



# **Capabilities of the Chinese People's Liberation Army to Carry Out Military Action in the Event of a Regional Military Conflict**

Prepared for the U.S.-China Economic and Security Review Commission  
by Dr. Eric C. Anderson and Mr. Jeffrey G. Engstrom  
Science Applications International Corporation

March 2009

---

**Notice:**

This paper was prepared by the East Asia Studies Center, Strategic Assessment Center, Advanced Analytics & Linguistics Division, Mission Integration Business Unit, Science Applications International Corporation. Views expressed in this paper are those of the authors and do not necessarily represent Science Applications International Corporation, the United States Department of Defense, the United States Government, or any other entity.

---



## Contents

<b>Figures</b> .....	ii
<b>Tables</b> .....	ii
Introduction.....	1
National Security and Military Modernization.....	3
Evolving Non-Kinetic Capabilities.....	15
Training the Modern Military.....	18
PLA Training Guidance.....	18
Commanding and Funding the Force.....	26
Focus on Taiwan Still Front and Center...but Signs of an Expanding Horizon.....	30
Peacetime Army Building, or Wartime Footing?.....	33
Invasion Implications.....	34
Blockade.....	34
Coercion and the Status Quo.....	35
The PLA’s Ability to Carry Out Military Action Against Taiwan.....	36
I. The Air War.....	36
The Role of China’s Ballistic, Cruise, and Anti-Radiation Missiles.....	36
The Battle for Air Supremacy Over the Strait.....	40
Taiwan’s Offensive Counter-Attack Capabilities.....	42
II. Naval Surface- and Sub-surface Warfare.....	44
PLAN Command of the Sea: To What End?.....	44
III. Amphibious Invasion of Taiwan.....	46
PLA Invasion Considerations.....	46
Overview of PLA Airborne and Amphibious Assets.....	47
Taiwan’s Army and Marine Corps Assets.....	48
PLA Ability to Attack U.S. and Allied Military Forces and Assets.....	48
PLA Conventional Medium-Range Strike Capabilities.....	49
Counter-C4ISR and Counter-Space Capabilities.....	50
Overview of US and Allied Forces in the Region.....	52
United States.....	52
Japan.....	53
South Korea.....	53
Options US and Allied Forces Have in a Near-Term Taiwan Straits Crisis.....	53
Other Options: Influencing the Direction of PLA Modernization.....	56
Confidence Building.....	57
China’s Role in an Evolving Asia-Pacific Security Architecture.....	58
Maintaining the Technological Edge.....	58
Conclusion.....	59
<b>Works Cited</b> .....	61

## Figures

Figure 1. Major Taiwan Air Bases and Ports.....	38
Figure 2. U.S. Basing in East Asia.....	52
Figure 3. Maximum Range of the DF-21B, DH-10 ALCM, and the F/A-18E/F. ....	54

## Tables

Table I. PRC Ballistic, Cruise, and Anti-Radiation Missiles.....	37
Table II. Total Taiwan and PLAAF\PLAN Fighters and AEW&C Aircraft.....	41
Table III. PRC Ballistic, Cruise, and Anti-Radiation Missiles.....	42
Table IV. PLAN and ROCN Surface and Subsurface Fleets.....	45
Table V. The PLA's Standoff Strike Capability .....	50

## Introduction

*Economic globalization and world multi-polarization are gaining momentum....The rise and decline of international strategic forces is quickening...new emerging powers are arising. Therefore, a profound readjustment is brewing in the international system.*

—*China's National Defense in 2008*<sup>1</sup>

China has “come of age” on the global stage. Like the 1988 Summer Olympics that heralded South Korea’s arrival in the international arena, the 2008 games may ultimately be remembered as the moment Beijing re-emerged as a first-order power. China’s maturation is evident on the diplomatic, economic, political and national security fronts. Over the last 20 years, Chinese diplomats have evolved from hide-bound ideologues into pragmatic participants in a wide array of international organizations. The growth of China’s economy suggests the potential for surpassing U.S. gross domestic product by mid-century. Beijing’s military modernization efforts have been equally dramatic.

In 1999, a Chinese military officer described the People’s Liberation Army (PLA) as a boxer suffering from “short arms and slow feet.” While Beijing maintained a force of over 2.8 million uniformed personnel, the PLA was largely restricted to conducting on-shore operations within marching distance of China’s territorial borders. China lacked air and sea lift, had few over-the-horizon intelligence gathering capabilities, and essentially planned for conducting single-service military operations.<sup>2</sup> As researchers at RAND put it, “China today is indisputably not a ‘peer competitor’ of the United States.” Nonetheless, they warned China was also “not just another regional power.”<sup>3</sup>

According to the RAND analysts, in 1999 China exhibited four characteristics that separated the PLA from other regional powers. First, China had nuclear weapons that could reach targets within the United States. Second, the Chinese military had fielded a greater number and variety of theater-range ballistic missiles than any other force then confronting the U.S. military. Third, the PLA’s absolute size was daunting in its own right. And, finally, China’s geographic expanse largely precluded the paralyzing synergistic attacks the U.S. armed forces had used so effectively in Operation DESERT STORM.<sup>4</sup>

---

<sup>1</sup> *China's National Defense in 2008* (Beijing: Information Office of the State Council of the People’s Republic of China, 2009), p. 3. This document is the sixth biannual defense white paper Beijing has released since 1998.

<sup>2</sup> Zalmay Khalilzad *et al.*, *The United States and a Rising China: Strategic and Military Implications* (Santa Monica: RAND Corporation, 1999), pp. 45-47.

<sup>3</sup> *Ibid.*, p. 47.

<sup>4</sup> *Ibid.*, pp. 47-48.

Ten years later, things have changed. While China is still not a “peer competitor” for the United States military, the PLA’s regional capabilities are anything but “short” or “slow.” Equipped with satellite-based surveillance assets, top-of-the-line Russian fighter aircraft, a rapidly modernizing navy, and more than 1,300 short- and medium-range ballistic missiles, the PLA can locate, track, and engage any military force operating within 500 miles of the Chinese coastline. Furthermore, Chinese commanders are learning to field and fight a military that realizes the effects and efficiencies inherent in joint warfare. Finally, Beijing’s focus on downsizing the PLA, while simultaneously addressing logistics shortfalls, suggests the Chinese military is preparing to show up ready for a regional battle before the forces of a responding power such as the United States could be positioned effectively in the theater of operations.

### **Preparing for a New World Order**

Statements within the 2008 national defense white paper indicate China believes the international system is about to undergo a tectonic shift. Beijing’s decision to highlight “globalization,” “multi-polarization,” and “emerging developing powers” is anything but accidental. China perceives American power as being in relative decline—and Beijing’s star on the rise. This evolving world order opens doors for the Chinese, but also presents new security challenges and risks. Nonetheless, Beijing continues to declare, “China will never seek hegemony or engage in military expansion now or in the future, no matter how developed it becomes.” (*China’s National Defense in 2008*, pp. 3-8.)

This paper examines how the PLA made this remarkable transformation, and what it means for the United States and other actors within Asia. The study will first examine the strategic guidance Beijing has issued for PLA commanders and how those orders have been realized over the last ten years. The paper then delineates the capabilities the PLA has acquired or constructed—specifically focusing on assets that could be brought to bear in a regional conflict. We close by looking at the PLA’s current ability to conduct military action against Taiwan, what Taipei could do to better defend herself, and the options the United States and our allies might have in the event of such a conflict.

## National Security and Military Modernization

*China's national defense policy for the new stage in the new century basically includes: Upholding national security and unity, and ensuring the interests of national development; achieving the all-round, coordinated and sustainable development of China's national defense and armed forces; enhancing the performance of the armed forces with informationization as the major measuring criterion; implementing the military strategy of active defense; pursuing a self-defensive nuclear strategy; and fostering a security environment conducive to China's peaceful development.*

—*China's National Defense in 2008*<sup>5</sup>

Beijing's decision to not publish a national security strategy—or at least a document similar to the one released in Washington—does not mean the Chinese leadership have abrogated a responsibility to delineate broad security directives for the People's Liberation Army. In fact, the Chinese Communist Party since 1949 has published at least five sets of “military strategic guidelines,” the highest level of national guidance and direction available to the PLA. According to the PLA's National Defense University, “the military strategic guidelines are the fundamental military policies of the Party and the nation. They are the overall principles for planning and guiding the development and utilization of the armed forces.”<sup>6</sup>

There is a discernable historical evolution within these “military strategic guidelines.” Under Mao Zedong, the PLA was directed to prepare for “People's War”—protracted, large-scale land warfare that envisioned Russian or even U.S. forces being drawn deep into Chinese territory, enveloped, and slowly destroyed through attrition. The demise of the Soviet Union and the subsequent demonstration of U.S. military capabilities in DESERT STORM convinced Chinese leaders the time had come to dramatically rethink Mao's guidance. Deng Xiaoping and his successors have promulgated “military strategic guidelines” focused on fighting small-scale, regional conflicts along China's periphery.

Given the sweeping impact of these leadership directives on the PLA, the issuance of a new set of “military strategic guidelines” is a significant event. Jiang Zemin promulgated his “military strategic guidelines” in January 1993. Known as the “Military Strategic Guidelines for the New Period,” these directives constitute the national military strategy that the PLA has sought to implement for the last 15 years.

---

<sup>5</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009). p. 8.

<sup>6</sup> PLA National Defense University Army Building Research Department, “Study Guide for Jiang Zemin Thought on National Defense and Army Building,” April 2004. New guidelines are usually issued under the name of the Chairman of the Central Military Commission, who historically has also served as the Communist Party Chairman and the state President—*i.e.*, Deng Xiaoping, Jiang Zemin, or Hu Jintao. A second Chinese source states, “Military Strategic Guidelines are the core of military strategy; they are the overall plan and the overall guiding principle of the Party and the nation for guiding the preparations and implementation of warfare within a particular period of time, and they are the driving force and assume the overall responsibility for the construction of national defense and the military. (Yao Youzhi, 2004, “On Academic Questions Related to the Military Strategic Guidelines.”)

### **“Military Strategic Guidelines”**

New “military strategic guidelines” are not likely to appear initially in a single speech or document. Rather they are compiled from a collection of speeches or publications which the PLA consider “strategic guiding thoughts” or “strategic guiding ideology” that serve as the basis for priorities, programming, planning, adjustments, acquisition, and resource allocation. More specifically, “military strategic guidelines” for any particular period provide official judgments covering the following five areas:

- Assessment of the international environment and its potential impact on China’s security
- China’s overall national security objectives and domestic objectives, and their relationship to military objectives
- The most likely type of conflict for which the PLA must prepare
- Ideological and political basis for the guidelines
- Broad guidance to the PLA on how it will prepare, reform, or adjust to meet the challenges facing China

Western scholars contend that Jiang Zemin’s decision to issue a new set of “military strategic guidelines” in 1993 was driven by three key assessments:

1. The major change to the international order following the Soviet Union’s demise and collapse of other communist regimes in Eastern Europe;
2. Evolving domestic concerns—specifically (a) China’s continued effort to “reform and open up,” (b) a priority on economic development, (c) Beijing’s requirement for a stable domestic, international and peripheral environment to succeed, and (d) the PLA’s requirement to modernize within the context of other national objectives; and
3. The changing nature of warfare and the PLA’s acknowledged inadequacies for successfully operating within this new environment.<sup>7</sup>

The PLA’s strategic-level missions and objectives under the “Military Strategic Guidelines for the New Period” are five-fold:

1. Defending national territory and sovereignty
2. Securing the nation’s maritime rights and interests
3. Maintaining China’s unity
4. Ensuring internal stability
5. Maintaining a secure and stable external environment, particularly on China’s periphery<sup>8</sup>

---

<sup>7</sup> David Finkelstein, “China’s National Military Strategy: An Overview of the “Military Strategic Guidelines,” in Kamphausen, Roy and Scobell, Andrew, eds., *Right-Sizing the People’s Liberation Army: Exploring the Contours of China’s Military* (Carlisle: Strategic Studies Institute, 2006), pp. 92-102.



