempt to evaluate the contribution of China's military technological developments to its warfare capabilities, this study employs the concepts of military procurement and military readiness, and makes two assumptions. First, the value of a weapon system is not necessarily measured by its technological specifications, but rather by its suitability for predefined conditions, such as the country's strategic environment, military organisation, doctrine and training, and economic and technological capabilities. Furthermore, the weapon system will be considered valuable only as long as it is supplied to the military in the required quantities, within an adequate timeframe, and with the appropriate product sustaining support. Second, the country's ability to meet these requirements depends to a large extent on conditions related to the procurement process, such as the clarity of strategic and doctrinal guidelines, the intervention of unrelated considerations in the decision-making process, the client-supplier relationship between the military establishment and the vendors, and the project's technological complexity.

These assumptions were applied to China's military procurement approach. As information on China's military decision making is hardly accessible, its military procurement process was not examined by observing concrete procurement decisions. Instead, the study has analysed the conditions that inform China's military

procurement approach. Adopting this path, the study examined China's threat perception and strategic objectives, the PLA's political posture and bargaining power with both the political leadership and suppliers, and the impetus towards complex and ambitious procurement projects. The findings indicate that the relationship between China's military procurement approach and the country's strategic conditions are tenuous at best, allowing plenty of room for non-strategic considerations. Additionally, both the defence industry and the military are forced to confront increasingly complex technological challenges.

Under the conditions outlined herein, China's military procurement process can be expected to reduce the actual military value of the newly developed weapon systems. First, it appears that the operational utility of the newly acquired weapon systems will be limited, performance might not comply with the military demands, and their deployment and assimilation process is—at least at present—incomplete. Second, under the prevailing conditions, the production of advanced systems can be expected to involve significant impediments related to inefficiency, over-ambitious targets and inadequate quality assurance processes, which inevitably will affect the supply of systems and spare parts. Thus, even when the system in question does fit the PLA's missions and combat methods, it may not be available in the required quantities and timeframe, and spare parts may be lacking. Third, given that the production and supply of systems and spare parts might be imperfect, and that the new weapons are not necessarily being deployed in large numbers, the PLA's new weapon systems are likely to encounter support problems.⁷⁶

Yet, these limitations may have different implications in different scenarios. In conflicts around the country's borders, when China can compensate for technological inferiority by using more traditional warfare methods, such as flooding the frontline with masses of soldiers, the weakness of its procurement process may have a relatively limited impact on its actual military capability. On the other hand, in remote and complex conflicts, when combined technological capabilities—for example, sophisticated air and naval systems, precise guided weapons (PGW) and sophisticated

⁷⁶ Markowski and Hall, "Challenges of defence procurement", p. 356.

C4ISR systems⁷⁷—play a decisive role, a problematic procurement process may have a negative impact on China’s ability to achieve its military objectives.

The final question concerns the prospects of China’s military procurement process. The impediments to China’s procurement process are diversified, and include factors related to its political structure, its strategic situation and its access to financial and technology resources. Assuming that China’s political system remain unchanged, the extent to which its military procurement process can become more cogent depends on three major factors: whether its sense of threat becomes more focused; whether its strategic objectives become more tightly connected to core national interests and are affirmed by top political and military leaderships; and whether China expands its military technological cooperation with foreign countries. Developments in these three areas could mitigate the impediments inherent to China’s political system, such as the relatively low efficiency of the local defence industry sector, the lack of market forces in the local defence sector, and the large involvement of unrelated considerations in professional processes.

⁷⁷ C4ISR—an integrated system of Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance, which is intended to allow commanders in different levels real-time control and management of the various battlefield, campaign and war aspects. C4ISR requires advanced technological capabilities and is regarded today as one of the pillars sustaining China’s warfare capabilities.

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