### Pursing an “Active Defense”

While Western and Chinese defense scholars have dedicated considerable effort to understanding the PLA’s focus on Jiang’s new guidelines, Beijing has not abandoned its insistence the armed forces are postured for an “active defense” of the nation. This seemingly “benign” tenant of Chinese military doctrine can be traced to Mao Zedong’s thoughts on warfare dating back to the mid-1930s—and is hardly as “passive” as the title might suggest. In his writings on warfare, Mao emphasized mobility, surprise, dispersion, flexibility, concentration, ‘the alert shifting of forces,’ and retaining the initiative.

As such, active defense calls for a quick reaction before enemies are ready to strike, preferably on their own territory. This active defense has two elements. First is to minimize damage to China’s own infrastructure, by conducting the war at enemy’s backyard. Second is to create a psychological or political shock to the enemy, by upsetting an adversary’s strategy and expectations, and acquiesce in a new status quo that is much more favorable to China.

Beijing reiterates China’s adherence to this doctrine in the 2008 national defense white paper. In the document, Beijing declares, “China implements a military strategy of active defense. Strategically, it adheres to the principle of featuring defensive operations, self-defense and striking and getting the better of the enemy only after the enemy has started an attack.” (*China’s National Defense in 2008*, p. 10.)

While this direction appears relatively generic to any national-level security directive, it is the type of war the PLA must be prepared to fight which truly set Jiang’s 1993 proclamation apart from the previous four sets of “Military Strategic Guidance.” In Jiang Zemin’s words:

*Since the founding of our country, [the PLA] has always implemented the military strategic guidelines of the active defense. Under the new historical conditions, exactly what kind of military strategic guidelines should we be carrying out? We believe that we should continue to carry out the military strategic guidelines of the active defense...At the same time, along with the development and changes to the situation, we should bestow the military strategic guidelines of the active defense with the new content at this appropriate moment.<sup>9</sup>*

---

<sup>8</sup> *Ibid.* p. 109.

<sup>9</sup> Jiang Zemin, 13 January 1993, “The International Situation and Military Strategic Guidelines.” (Republished in *Three Volumes: Selected Works of Jiang Zemin*, August 2006.)

Under this guidance, the PLA since 1993 has been instructed to work towards being ready to fight and win “local wars under modern high-tech conditions.” More specifically, the PLA is charged with transitioning its modernization efforts from late industrial age warfare to a long-term program of developing “information age” combat capabilities. The Chinese military was ordered to shift from a focus on heavy armor and land battles to the electronic ether and spaced-based warfare.

### **Gulf War “Lessons Learned”**

The PLA has been a keen observer of U.S. military operations, using lessons learned to supplement and update Chinese strategic thought and planning. This has been particularly true with U.S. operations in the Persian Gulf region—specifically DESERT STORM and OPERATION IRAQI FREEDOM.

Key PLA lessons learned from these operations include:

- The centrality of information on the battlefield, and the impact of attacking key nodes rather than across a broad front of activity
- The importance of offensive action, pre-emptive strikes, surprise, and deception
- The value of high-tech weaponry. More specifically, that weapon systems needed to integrate information technology, increased firepower effects and range, higher accuracy, and greater mobility and survivability
- The importance of “real-time” C4ISR, long-range precision strike, and advanced electronic warfare capabilities
- The combat-multiplying effect of joint operations
- The need for timely, comprehensive logistics support

The descriptor “local wars under modern high-tech conditions” has changed slightly over the intervening years, becoming “local wars under modern informationized conditions” in 2002. This semantic change aside, the bottom line for the PLA since 1993 has remained unchanged—the military is to focus modernization efforts on developing the capabilities necessary to fight 21<sup>st</sup> Century conventional warfare in a manner the United States first demonstrated during Operation DESERT STORM in 1991.<sup>10</sup>

---

<sup>10</sup> David Finkelstein, “China’s National Military Strategy: An Overview of the “Military Strategic Guidelines,” in Kamphausen, Roy and Scobell, Andrew, eds., *Right-Sizing the People’s Liberation Army: Exploring the Contours of China’s Military* (Carlisle: Strategic Studies Institute, 2006), p. 102.

## What is “Informationized Warfare?”

According to the People’s Liberation Army Academy of Military Science, battlefield information technology is a comprehensive integration of modern computer, communication and command capabilities. Scholars at the Academy also contend information technology is the “sum total” of the ability to acquire, and employ data.

Chinese military scholars hold informationized warfare is reflected in:

- Weapon systems developments—specifically, control, reaction speed, precision and destructive might
- Battlefield common operating pictures—integration of C2 and intelligence
- Command and control—widespread fielding and employment of computers

“Informationization” at the operational level appears focused on providing an integrated platform for joint war-zone command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR) connectivity, and for peacetime command and control (C2) within the PLA’s Military Regions. According to official Chinese media, the 11th Five-Year Program tasks the PLA Informationization Work Office to move the PLA toward a “perfect universal transmission...and processing platform.”<sup>11</sup>

Recent programs to establish integrated joint communications and data transfer capabilities attest to the priority placed on this effort, and China’s information technology sector is certainly capable of providing an effective architecture commensurate with the high level of resource commitment. As one senior PLA general notes, success in “informationized warfare” hinges primarily on “national information strength”—both in terms of global perception management efforts and domestic capabilities in key information technologies.<sup>12</sup>

One of the primary tasks of conducting “informationized warfare” is to transform traditional modes of mobilization to fit the conditions of modern warfare, extending the concept of “People’s War” into a new era. For this reason, the modernization and reorganization of militia and reserve forces is to great extent focused on bringing in high-technology-qualified reservists and militia members—both to form new high-tech units (such as information and electronic warfare detachments), and to leaven existing units with more capable engineers and computer technicians.<sup>13</sup> The urban militia in particular

---

<sup>11</sup> Shen Yongjun and Su Ruozhou, “PLA Sets to Push Forward Informationalization Drive from Three Aspects,” *PLA Daily Online*, 11 January 2006..

<sup>12</sup> For a comprehensive discussion of “informatization” objectives, see Zheng Zhidong, “Thoughts on Improving Preparations for People’s War Under Informatized Conditions,” *Beijing Guofang*, April 2005, pp. 19-20.

<sup>13</sup> *Ibid.* See also *China’s National Defense in 2006*, p. 24 for a discussion of specialized technical units as the new “backbone” of the militia, replacing infantry units.

is clearly evolving to provide the war-fighting force with high-tech support, providing access to an increasingly tech-savvy workforce.<sup>14</sup>

### Non-Contact Warfare

For the Chinese, “non-contact warfare” provides for the use of kinetic options—missile strikes and employment of precision-guided munitions—without the more traditional engagement of opposing ground forces. Chinese military strategists contend the “state of the art” for warfare in the 21<sup>st</sup> century is to be found in the integration of air and space technologies. More specifically, Chinese authors argue the United States has developed a “seamless” integration of air and space combat operations that has moved theories on space warfare from discussion of “support” to an emphasis on offensive and defensive operations. According to the Chinese, this is particularly evident in the theory of “non-contact warfare,” which the PLA holds is the art of employing “all kinds of long range precision strike forces, with space combat systems as the principal agent, to attack the important targets of the opposing states in order to carry out a highly concentrated and precise sudden assault.”

The Chinese rubric for this overarching transformation of the military is the “Revolution in Military Affairs,” or RMA. According to Chinese military thinkers, RMA is:

*...the close integration of the present technologies...with advanced thinking of operations and military structure and organization so as to make the most of the potential of present technologies and lead to [a] revolutionary leap in the military capability.*<sup>15</sup>

This “leap in military capabilities” is to transform PLA operations by accomplishing four objectives:

1. Greatly strengthening information superiority—symbolized by the domination of battlefield awareness on both sides of the conflict;
2. Integrate, by “system of systems” application, force employment so as to make the most effective use of all weapons available to the commander;
3. Combine the employment of precision-guided and long-range munitions with state-of-the art intelligence to increase effectiveness; and
4. Develop and field digital simulation systems and computer-assisted decision-making systems which “greatly” enhance the efficiency of operational commanders.<sup>16</sup>

---

<sup>14</sup> Wu Daxiang, “Clearly Recognize the New Mission of the Urban Militia,” *Zhongguo Guofang Bao*, 13 January 2003, p. 3.

<sup>15</sup> Peng Guangqian and Yaho Youzhi, eds., *The Science of Military Strategy* (Beijing: Military Science Publishing House, Academy of Military Science of the Chinese People’s Liberation Army, 2005).

<sup>16</sup> *Ibid.*

Given the breadth and depth of changes to military operations envisioned in RMA, it is not surprising to find Chinese strategists less than optimistic about how long it will take to implement the vision outlined in the 1993 “Military Strategic Guidelines.” As one PLA author summed up the situation confronting his contemporaries, “the realization of ... RMA will be a long process. American experts think it takes at least decades.”<sup>17</sup>

### *The Revolution in Military Affairs and “Informatizing”*

Western analysts frequently note the difficulty in explaining the relationship between the PLA’s “revolution in military affairs” and repeated Chinese references to defense “informatization” campaigns. In an effort to resolve these difficulties the U.S. Director of National Intelligence’s Open Source Center (OSC) in May 2008 published a short study titled, “PRC Military Terminology: ‘RMA with Chinese Characteristics.’”

According to the OSC authors, “PRC media use the phrase ‘Revolution in Military Affairs (RMA) with Chinese characteristics’ to describe the process by which China’s military and national defense industry is attempting to transform itself into a military capable of winning a limited, local high-tech war. The Chinese concept is built on the Western idea of RMA—the adoption of advanced military concepts and the incorporation of information technology (‘informatization’)—but also seeks to raise the general modernization level of China’s military to a level comparable with those enjoyed by Western militaries even before they adopted the RMA concept.”

The OSC analysts go on to note, “As in the West, China aims to improve its ability to win a high-tech war by transforming its military through the incorporation of information technology and overhauling its military’s organization and doctrine.” Chinese authors contend that “the ‘essence and core of the revolution in military affairs with Chinese characteristics is to bring about the informatization of national defense and army building’.” According to the Chinese writers, “informatization” involves “many different elements and aspects, the more crucial of which are the development of weapons and armaments, optimization of the military’s structure and organization, and innovations in military theories.” They go on to argue that all these elements have to “come together to constitute an organic entity.”

For the Chinese, “informatization” appears to be a key element of the revolution in military affairs—modernization of the PLA in a manner intended to realize the synergistic benefits of simultaneous command, control, communications, and intelligence, surveillance and reconnaissance.

In fact, Chinese military thinkers are not the only ones who understand the road to realizing the revolution in military affairs to be a long and arduous path. In the 2006 White Paper on National Defense, the authors outline a three-step process to achieving the end state desired in Jiang’s 1993 “Military Strategic Guidelines for the New Period.”

---

<sup>17</sup> *Ibid.*

According to the 2006 White Paper:

*China pursues a three-step development strategy in modernizing its national defense and armed forces, in accordance with the state's over-all plan to realize modernization. The first step is to lay a solid foundation by 2010, the second is to make major progress around 2020, and the third is to basically reach the strategic goal of building informationalized armed forces and being capable of winning informationalized wars by the mid-21<sup>st</sup> Century.<sup>18</sup>*

Despite the daunting nature of this task, the PLA is clearly intent on realizing the stated objective. Evidence of this commitment is resident at all levels of the military decision-making/execution cycle in activities the Chinese refer to as “peacetime army building.” This includes development of operational concepts, force structure decisions, and equipping and training the force.

#### ***Reiterating the Time Line for Military Modernization***

*China's National Defense in 2008* once again provides the 50-year timeline for military modernization. The verbiage has been cleaned up and toned down—we no longer read about being able to win informationalized wars by the mid-21<sup>st</sup> Century—but the goals remain the same:

*...lay a solid foundation by 2010, basically accomplish mechanization and make progress in informationization by 2020, and by and large reach the goal of modernization of national defense and armed forces by the mid-21<sup>st</sup> century. (China's National Defense in 2008, p. 9.)*

While Jiang's dictates helped transform the PLA, there is growing evidence that Hu Jintao has an even grander vision for China's military forces. On 24 December 2004, Hu announced a new set of guidelines for the PLA. These “Historic Missions” have broadened the Chinese definition of security and identified four tasks for the PLA:

1. To reinforce the armed forces' loyalty to the Chinese Communist Party;
2. To help ensure China's sovereignty, territorial integrity, and domestic security in order to continue national development;
3. To help safeguard China's expanding national interests; and
4. To help ensure world peace.<sup>19</sup>

Hu's “Historic Missions” are significant as they: (1) represent an adjustment to China's military strategic guidelines; (2) expand China's definition of national security to include

<sup>18</sup> *Open Source Center*, “China Issues White Paper on National Defense 2006,” 29 December 2006, FEA200612300635508, <http://www.opensource.gov>.

<sup>19</sup> Daniel Hartnett, “Towards a Globally Focused Chinese Military: The Historic Missions of the Chinese Armed Forces,” *Project Asia*, The CNA Corporation, June 2008.

new geographic regions and function areas—specifically, beyond territorial integrity to the maritime, space and electromagnetic domains—and (3) are a statement of aspirations rather than capabilities.<sup>20</sup>

In fact, a review of Chinese military publications and academic tracts suggests that Hu’s new guidance appears to link the PLA inexorably with China’s economic development efforts.<sup>21</sup> This linkage should not come as a surprise. As the first task of the “Historic Missions” implies, the PLA remains the Party’s army—and as such shall be used to ensure that the Chinese Communist Party (CCP) remains atop China’s political hierarchy. By allowing economic development to supplant socialist ideology over the last 25 years, China’s leaders tacitly accepted the premise that their continued survival hinges on meeting the population’s economic expectations. As a result, Beijing’s national defense strategy is designed to “raise the flag of peace, *development*, and cooperation.”

For the military, Beijing’s focus on economic progress translates into the following guidance: “the army must use its power to make sure the party’s ruling status is consolidated, provide solid strategic support for defending national interests, and bring into full play the army’s role in maintaining world peace and promoting common development.”<sup>22</sup> All of which can be boiled down to a simple declaration—the PLA will defend against, and defeat, challenges to China’s economic development—on mainland China, and off.

As such, Chinese military thinkers now claim:

*The armed forces need to cope with traditional security threats, and also need to cope with non-traditional security threats; need to safeguard the state's survival interests, and also need to safeguard the state's development interests; need to safeguard the homeland security, and also need to safeguard the overseas interests security; need to safeguard the overall state interests of reform, development, and stability, and also need to safeguard world peace and promote common development.*<sup>23</sup>

Over the last 30 years the PLA’s *raison d’être* has evolved from defensive, terrestrial, mechanized wars of attrition to potentially offensive, off-shore campaigns employing kinetic and non-kinetic weapon systems.

This guidance is incorporated in Beijing’s 2008 defense white paper. According to authors of *China’s National Defense in 2008*, the PLA is now charged with “enhancing the capabilities of the armed forces in countering various security threats and

---

<sup>20</sup> *Ibid.*

<sup>21</sup> *Open Source Center*, “China—Strategic Guidance Establishes Basis for Expanding PLA Activity, 6 February 2008, <http://www.opensource.gov> and *Open Source Center*, “China—Media Highlight Updates to Party’s Military Guiding Theory,” 1 October 2008, <http://www.opensource.gov>.

<sup>22</sup> *Open Source Center*, “PRC: Military Experts View New PLA Mission in National Defense White Paper,” 8 January 2007, CPP20070111710012, <http://www.opensource.gov>.

<sup>23</sup> Chen Zhou, “An Analysis of Defensive National Defense Policy of China for Safeguarding Peace and Development,” *China Military Science*, (Beijing: Academy of Military Sciences, 2007).

accomplishing diversified military tasks.”<sup>24</sup> In addition to requiring the military to “win local wars in conditions of informationization,” these “diversified tasks” include:

- Counter-terrorism;
- Stability maintenance;
- Emergency rescue; and
- International peacekeeping.<sup>25</sup>

As the 2008 white paper bluntly states, this new tasking “takes military operations other than war as an important form of applying national military forces.”<sup>26</sup> This is not a “throwaway” line. The 2008 white paper goes on to insist training for military operations other than war is an “important” element for the PLA’s “comprehensive development.”<sup>27</sup> In short, the PLA has been specifically directed to pursue all aspects of Hu Jintao’s “historic missions,” and training, manning, and equipping programs will be tailored to accomplish this strategic objective.

### *China’s ASAT Test*

Beijing’s 11 January 2007 test of a direct-ascent hit-to-kill interceptor against an aging Chinese weather satellite caused many Western analysts to conclude the PLA was publicly demonstrating a capability to shut down Washington’s “eyes and ears” in space. Two years later, this assessment seems to cover but one aspect of China’s intent, and perhaps not the primary driver. Rather than a purposeful attempt to send U.S. decisionmakers a message, it now appears the Chinese ASAT test was not caused by external events or domestic politics—instead, the January 2007 “shot heard around the world” reflected the maturation of a technology program.

A number of factors suggest the ASAT test was the result of poor internal coordination, bureaucratic infighting, and failure to anticipate international reaction. According to researchers from the Union of Concerned Scientists and New America Foundation who spent eight months in China focused on this issue:

- Interviews with Chinese scientists reveal Beijing’s hit-to-kill program began in the 1980s—and could have been used to counter Soviet and/or U.S. missiles and/or overhead systems.
- Chinese budgetary restrictions prevented the program from proceeding at anything other than a modest pace—while Washington and Moscow developed and tested ASAT capabilities, Beijing’s efforts were essentially on a back burner.

<sup>24</sup> *China’s National Defense in 2008*, (Beijing: Information Office of the State Council of the People’s Republic of China, 2009), p. 11.

<sup>25</sup> *Ibid.*, p. 12.

<sup>26</sup> *Ibid.*, p. 12.

<sup>27</sup> *Ibid.*, p. 15.



### *China's ASAT Test (continued)*

- Accidental destruction of the Chinese Embassy in Belgrade in 1999 revived high-level interest in the hit-to-kill program.
- Program managers were finally ready to test in 2006—and felt pressured to demonstrate they had produced something that worked. A satellite was chosen over a missile intercept as the satellite was thought an easier target.
- Appropriate paperwork was submitted..
- The bureaucratic review failed to completely “end-game” the consequences of the test, probably as a result of coordination failures among relevant civilian and military agencies.
- In the test aftermath there was near unanimity the event was a net negative for Chinese security interests—the cost to Beijing’s international reputation was higher than anyone in China expected.

While we have no means of corroborating these findings, related developments suggest the findings above are accurate. For instance, the Chinese Foreign Ministry made no comment on the test for 12 days and no further tests have occurred. (Gregory Kulacki and Jeffrey Lewis, “Understanding China’s Antisatellite Test,” *The Nonproliferation Review*, 15:2 (2008).)

### *Evolving Military Kinetic Capabilities*

*Taking informationization as the goal of modernization of its national defense and armed forces and in light of its national and military conditions, China actively pushes forward with the revolution in military affairs with Chinese characteristics.*

—China’s National Defense in 2008<sup>28</sup>

On the kinetic front, the People’s Liberation Army has been tasked with developing the warfighting capabilities—including precision strike and synergistic joint operations—first codified for the Department of Defense in the Goldwater-Nichols Act of 1986. The tasking for the PLA, however, also includes a “leapfrog” vision of modernization, which requires the Chinese armed forces to meet and then surpass existing U.S. standards. More specifically, the Chinese call for realizing the revolution in military affairs is a press to realize, or develop a means of defeating,<sup>29</sup> the combat efficiencies and

---

<sup>28</sup> *Ibid.*, pp. 8-9.

<sup>29</sup> This PLA focus on defeating perceived U.S. military advantages has resulted in a growing body of Chinese thinking on asymmetric capabilities. This focus should come as little surprise; the Chinese are simply studying a principle of warfare already clearly recognized within the U.S. armed forces. Nor, by the way, should Chinese employment of asymmetric capabilities come as a surprise. As U.S. Army Field Manual 3-0 notes, “Asymmetry becomes very significant, perhaps decisive, when the degree of

effectiveness resident in a highly sophisticated, networked C4ISR common operating picture and precision targeting architecture.

China is now focused on developing a military capable of countering and eventually defeating a regional modern opponent. This focus is most evident in Beijing's weapons acquisition, development, and fielding efforts. The 1991 Gulf War, 1999 NATO campaign in the Balkans, and 2003 invasion of Iraq all served to reinforce the criticality of this equipment modernization effort. As the 2007 Department of Defense annual report to Congress on Chinese military power notes, this focus on weapon systems is a central element of Beijing's "long-term, comprehensive transformation of its military forces to improve capabilities for power projection, anti-access, and area denial."<sup>30</sup>

To equip the PLA for these operations, China is developing a force structure strategy based on three key components. The first is the formation of elite configurations of air and maritime packages to conduct the key sub-campaigns of a larger blockade, sea denial, or joint invasion campaign. The second is a preemptive strike capability, represented by a large array of cruise and ballistic missiles. The final component is development of doctrine, tactics, and capabilities (particularly command, control, and intelligence) to gain temporary, localized air and sea superiority in support of a quick, decisive battle.

Given the breadth of China's military modernization campaign, there are four broad categories in which weapons systems can be placed. While some platforms could be placed within all four categories—particularly C4ISR systems—this taxonomy is useful as a means of highlighting areas Chinese military and political decision makers believe they need to address. These four categories are:

- Anti-Access and Integrated Air Defense
- Precision Strike and Over-the-Horizon Targeting (OTHT)
- Nuclear Deterrence and Anti-Ballistic Missile Defense
- C4ISR and Counter-C4ISR Warfare.

---

dissimilarities creates exploitable advantages.... [However,] asymmetry tends to decay over time as adversaries adapt to dissimilarities exposed in action."

<sup>30</sup> *U.S. Department of Defense*, "Annual Report to Congress: Military Power of the People's Republic of China 2008" (Washington, DC: 2008), p. 3.

## Evolving Non-Kinetic Capabilities

*This guideline lays stress on deterring crisis and wars. It works for close coordination between military struggle and political, diplomatic, economic, cultural and legal endeavors, strives to foster a favorable security environment, and takes the initiative to prevent and defuse crises, and deter conflicts and war.*

—*China's National Defense in 2008*<sup>31</sup>

It is imperative to remember Beijing is not just focused on kinetic solutions to potential conflicts. The U.S. military prowess displayed during OPERATION DESERT STORM convinced China's military thinkers of the need to confront a modern adversary on and off the traditional battlefield. The full extent of Chinese efforts on this "second front" became clear with the 1999 publication of *Unrestricted Warfare: Assumptions on War and Tactics in the Age of Globalization*. Written by a pair of colonels in the People's Liberation Army Air Force, *Unrestricted Warfare* argued that "the new principles of war...no longer use armed forces to compel the enemy to submit to one's will, but rather are using all means, including the armed force or non-armed force, military and non-military, and lethal and non-lethal means to compel the enemy to accept one's interests."<sup>32</sup>

According to the authors, "unrestricted warfare" is conflict that "transcends all boundaries and limits." More specifically, they contended that unrestricted warfare:

*...means that all weapons and technology can be superimposed at will, it means that all boundaries lying between the two worlds of war and non-war, of military and non-military, will be totally destroyed, and it also means that many of the current principles of combat will be modified, and even that the rules of war may need to be rewritten.*<sup>33</sup>

The authors were careful to insist a "trend toward no limits... is not intemperate sue of measures, and even less is it absolutist use of measures, or the use of absolute

---

<sup>31</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009), p. 11.

<sup>32</sup> Qiao Liang and Wang Xiangsui, *Unrestricted Warfare: Assumptions on War and Tactics in the Age of Globalization* (Beijing: PLA Literature and Arts Publishing House, 1999). In late 1999, the Central Intelligence Agency's Foreign Broadcast Information Service (FBIS) (now the Director of National Intelligence's Open Source Center) provided a full translation of the text. According to the FBIS analysts, "the book was written by two PLA senior colonels from the younger generation of Chinese military officers and was published...in Beijing, suggesting that its release was endorsed by at least some elements of the PLA leadership." (*Open Source Center*, "Excerpts from 'Unrestricted Warfare'," 24 August 1999, FTS19990823001254, <http://www.opensource.gov>).

<sup>33</sup> *Ibid.*, pp. 1-9.

measures.”<sup>34</sup> Rather, the two colonels argue unrestricted warfare serves to dramatically expand a conflict’s “battlespace.” As such, the new battlespace could include:

- Trade Warfare – *i.e.*, trade barriers, trade sanctions, and embargoes;
- Financial Warfare – *i.e.*, restriction on access to capital or targeting currency values;
- Ecological Warfare – *i.e.*, using technology to influence the state of rivers, oceans, the crust of the earth, polar ice caps, and/or the ozone layer;
- Psychological Warfare – *i.e.*, spreading rumors to intimidate the enemy; and
- Resources Warfare – *i.e.*, hoarding or plundering natural resources.<sup>35</sup>

The bottom line for *Unrestricted Warfare*—“the major threat to [any state’s] national security is already far from being limited to the military aggression of hostile forces against the natural space of one’s country.”<sup>36</sup> This contention is based upon the authors’ assumption the concept of territorial sovereignty envisioned by the Peace of Westphalia has been rendered obsolete by globalization. As the two PLA colonels put it, “it is not only the United States, but all nations which worship the view of modern sovereignty, that have already unconsciously expanded the borders of security to a multiplicity of domains, including politics, economics, material resources, nationalities, religion, culture, networks, geography, environment, and outer space.”<sup>37</sup> In short, the authors of *Unrestricted War* contend modern warfare requires more than kinetic targeting of sovereign soil—the battlespace of 2010 encompasses hearts, minds, economics, the electromagnetic spectrum, and outer space.

While we cannot authoritatively state *Unrestricted Warfare* resulted in a dramatic change in Chinese warfighting doctrine, the text does appear to have won an influential audience in Beijing. In 2004, Chinese press reports began to openly discuss PLA preparations to conduct “legal,” “media,” and “psychological” warfare—options that had appeared as examples of expanding conflict domains in *Unrestricted Warfare*.<sup>38</sup> Considered “important indicators” of a nation’s preparation for “modern warfare,”<sup>39</sup> these three areas reflect Beijing’s increasing focus on non-kinetic conflict. PLA internal journals argue that “three warfare” is intended first to abet taking the political initiative, and second to

---

<sup>34</sup> *Ibid.*, pp. 223-240.

<sup>35</sup> *Ibid.*, pp. 34-59.

<sup>36</sup> *Ibid.*, pp. 121-131.

<sup>37</sup> *Ibid.*, pp. 121-131.

<sup>38</sup> *Ibid.*, pp. 34-59. The authors define “international law warfare” as: “seizing the earliest opportunity to set up the regulations.” Media warfare is defined as: “manipulating what people see and hear in order to lead public opinion. Psychological warfare is defined as: “spreading rumors to intimidate the enemy and break down his will.”

<sup>39</sup> *Wen Wei Po*, “Chinese PLA Focusing on Media, Psychological, and Legal Warfare Training,” Hong Kong, 23 October 2004. At least one Chinese press report claims the “three warfare” concept can be traced back to a 28 July 2004 PLA General Political Department seminar. Other sources claim the “three warfare” idea was formalized in the PLA Political Work Decree as revised in December 2003.

maximize the effectiveness of military actions.<sup>40</sup> PLA authors argue the “three warfare” idea must be implemented throughout the entire course of a conflict—and that these non-kinetic options may be employed at the strategic, operational, or tactical level of war.<sup>41</sup>

The PLA does not appear to have widely publicized its definitions of legal, media, and psychological warfare. That said, a review of PLA and Taiwan news sources reveals legal warfare is intended to highlight “the just, legitimate, and inevitable nature of our military actions in future operations according to domestic laws, international laws, and laws governing armed conflicts.”<sup>42</sup> Military thinkers on Taiwan argue Chinese media warfare is designed to “win the support of the media both at home and overseas.” The Taiwan authors go on to contend, Chinese “media warfare” includes “directional propaganda activities and commentaries via the media aimed at various important and sensitive issues is an important way to support efforts in national politics, diplomacy and military struggle.”<sup>43</sup>

There appears to be no official definition of “psychological warfare” as envisioned within the construct of the “three warfare.” Western scholars who have examined Chinese writings on psychological warfare contend at the strategic level these operations would be characterized by “coercion, which will take the form of intimidation achieved through demonstrations and use of force.”<sup>44</sup> Preparations on Taiwan to counter Chinese psychological warfare suggest this is an accurate evaluation of PLA intentions. In 2005, Taiwan’s psychological warfare week featured the following defensive themes: “identifying the threats from enemies; knowing the various types of warfare; upgrading military intelligence security; boosting patriotic morale; and streamlining military discipline.”<sup>45</sup>

Chinese military thinkers clearly believe both kinetic and non-kinetic options are necessary in modern warfare. This is not an “accidental” development. The PLA has carefully monitored U.S. operations over the last 20 years and can be expected to employ the lessons learned in any future conflict.

---

<sup>40</sup> *Kanwa Intelligence Review*, “‘Three War’ and the Role of the PLA Political Commissars,” Toronto, 20 March 2007.

<sup>41</sup> *Ibid.*

<sup>42</sup> Li Dapeng, “Introduction to Legal Warfare in Complex Electromagnetic Environment,” *Zhanqi Bao*, Chengdu Military Region, China, 2 July 2007.

<sup>43</sup> Liu Wan-lin, “Investigation into the Impact of PRC Military’s Media Warfare on ROC Military,” *Hai-chun Hsueh-shu Yueh-k’an*, Taipei, 22 April 2008.

<sup>44</sup> Thomas, Timothy, “New Developments in Chinese Strategic Psychological Warfare,” *Special Warfare*, April 2003.

<sup>45</sup> *Central News Agency*, “Armed Forces Psychological Warfare Drill Kicks Off,” Taipei, 13 June 2005.

## Training the Modern Military

*Regarding military training as the basic approach to furthering the comprehensive development of the military and raising combat effectiveness, the PLA is working to reform training programs, methods, management and support, and create a scientific system for military training in conditions of informationization.*

—*China's National Defense in 2008*<sup>46</sup>

China's civilian and military leadership is well aware that modern equipment alone will not serve to realize the broad directives provided in Jiang's "Military Strategic Guidelines for the New Period." To win "informationized wars," the PLA must train realistically with the new equipment and weapon systems. To that end, since at least 2005, Chinese leaders and the PLA General Staff Department<sup>47</sup> have increasingly emphasized training objectives calling for integrative exercises resulting in joint, synergistic employment of China's armed forces.<sup>48</sup>

The extent to which the PLA attempts to follow these training objectives can be inferred from reports capturing highlights from different exercises conducted throughout the country over the course of a year. However, perhaps the single best means of determining what the PLA is expected to accomplish during a coming year is through an examination of General Staff Department (GSD) training directives issued before the commencement of an annual exercise cycle. These GSD directives are intended to translate party leadership strategic guidance into operational objectives readily understood by command and staff officers throughout the People's Liberation Army.

### **PLA Training Guidance**

While inklings of the PLA's shift to focusing on training for integrated joint operations first appeared in training guidance for 2004, the first direct statement of this requirement showed up in 2005. The 2005 GSD training directives appeared in the 15 January 2005 *Jiefangjun Bao* edition under the title "The General Staff Headquarters Makes Plans for This Year's Military Work in a Bid to Comprehensively Enhance Units' Combat Power." Beneath this cumbersome moniker rests the first clear indication of how the PLA is to

---

<sup>46</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009).

<sup>47</sup> The General Staff Department carries out staff and operational functions for the PLA and has major responsibility for implementing military modernization plans. Headed by the chief of general staff, the department serves as the headquarters for the ground forces and contained directorates for the three other armed services: Air Force, Navy, and Strategic Missile Force. The General Staff Department includes functionally organized sub departments for artillery, armored units, engineering, operations, training, intelligence, mobilization, surveying, communications, quartermaster services, and politics.

<sup>48</sup> *Open Source Center*, "Analysis: PRC Military Seeks Integrated Joint Operations," 24 April 2007, FEA20070424126867, <http://www.opensource.gov>.

begin focusing on joint operations. The degree to which this was still a nascent concept for the Chinese military only become clear halfway through the *Jiefangjun Bao* article, when the author notes, “the Academy of Military Science and relevant units should provide theoretic guidance for integrated training.” Nonetheless, the PLA is urged to “promote the strategic mission of the revolution in military affairs” and military units are directed to:

- Practice commanding, coordination, and support under realistic combat conditions—particularly in electronic warfare environments;
- Recognize the fundamental role of joint operations in informationized conditions by promoting integrated training; and
- Standardize training in accordance with law in order to more effectively monitor the quality and evaluation processes.<sup>49</sup>

A year later, the concept of integrated joint operations appears to have reached more solid ground on the training front. On 18 January 2006, *Jiefangjun Bao* reported the GSD had disseminated the “2006 Military Training Directives” at the beginning of the new year. These directives declared:

- The “principal task” of the PLA in 2006 was to carry out military training with realistic scenarios;
- The GSD also called for “practical results” in the following aspects of military training:
  - Intensifying realistic combat training, strengthening tactical and technical training, and having a “good grasp” of operational services, logistics, and equipment support;
  - Exploring integrated training and continuing to “deepen” the theories of integrated joint operations and training;
  - Stressing joint training and conducting joint campaign and tactical exercises and specialized training;
  - Enhancing officers’ and soldiers’ knowledge of informationized technologies and their ability to solve problems with their “informationized knowledge”;
  - Developing a “military training management system” in order to strengthen control over the process and quality of military training and to push training management toward “standardization, procedure, and precision”;
  - Giving “full play” to the regulating role of training evaluation and examination; and
  - Intensifying training of high-caliber talent, particularly of command personnel and specialized technical personnel.<sup>50</sup>

---

<sup>49</sup> *Open Source Center*, 17 January 2005, “JFJB: General Staff Headquarters Training Plans Aim to Increase Combat Power,” CPP20050117000085, Washington DC. (Liu, Chunjiang, and Su, Ruozhou, 15 January 2005, “The General Staff Headquarters makes Plans for this Year’s Military Work in a Bid to Comprehensively Enhance Units’ Combat Power,” *Jiefangjun Bao*.)

In the 2007 directives, the GSD gives even greater prominence to integrated joint operations. More specifically, the General Staff Department's four main training tasks for 2007 are identified as:

- Stepping up research on military training under informationized conditions;
- “Thoroughly and solidly” developing training in a complex electromagnetic environment;
- Focusing on improving units’ integrated joint operations capabilities under informationized conditions; and
- Continuing to explore integrated training, which includes training that integrates the key factors of joint operations under informationized conditions.<sup>51</sup>

The 2008 training directives proved a deviation from this trend—but only in the sense that the GSD ordered PLA commanders to expand their efforts by training for a variety of combat and non-combat roles. According to analysts at the U.S. Director of National Intelligence’s (DNI) Open Source Center, the 21 January 2008 *Jiefangjun Bao* article “indicates the that the PLA is ready to initiate at the highest level the new [military strategic guidelines] envisioned by... Hu Jintao in 2004.”<sup>52</sup> More specifically, the Open Source Center assesses the 2008 training directives seek to prepare the PLA to realize Hu’s vision of the military’s “historic missions”—a focus on expanded geographic range, greater readiness to conduct priority missions like combating terrorism, and strengthening participation in bilateral and multilateral military partnerships.

While the GSD 2008 training directives also break with the previous four years by not explicitly referring to “integrated joint operations,” the PLA is nonetheless ordered to exercise skills sets that directly support this objective. To this end, the training directives call for the PLA to:

- Focus on honing intelligence, reconnaissance, command, control and communications support as “key” skill sets;
- “Intensify” exercising operational tasks required for cross-service missions; and
- “Deepen regional coordination training”—a vague concept thought to require drills that hone sustainment and supply operations.<sup>53</sup>

The 2008 training directives also reinforce the PLA’s requirement to prepare for combat on a battlefield characterized as a “complex electromagnetic environment.” This focus is evident in both a stipulation to “accelerate the pace of building complex electromagnetic training environments and facilities,” and in a demand the PLA broaden all units’

---

<sup>50</sup> *Open Source Center*, 8 June 2006, “China: PLA Military Training, Tasks for 2006,” CPP2006060608318001, <http://www.opensource.gov>.

<sup>51</sup> *Open Source Center*, “OSC Analysis: PLA Training Directives for 2007 Emphasize ‘Informationalized Conditions,’” 25 January 2007, CPF20070125443003, <http://www.opensource.gov>.

<sup>52</sup> *Open Source Center*, “OSC Analysis: China’s 2008 Military Training Implements New Strategy,” 11 February 2008, CPF20080211538001, <http://www.opensource.gov>.

<sup>53</sup> *Ibid.*



knowledge of complex electromagnetic environment concepts and principles. Finally, the 2008 GSD training directives renewed attention on training commanders operations in high-tech environments and once again called for realistic drills, including preparations for contingencies that are unpredictable—such as “sudden incidents” and natural disasters.<sup>54</sup>

Perhaps the most coherent statement of Beijing’s focus on preparing the People’s Liberation Army for joint operations on the modern battlefield appeared in July 2008. *Jiefangjun Bao* reports indicate that in late July 2008 the PLA was issued a revised version of the official Outline for Military Training and Evaluation (OMTE). This document, last updated in 2001, is the authoritative long-term plan for Chinese military training.

According to press statements from the GSD Training and Arms Department, this revised OMTE is the “new starting point” for the PLA to “adapt to the requirements of integrated joint operations.”<sup>55</sup> Analysts from the DNI Open Source Center note the new OMTE focuses on five training areas—all intended to prepare the PLA for joint operations. The five focus areas are:

1. A press to implement joint operations exercises at all echelon levels;
2. An expanded range of combat and non-combat tasks—including international peacekeeping operations and a demand exercises occur at night, in adverse weather, and in complex electromagnetic environments;
3. An effort to develop a new corps of PLA personnel trained for conducting modern, high-tech warfighting operations;
4. A call for expanding technical and tactical training with high-tech weapons and systems; and
5. A more objective and strict exercise evaluation system employing information technology.<sup>56</sup>

The press to realize these objectives carried on in 2009. On 6 January 2009, *Jiefangjun Bao* reported the General Staff Department identified six major missions for military training in the coming year. These priorities were:

- Strengthen foundation training—this tasking included an emphasis on “training in key duty positions, specialized skills, and informatized content”;
- Address mission subject training—including a requirement to “step up research and practice of strategy, campaign planning, and joint command”;
- Conduct multi-arm, multi-service, joint training;

---

<sup>54</sup> *Ibid.*

<sup>55</sup> *Jiefangjun Bao*, “PLA General Staff Department Approves Release of Newly Amended ‘Military Training, Examination Outline’,” Beijing, 25 July 2008.

<sup>56</sup> *Open Source Center*, “Analysis: Revised PRC Military Training Guidance Codifies Joint Operations,” 8 September 2008, FEA20080909767592, <http://www.opensource.gov>. (According to the Open Source Center, China’s OMTE has been revised seven times since 1957. These revisions are reportedly performed in response to changes in the PLA structure or to leadership directives on military training. The major OMTE revisions are said to have occurred in: 1957, 1978, 1980, 1989, 1995, 2001, and 2008.)

- Steadily advance training reform;
- Deepen reform of academy and school education—this specifically included a call to “step up the development of joint operations command talent,” and to “enrich and improve the content involving complex electromagnetic environments and non-war actions”; and
- Boost the level of training support.<sup>57</sup>

This outline of PLA training objectives for the last four years reveals the extent of military-wide efforts to realize Chinese Communist Party strategic guidance—specifically, an emphasis on “Integrated Joint Operations” in a highly technical battlefield environment where modern command and control meets advanced information and electronic warfare. “Integrated Joint Operations,” however, is more than a buzz-phrase—it appears to drive significant programs for equipping, sustaining and training the PLA to conduct multi-service operations in an “informationized” environment.

A review of PLA press stories over the last three years strongly suggests that PLA units are training to meet this requirement—particularly the five key elements of integrated joint operations: unified command, unified planning, integrated operations, integrated C4ISR, and joint logistics. Furthermore, PLA press stories indicate the military is taking quite seriously the direction to prepare for operations in a “complex electromagnetic environment.”<sup>58</sup>

The Chinese focus on training for operations in a “complex electromagnetic environment” reflects PLA understanding of the true nexus of successful joint operations—command, control, communications and a common picture of the battlefield. Pointing to U.S. military victories since 1991, Chinese military scholars argue, “the winner... maintained battlefield information supremacy, and from start to finish [and therefore] kept the initiative of the war firmly in...grasp.”<sup>59</sup> Given this situation, PLA strategic thinkers emphasize the need to field and train on modern communication

---

<sup>57</sup> Wu Dilun and Liu Feng’an, “General Staff Department Lays Out Plan for Military Training Throughout the Armed Forces in the New Year,” *Jiefangjun Bao*, Beijing, 6 January 2009.

<sup>58</sup> For example, see: *Open Source Center*, “China: PLA Ground Force, Air Force Units Stage Joint Training Exercises,” 26 June 2006, CPP2006060626702002, <http://www.opensource.gov>; *Open Source Center*, “Nanjing Military Region Infantry Division Improves Communication Confrontation Skills,” 17 August 2006, CPP20061010318007, <http://www.opensource.gov>; *Open Source Center*, “PRC Second Artillery Unit Leaders on New Directions, Bottlenecks of Training,” 18 August 2006, CPP200609143118009, <http://www.opensource.gov>; *Open Source Center*, “Strengthening Realistic Opposing Force Exercises,” 13 September 2006, CPP20060914476001, <http://www.opensource.gov>; *Open Source Center*, “PRC Guangzhou Military Region Army Vessels Unit Plays a Supporting Role in Joint Operations,” 9 October 2006, CPP20061010702002, <http://www.opensource.gov>; *Open Source Center*, “Jinan Military Region Unit 71960 Writer Discusses Ways to Carry Out Integrated Joint Training,” 14 February 2007, CPP20070406436011, <http://www.opensource.gov>; and *Open Source Center*, “OSC Analysis: Group Army with Possible Taiwan Mission Perfecting Command Skills,” 13 March 2007, FEA20070314102386, <http://www.opensource.gov>.

<sup>59</sup> Dai Qingmin, “On Seizing Information Supremacy,” *Zhongguo Junshi Kexue*, 20 April 2003. (*Open Source Center*, “Chinese Military’s Senior Infowar Official Stresses Integrated Network/EW Operations,” 28 July 2003, CPP200307280000209, <http://www.opensource.gov>.)

systems, but also warn a dependence on such capabilities renders one susceptible to information and electronic warfare.

Chinese military authors advocate training and preparing for information and electronic warfare on a widespread and continuing basis. More specifically, they call for the military to be prepared for information warfare in six areas—operational secrecy, military deception, electronic warfare, network warfare, psychological warfare, and physical destruction. Furthermore, they strongly recommend the PLA be prepared to conduct and operate within an environment characterized as integrated network-electronic warfare (INEW)—a battlespace where adversaries seek to deprive each other of information (network warfare) and the means of disseminating that information (electronic warfare).<sup>60</sup>

### **Integrated Joint Operations**

An extensive review of military sources reveals a continuing debate as to how the PLA ultimately intends to define and develop doctrine for what the Chinese call integrated joint operations. Numerous authoritative Chinese authors do agree, however, that integrated joint operations are characterized by coordinated, simultaneous military operations employing real-time integration of C4ISR to efficiently and effectively conduct precision strikes intended to disrupt or destroy adversary capabilities in the most timely manner possible.

Chinese military thinkers also agree the five key elements of integrated joint operations are:

- Unified command;
- Unified planning;
- Integrated operations;
- Integrated C4ISR; and
- Joint logistics.

It is this combination of information and integrated-network electronic warfare—both offensive and defensive—PLA military units are being prepared to conduct when training guidance calls for operations in a “complex electromagnetic environment.” The Chinese Communist Party is seeking to prepare the military for synergetic, precise joint operations, while simultaneously seeking the means of denying an adversary the opportunity to conduct such operations. While Chinese military writings suggest the PLA is just beginning to fully comprehend and train to these concepts, this will remain a focus for the foreseeable future and could dictate force modernization programs for the next 15-20 years.

This conclusion has been reached for two reasons. First, the General Staff Department training directives since 2005—and revised Outline for Military Training and Evaluation—are probably directly correlated with recognized PLA shortfalls. The

---

<sup>60</sup> *Ibid.*

repeated emphasis on conducting realistic drills in complex electromagnetic environments strongly suggests the PLA leadership understands that operational commanders and their subordinate units are not prepared for combat on today's battlefield. Furthermore, the repeated focus on joint training appears a clear assessment that the Chinese military is nowhere near ready to conduct the type of operations U.S. forces have repeatedly executed since 1991.

Analysts at the U.S. Open Source Center report that Chinese "military commentary routinely claims that virtually all elements of [the PLA] are deeply inadequate for performing its assigned missions."<sup>61</sup> As an example supporting this contention, the OSC analysts provide quotes from a 1 January 2006 *Jiefangjun Bao* editorial. According to this editorial, the PLA's capabilities will remain "incompatible" with the "demands of carrying out [Hu Jintao's] historic missions" and "winning informatized war" for "quite a long time to come."<sup>62</sup> The OSC analysts reach a similar conclusion in their comment on the overall agenda apparent in the revived OMTE—"this edition of the OMTE focuses on new areas...that the PLA deems it needs to improve in order to position itself to win future, high-tech wars."<sup>63</sup>

Nor are these training challenges limited to employing modern weapon systems. In their analysis of the 2008 GSD training directives, OSC writes, "the document mandates substantial and specific requirements for various aspects of joint operations training, suggesting that the PLA plans to take concrete steps to resolve chronic problems in this area."<sup>64</sup> In fact, if the GSD training directives issued from 2005 to 2009 are to be read at face value, it would appear the PLA has a long way to go in its effort to field a military capable of widespread joint operations. (As we shall see in a moment, some PLA units exhibit the potential for joint operations today—but this cadre is extremely limited in size and scope.) While Beijing certainly has aspirations for achieving this objective, the PLA is clearly a long way from realizing higher headquarters vision.

The second reason we assess the PLA will be engaged in a long-term effort to realize the efficiency and effectiveness of joint operations comes from observations made during the 2008 training year. In late December 2008, the *Kanwa Intelligence Review* published a study of People's Liberation Army exercises during the previous 12 months. The Toronto-based researchers particularly focused on three "major joint exercises:" SWIRL WIND 082, the Fall Drill for the 38<sup>th</sup> Group Army, and LIBIN-98. (These exercises took place in the Shenyang and Beijing Military Regions.)

According to the *Kanwa* analysts, the exercises shared the following general characteristics:

---

<sup>61</sup> *Open Source Center*, "China—Strategic Guidance Establishes Basis for Expanding PLA Activity, 6 February 2008, <http://www.opensource.gov>.

<sup>62</sup> *Ibid.*

<sup>63</sup> *Open Source Center*, "Analysis: Revised PRC Military Training Guidance Codifies Joint Operations," 8 September 2008, FEA20080909767592, <http://www.opensource.gov>.

<sup>64</sup> *Open Source Center*, "OSC Analysis: China's 2008 Military Training Implements New Strategy," 11 February 2008, CPF20080211538001, <http://www.opensource.gov>.

- All of the drills reflected a PLA emphasis on “base-focused” training—that is, the employment of training facilities designed to support development of specific skill sets, *e.g.*, mountain warfare;
- All of the exercises are becoming larger in scale and involve more personnel from other services; and
- All of the drills are reportedly—at least the Chinese press would have us believe—conducted in complex electromagnetic environments.<sup>65</sup>

As for the “weaknesses” exhibited in these 2008 PLA exercises, *Kanwa* notes, Chinese military training exhibits a tendency to employ older models. More specifically, *Kanwa* continues, “the modes of force integration in these exercises are very close to the combat drills of the Soviet Union in the 1970s and 1980s.” *Kanwa* also notes a marked absence of cross-service data links:

*The construction of generic data link systems among the three major [PLA] services...will need a huge amount of investment.” As a result, the functions of the Chinese joint operation headquarters cannot be assessed against the standards of NATO or Japan, as such headquarters is pretty much for show only.*<sup>66</sup>

In a similar vein, *Kanwa* reports during one of the major 2008 exercises “the command headquarters... still used a large sand table, indicating the PLA’s combat theater status display system is not yet electronic, nor are the maps digitized. As such, the widespread application of satellite positioning technologies is greatly restricted.”<sup>67</sup>

Combat assault was also noted as a weak area. According to *Kanwa*, “the combat and transport helicopters in service and the employment of mechanized airborne troops are still in the experimental stage.” Furthermore, the Toronto-based researchers argue, “these platforms cannot yet be widely applied in large-scale campaign assault operations because the absolute number of these platforms is too small.”<sup>68</sup> Regarding night operations capabilities, *Kanwa* reports “there are multiple indications in the exercises that the capacity of the Chinese ground forces in engaging night combat operations is far behind the standard of NATO.” This limitation on night operations ranges from a lack of thermal imaging systems on tanks to a lack of radar and front-view infrared search and track systems on PLA combat helicopters. Finally, *Kanwa* observes, it is impossible to accurately gauge Chinese joint capabilities, because Beijing has yet to conduct large-scale joint training with other countries. “As a consequence,” *Kanwa* concludes, “China’s real combat capability and equipment standard are not yet known to the outside world.”<sup>69</sup>

---

<sup>65</sup> *Open Source Center*, “*Kanwa: Capability of Chinese Military in Recent Integrated Joint Operations*,” 7 January 2009, CPP20090107715016, <http://www.opensource.gov>.

<sup>66</sup> *Ibid.*

<sup>67</sup> *Ibid.*

<sup>68</sup> *Ibid.*

<sup>69</sup> *Ibid.*

## Commanding and Funding the Force

*Actively coping with challenges presented by the worldwide revolution in military affairs, the PLA extensively applies information technology, develops and utilizes information resources in various fields of military building, and strives to take a road of military informationization with Chinese characteristics which highlights the leading role of information, pursues composite development, promotes independent innovation and facilitates transformation.*

—*China's National Defense in 2008*<sup>70</sup>

In addition to training shortfalls, China—and specifically the PLA—confront unique cultural and historical challenges in seeking to address the issue of organizational adaptation required for the revolution in military affairs. China's cultural deference for age and seniority, coupled with a bureaucratic tradition that all-but-enshrines a many-tiered organizational structure, cripples efforts to flatten C2 processes. Thus, the rapid flow of information necessary for modern combat operations potentially falls prey to a process that appears intentionally designed to hinder operational and tactical applications of joint warfare.

The problems confronting Chinese military leaders on the organizational front should not be ignored in the sense they provide a road map to potential command and control evolutions within the PLA and expose critical weaknesses. According to Chinese military analysts, these shortfalls have been exposed in joint exercises.<sup>71</sup> The critical issues fall within six categories:

- Duplicative command responsibilities;
- Low quality of commanders;
- Bloated headquarters;
- Uncoordinated regional organization and force structure;
- Obsolete command and control technologies; and
- Questionable survivability.<sup>72</sup>

Many of these shortfalls are currently the subject of intense study within the PLA, and are a focus area within the joint exercises Chinese forces conduct during the training year.

The evolution of military systems is already underway in China. Demanded by the transition from industrialized to informationized warfare, this evolution is evident in PLA downsizing, the modernization of professional military education at all levels, and the incorporation of new weapon systems. However, as the Chinese are willing to openly

---

<sup>70</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009).

<sup>71</sup> Sun Zhenjiang, 2000, "Exploration of the Factors Restricting Command in Joint Operations" *National Defense University Gazette*.

<sup>72</sup> John Lewis and Xue Litai, *Imagined Enemies: China Prepares for Uncertain War*, (Palo Alto: Stanford University Press, 2006). pp. 140-143.

admit, this process requires time—potentially not reaching completion until 2050—and considerable expenditure of national treasure.

In the 2006 White Paper on National Defense, Beijing bluntly states that requirements to safeguard “sovereignty, security, and unity, and to keep pace with the global revolution in military affairs,” have caused China to “increase its defense expenditure.” The paper then presents the following fiscal data: “From 1990 to 2005, the average annual increase in defense expenditure was 15.36 percent. As the average increase in the consumer price index during the same period was 5.22 percent, the actual average increase in defense expenditure [during this 15 year time period] was 9.65 percent.” Since 2002, Beijing has claimed the increase can be directly attributed to five factors:

- Increasing salaries and allowances for military personnel;
- Increasing investment in equipment, infrastructure, and weapons;
- Training costs;
- Compensating for rising consumer costs; and
- Increasing expenses for international cooperation in nontraditional security fields (counterterrorism).<sup>73</sup>

In addition to these “traditional” explanations, Western scholars point to two other causes for increased Chinese defense appropriations. The first explanation is political—having been forced to almost completely divest from their commercial interests in the late 1990s, PLA officials are demanding an increasingly larger share of the national budget to meet tasking resident in the military strategic guidelines. The second, and related, explanation is that China’s economic growth has compelled the military to compete for qualified manpower and pay higher prices for raw and finished material—Beijing is now confronting the cost of an economy expanding at record rates.<sup>74</sup>

In any case, Chinese defense expenditures will continue to climb at rates outstripping inflation if PLA officials are to meet requirements levied within the military strategic guidelines. The PLA will not be allowed, however, to follow the Soviet model and spend the nation into bankruptcy. Chinese defense expenditures are clearly intended to fund a military capable of meeting regional power projection requirements, and will be tailored to ensure that the PLA commander has the equipment, personnel, and weapons required to counter and potentially defeat a modern adversary conducting combat operations against his forces in the region—but are not tailored to meet U.S. expenditures “head on.”

---

<sup>73</sup> *China’s National Defense in 2008*, (Beijing: Information Office of the State Council of the People’s Republic of China, 2009).

<sup>74</sup> Keith Crane *et al.*, *Modernizing China’s Military: Opportunities and Constraints*, (Santa Monica: RAND Corporation, 2005).

### *Chinese Defense Expenditures 1978-2007*

In the 2008 National Defense White Paper Beijing provides the first public disclosure of China's defense expenditures for the last 30 years. Included as an appendix in *China's National Defense in 2008*, this single page outlines a "rough" estimate of what Beijing is spending on the PLA—needless to say, we are not going to argue this tally is a full accounting. (The yuan-to-dollar exchange rate for conversion purposes below is 6.8 yuan to the dollar. Source: *China's National Defense in 2008*, p. 103.)

<b>Year</b>	<b>Defense Spending (\$ Billion)</b>	<b>Percent of China's GDP that Year</b>	<b>Percent of Overall Government Spending</b>
1978	\$2.5	4.60%	14.96%
1979	\$3.3	5.48%	17.37%
1980	\$2.8	4.26%	15.77%
1981	\$2.5	3.43%	14.75%
1982	\$2.6	3.31%	14.34%
1983	\$2.6	2.97%	12.57%
1984	\$2.6	2.51%	10.63%
1985	\$2.8	2.12%	9.56%
1986	\$2.9	1.95%	9.10%
1987	\$3.1	1.74%	9.27%
1988	\$3.2	1.45%	8.75%
1989	\$3.7	1.48%	8.91%
1990	\$4.2	1.56%	9.41%
1991	\$4.8	1.52%	9.75%
1992	\$5.5	1.40%	10.10%
1993	\$6.2	1.21%	9.17%
1994	\$8.1	1.14%	9.51%
1995	\$9.3	1.05%	9.33%
1996	\$10.5	1.01%	9.07%
1997	\$11.9	1.03%	8.80%
1998	\$13.7	1.11%	8.66%
1999	\$15.7	1.20%	8.16%
2000	\$17.7	1.22%	7.60%
2001	\$21.1	1.32%	7.63%
2002	\$25.0	1.42%	7.74%
2003	\$28.0	1.40%	7.74%
2004	\$32.2	1.38%	7.72%
2005	\$36.2	1.35%	7.29%
2006	\$43.6	1.41%	7.37%
2007	\$52.0	1.38%	7.14%



Finally, we turn to the issue of emerging technologies. China may indeed be reaping the advantage of a “late bloomer” when it comes to reaping the benefits of emerging military technologies. Having largely ceased military modernization during China’s Cultural Revolution and rush toward economic development in the 1980s and 1990s, the PLA entered the 21<sup>st</sup> century without having spent a fortune on “transitional” weapon systems. This essentially allowed the PLA to move from second- to fourth-generation fighters without an intermediate expenditure on platforms with little staying power.<sup>75</sup>

---

<sup>75</sup> Imagine the USAF passing on the F-5/FREEDOM FIGHTER or, potentially, the B-1/LANCER.

## Focus on Taiwan Still Front and Center...but Signs of an Expanding Horizon

*It is Taiwan's moves toward de jure statehood that pose the most significant threat to China's long-term ambitions.*

—John Lewis and Xue Litai, 2006<sup>76</sup>

*The attempts of the separatist forces for 'Taiwan independence' to seek 'de jure Taiwan independence' have been thwarted, and the situation across the Taiwan Straits has taken a significantly positive turn.*

—China's National Defense in 2008<sup>77</sup>

It is impossible to adequately emphasize the central role Taiwan plays in Beijing's military modernization calculus. This focus can be traced back to 1995, when the Central Military Commission formulated the *wen nan bao bei* (“stabilize the south, guarantee the north”) policy—a dictate that caused the PLA to shift planning priorities from the South China Sea to Taiwan and Taipei's “foreign supporters.” The policy called for Chinese diplomats to resolve outstanding border disputes in the south, and instead focus on addressing the threat to China's territorial integrity presented by the “separatists” in Taipei.<sup>78</sup>

In a May 2008 article titled “China's Relations with the West: The Role of Taiwan and Hong Kong,” China scholar Nancy Bernkopf Tucker declares that “Hong Kong and Taiwan are fundamental to the very legitimacy of the CCP and China's government. They have constituted a continuing challenge to Chinese nationalism and China's potential as a great power.” She adds, “China's sense of itself as a burgeoning great power, increasingly wealthy and modernizing militarily, has been coupled with changes in Taiwan.”<sup>79</sup>

Taiwan is not only critical to Beijing's focus on maintaining national integrity; the island also plays a pivotal role in China's emergence as a “great power.” Because military power is largely defined by terrestrial capabilities, the “loss” of Taiwan would essentially confine China to an area west of the “first island chain”—Japan, Taiwan, the Philippines. This would eliminate the “strategic space” some Chinese military analysts see as critical

---

<sup>76</sup> John Lewis and Xue Litai, *Imagined Enemies: China Prepares for Uncertain War*, (Palo Alto: Stanford University Press, 2006), p. 2.

<sup>77</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009). pp. 5-6.

<sup>78</sup> John Lewis and Xue Litai, *Imagined Enemies: China Prepares for Uncertain War*, (Palo Alto: Stanford University Press, 2006). p. 32.

<sup>79</sup> Nancy Bernkopf Tucker, “China's Relations with the West: The Role of Taiwan and Hong Kong,” Foreign Policy Research Institute, May 2008.

to securing the nation's long-term interests and its self-perceived role as a leader within the international community.

In the short run, it does not appear the Kuomintang victory in the 22 March 2008 Taiwan elections will slow the PLA's drive toward realizing the revolution in military affairs. We come to this conclusion because Beijing—regardless of events on Taiwan—appears to remain convinced of the need to develop a truly regional military reach.

The shape of this continued military modernization, specifically weapons platforms and lift, however, may be directly affected by events on Taiwan. If President Ma Ying-Jeou convincingly proceeds with his “three no's” (no independence, no unification, and no use of force), and strives to implement his “five do's” (adhere to the 1992 consensus; conclude a peace accord that is reinforced with confidence-building measures; enhance finance and economic exchanges, leading to a common market; fashion a *modus vivendi* based on pragmatism concerning Taiwan's role in the international community; and accelerate interchange in the cultural and educational arenas) then the PLA may indeed find itself owning fewer mobile missiles and a diminished number of transport ships.

For the moment, the jury on future China-Taiwan relations remains sequestered. During the May 2008 Asian Security Summit, PLA Deputy Chief of Staff Ma Xiaotian was pleased to note cross-Strait relations have undergone positive changes since the Taiwan elections, but then also warned “Taiwan independence” forces remain problematic and serious thought about “Taiwan independence is still active within Taipei.”<sup>80</sup>

Ma Xiaotian's optimistic comments on cross-Strait ties are in no small part attributable to the agreement on weekend charter flights between the mainland and Taiwan and a move to establish a mechanism for regular meetings between the Association for Relations Across the Taiwan Straits and the Straits Exchange Foundation.<sup>81</sup> However, his clear hedging on the future of cross-Strait relations appears to reflect Beijing's understanding the issue of Taiwan's independence has not been permanently resolved. Regardless of how rosy cross-Strait relations may currently appear; the PLA will remain tasked with preparing for a possible independence bid in Taipei. As one Hong Kong columnist has aptly noted:

*‘Taiwan independence,’ ‘Tibet Independence’ and ‘Xinjiang independence’ are actual threats to [Chinese] national security and territorial integrity, and ‘Taiwan independence’ is the most serious threat of all the threats. [As such,] the PLA’s strategic requirements have not changed...Its strategic tasks [remain]...safeguarding state sovereignty, national security, and territorial integrity.*<sup>82</sup>

---

<sup>80</sup> Ni Eryan, “Where does the U.S. Military's ‘Shock’ Come From?” *Wen Wei Po*, Hong Kong, 2 July 2008.

<sup>81</sup> The Association for Relations Across the Taiwan Straits (ARATS) is an organization set up by the People's Republic of China for handling technical or business matters with the Republic of China (Taiwan). The Taiwan counterpart to ARATS is the Straits Exchange Foundation (SEF).

<sup>82</sup> Ni Eryan, “Where does the U.S. Military's ‘Shock’ Come From?” *Wen Wei Po*, Hong Kong, 2 July 2008.

Furthermore, it would be unreasonable for Beijing to relax the PLA's modernization requirements simply because the United States, European Union, or Japan express positive attitudes about the current state of cross-Strait relations. Beijing is well aware these "outside" sentiments could rapidly change—and that this change may not be entirely linked to developments in China or Taiwan.

After Taiwan, the PLA's priorities appear to be evolving into a capability to support territorial claims—specifically in the East and South China Seas—and defending sea lanes of communication. Hu Jintao's "Historic Missions" suggest the PLA is to focus on developing and honing the capabilities required for rapid, small-scale force deployments. This is to say, the PLA may be tasked with fielding units capable of quickly being moved to regional hot spots—ashore or afloat. This suggests the Chinese military will be compelled to support at least one aircraft carrier, may construct larger heavy lift ships, are likely to build forces capable of regional expeditionary warfare, and is likely to continue training for airborne insertions of battalion- and brigade-sized units.

## Peacetime Army Building, or Wartime Footing?

China's military modernization effort covers to some extent every aspect of military force structure and posture, which is perhaps understandable in light of the low baseline from which these forces have climbed over the past 20 years. However, the Chinese have clearly prioritized development of capabilities to damage Taiwan severely in the event of a conflict over the island's political status—and to deter or slow U.S. responses to such a conflict. While there is no evidence that the Chinese have established a timeline for resolving the Taiwan issue, or that any mobilization efforts are underway, the Chinese leadership has clearly positioned forces and capabilities to conduct specific courses of action against Taiwan should the use of force be deemed necessary.

The requirement to deter Taiwan from pursuing a path of permanent independence from the mainland is the central driver for the PLA's pursuit of offensive capabilities. For China's leaders, this includes a conventional capability to deter and delay the U.S. forces they believe will bolster Taiwan's defense in a conflict. Should deterrence fail, the PLA is expected to conduct one or a number of joint offensive campaigns in a Taiwan war zone, depending on the immediate strategic objective. Many of the campaign capabilities required to coerce or compel Taiwan's leaders, defeat Taiwanese forces, control part or all of the island, and prevent the U.S. from denying China its strategic objectives, will also prepare the PLA to conduct a broader range of offensive operations in potential future regional contingencies. These campaigns include firepower strike, anti-air raid, and blockade options. Because China recognizes that the PLA still lacks the capabilities to invade Taiwan, Beijing has focused efforts on developing blockade, punitive strike, and anti-access capabilities. Capabilities to conduct a more comprehensive joint island landing campaign, however, could be resident within 5-10 years.

Since the Communist Party pushed the Nationalists off mainland China 60 years ago, PRC leaders have considered four broad options regarding reunification with Taiwan:

- 1) Force reunification through invasion;
- 2) Compel reunification, or Taiwanese acceptance of some reunification framework, via a blockade or other non-invasion military option;
- 3) Coerce Taiwan's leaders to accept a reunification framework by military threats and aggressive political pressure; or
- 4) Seek peaceful reunification via economic and political mechanisms while deterring Taiwan independence through rapid, focused military modernization.

The third option has characterized the cross-Strait relationship for much of the past half-century; but the latter option seems to best convey the PRC's current strategy. The military capabilities to support any of the options, however, are likely to be available for China's leaders to consider as they develop policy for the next decade.

## ***Invasion Implications***

Beijing recognizes that an actual invasion of Taiwan would be highly disruptive to national development goals, be costly in both blood and treasure, and jeopardize national strategic objectives. The necessary regional lift capability to conduct an amphibious assault is absent, and the signature for building this capability would be very visible; as we will see later in the study, lift capacity would need to increase by a factor of about 200. Furthermore, in contrast to the peaceful transfers of Hong Kong and Macau, invading Taiwan would create havoc beyond the local environment that would undermine nearly all of the tenets underpinning current Chinese national development.

An invasion could polarize the region, intensify security competition, and possibly ignite conventional and nuclear proliferation in the neighborhood. A balancing coalition against China would inevitably follow in the invasion's wake—possibly changing the nature of the Asia-Pacific security structure from a disaggregated “hub-and-spoke” arrangement of bilateral treaties between regional capitals and Washington to a potential “NATO-like” alliance structure. Such a move would likely have dramatic effects on the modernization and pace of growth of the Chinese economy in lost trade and good will—factors central to the CCP's continued survival.

## ***Blockade***

Geographical and economic realities make Taiwan vulnerable to blockade or embargo threats from the mainland. In order to blockade the island to compel Taipei to accede to Beijing's demands or reverse an action deemed unacceptable by China, the PLA would need to secure the sea lines of communication around the island and gain air superiority over the island. Chinese forces would probably clash with Taiwan and American forces, and the PLA would need to strike key military, and possibly economic, targets on Taiwan with precision guided munitions and standoff weapons. Sustaining a blockade for more than two to three weeks is probably beyond China's current capabilities, particularly if U.S. forces responded rapidly. A limited blockade, however, would prove extremely costly to Taiwan's economy and would tangibly demonstrate Chinese. The Chinese might feel that they could control escalation in such a context—an assumption that could prove erroneous given the stakes involved.

The aforementioned balancing coalitions could be similarly spurred by a blockade, although the more limited nature of the conflict might mitigate the effect on regional and worldwide opinion. East Asian actors would probably be loath to choose sides in a limited cross-Strait conflict, depending on the conditions under which Beijing launched such an operation. The crux of a blockade would lie not so much in defeating Taiwan's air force and navy—something increasingly possible as the military balance currently stands—but rather in the ability to deter or delay American involvement through a wide array of anti-access measures, both political and military.

## ***Coercion and the Status Quo***

Force options in coercive and “status quo” options are not benign, given their inherent escalation and miscalculation possibilities. Recently relaxed rules on mainland investment by Taiwanese companies and the mainland’s first instance of “Panda diplomacy” with Taiwan are certainly signs that “carrots” are currently in the ascendant.<sup>83</sup> A different result in the last Taiwan Presidential election, however, could easily have resulted in China brandishing the “stick.” Most recently this approach was seen in the 1995-96 Taiwan Strait Crisis (or Third Taiwan Strait Crisis), when China used its missile forces to demonstrate resolve after sensing the political environment in Taipei was moving in a pro-independence direction. Although Beijing made its point by firing aging and inaccurate ballistic missiles in areas adjacent to Taiwan, current capabilities and force posture could allow China to use precision missile and air strikes (a “joint firepower campaign,” in PLA parlance) against specific military or political targets on the island. History is replete with examples of greater public resolve following an attack against civilian targets, and coercive bombing has at best a spotty record.<sup>84</sup>

While the no-use-of-force option in the cross-Strait environment comports well with China’s national development strategy, no Chinese leader in the foreseeable future can be seen as failing to take action when Taiwan is perceived to move toward independence or permanent separation. The Party has inextricably tied its credibility to protection of the broader national identity that includes Taiwan, constraining maneuver space in conditions under which Taiwan flexes autonomous, democratic muscles. This strategic dilemma drives Beijing’s development of operational capabilities and concepts that could be calibrated for use in a range of options against Taiwan, and against U.S. forces responding to a burgeoning military crisis.

---

<sup>83</sup> *CNN*, “China Sends Goodwill Pandas to Taiwan,” 23 December, 2008, <http://www.cnn.com/2008/world/asiapcf/12/23/china.taiwan/index.html>.

<sup>84</sup> Great Britain during World War II is the most touted example of this phenomenon though many others exist including the reaction of the Egyptian public during the Israeli-Egyptian War 1967-1970. See: Shlaim, Avi, and Tanter, Raymond, “Decision Process, Choice, and Consequences: Israel’s Deep-Penetration Bombing in Egypt, 1970,” *World Politics*, Vol. 30, No. 4, (July 1978) and Pape, Robert A., *Bombing to Win: Coercion and Air Power in War* (Ithaca: Cornell University Press, 1996).

## The PLA's Ability to Carry Out Military Action Against Taiwan

*...the United States continues to sell arms to Taiwan in violation of the principles established in the three Sino-U.S. joint communiqués, causing serious harm to Sino-U.S. relations as well as to peace and stability across the Taiwan Straits.*

—*China's National Defense in 2008*<sup>85</sup>

While politicians in Beijing and Taipei may be in a period of peaceful interaction, the PLA has reached a point where it represents a clear and present threat to Taiwan's continued autonomy. This emerging ability to employ viable military force in the event of a cross-Strait imbroglio is apparent in Chinese air, missile, ground and naval forces. The section below considers PLA capabilities in each of these realms, and where appropriate places these capabilities in the context of missions that could be components of one or a number of courses of action—from a limited objective punitive strike, to a full-scale invasion.

### **I. The Air War**

#### The Role of China's Ballistic, Cruise, and Anti-Radiation Missiles

*The conventional missile force of the Second Artillery Corps is charged mainly with the task of conducting medium- and long-range precision strikes against key strategic and operational targets of the enemy.*

—*China's National Defense in 2008*<sup>86</sup>

A variety of Taiwanese and Western sources assume a barrage of surface-to-surface missiles followed by an air campaign featuring People's Liberation Army Air Force (PLAAF) ground attack aircraft will precede a Chinese invasion of Taiwan. This sequence of attacks would provide Beijing the maximum “bang for its buck”—employing a relatively cheap inventory of short-range ballistic missiles (SRBM), land attack cruise missiles, and anti-radiation missiles to strike critical nodes as a means of “softening” Taiwan's defenses. This ability to essentially destroy Taiwan's air defenses provides the PLA the air superiority crucial for a successful invasion.<sup>87</sup>

---

<sup>85</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009). p. 6.

<sup>86</sup> *Ibid*, p. 40.

<sup>87</sup> While China's longer-range ballistic missile systems such as the medium-range DF-21 (CSS-5) can strike targets in Taiwan, they also enable the PLA to strike targets further afield such as Okinawa. This paper will examine the DF-21 in this role in a later section exploring the ability of the PLA to attack U.S. and Allied military forces and assets.



**Table I. PRC Ballistic, Cruise, and Anti-Radiation Missiles**

<i>Name</i>	<i>Nos.</i>	<i>Type</i>	<i>Range (mi)</i>	<i>Launch Platform</i>	<i>No. Launch Platforms</i>
DF-11 (CSS-7)	700-750	SRBM	186	TEL	120-140
DF-15 (CSS-6)	350-400	SRBM	373	TEL	90-110
DH-10	150-300	CM/ALCM	932+	TEL/B-6D	40-55/30
C-602	unknown	ALCM	186	B-6D	30
AS-17 (Kh-31) KRYPTON	unknown	anti-rad.	124	Su-27(J-11)/Su-30/JH-7A	96/220/142
HARPY	unknown	anti-rad.	249-311	TEL	unknown

Sources: DOD, Military Power of the People's Republic of China 2009; Jane's Sentinel Security Assessment China and Northeast Asia 2008; Jane's Strategic Weapons Systems 2008; Jane's Electronic Mission Aircraft 2008.

China's Second Artillery Corps (2<sup>nd</sup> Arty) is a critical element of this attack scenario. Over the last 20 years the 2<sup>nd</sup> Arty mission has evolved from operating and maintaining China's small nuclear deterrent to fielding a seemingly ever-expanding conventional ballistic and cruise missile inventory. With an estimated arsenal of 1,050-1,175 short-range ballistic missiles<sup>88</sup> composed of DF-11 (CSS-7) and DF-15 (CSS-6) missiles, Beijing has the ability to mount a devastating ballistic missile attack over the entirety of Taiwan's territory.<sup>89</sup> These strikes would focus on large immobile targets such as Taiwan's command and control (C<sup>2</sup>) facilities, and the island's air-defense network, air bases, naval bases, and political targets. The goal of the strikes would be to undermine Taipei's military communication and situational awareness, paralyze or destroy surface-to-air missile batteries, disrupt the launch of defending aircraft, destroy port facilities, and possibly engage in leadership decapitation strikes.

The DF-11 and DF-15 are fired from mobile transporter-erector-launchers (TEL) that greatly increase the systems' survivability. However, the total number of SRBMs exceeds the number of TELs by approximately five to one—necessitating at least four reloads per TEL to exhaust total stocks. (It is unknown how long it takes to reload a Chinese TEL.) In any case, both missiles can carry a payload of high explosive (HE) or sub-munitions facilitating strikes on hardened targets (such as bunkers) or dispersed soft targets (unprotected airplanes, runways or taxiways). Versions of the DF-15 have a circular error probability (CEP) of 984 feet (for the DF-15) to 16 feet (for the DF-15B).<sup>90</sup> The longer range though somewhat less accurate DF-11 has a CEP of 1,968 feet (for the DF-11) to 66-98 feet (for the DF-11A).<sup>91</sup>

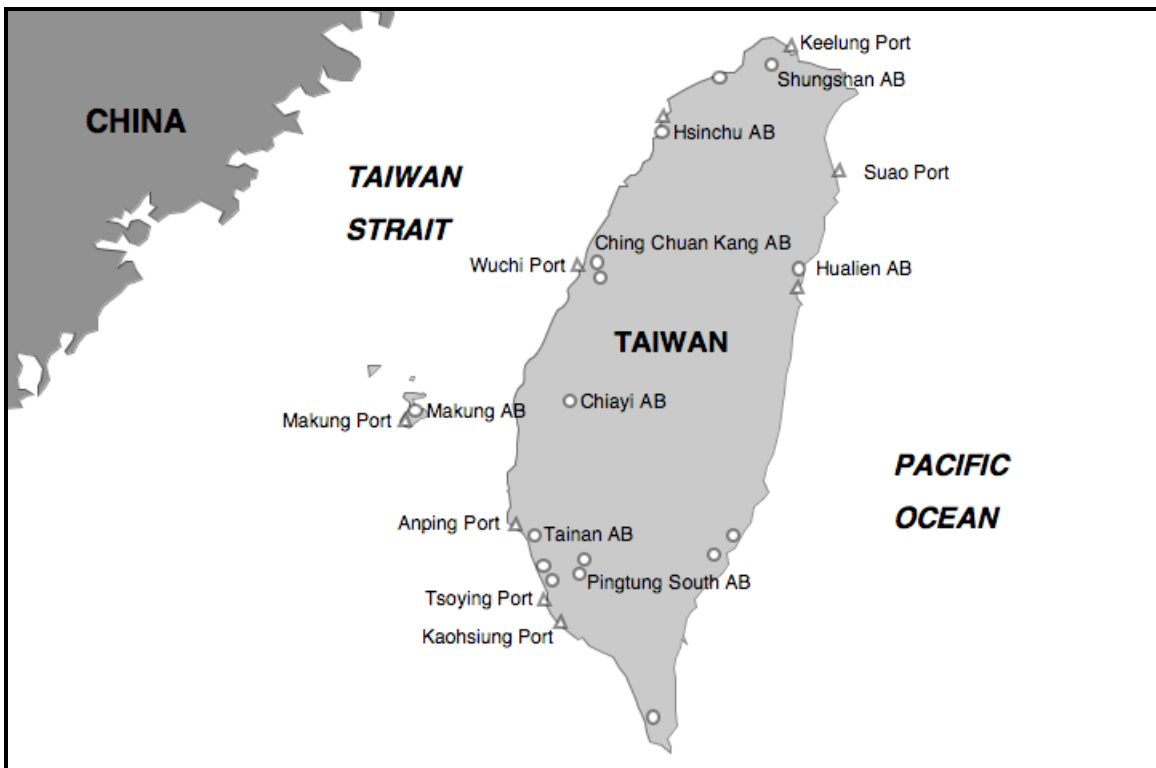
<sup>88</sup> U.S. Department of Defense, 2008, "Annual Report to Congress: Military Power of the People's Republic of China 2008."

<sup>89</sup> This number grows annually by an estimated 100 missiles. U.S. Department of Defense, 2008, "Annual Report to Congress: Military Power of the People's Republic of China 2008." p. 24 and 50.

<sup>90</sup> CEP is defined as: "an indicator of the delivery accuracy of a weapon system, used as a factor in determining probable damage to a target. It is the radius of a circle within which half of a missile's projectiles are expected to fall." Department of Defense, *Dictionary of Military Terms*, October 17, 2008, CEP converted from meters to feet. Jane's Strategic Weapons Systems, *Offensive Weapons, China*, June 25, 2008.

<sup>91</sup> All measurements converted from meters. Jane's Information Group, 25 June, 2008, "Offensive Weapons, China," *Jane's Strategic Weapons Systems*.

An opening salvo of incoming SRBM headed toward Taiwan could range from 210 to 250 missiles—a number dependent on the 2<sup>nd</sup> Arty's available stock of operational TELs. Taiwan would have warning from the time of launch, but is unlikely to be completely confident of having warning beforehand. (The broader strategic-political context would have to inform decisionmakers charged with determining the readiness of Taiwanese forces.) Once aware of incoming missiles, Taipei is confronted with a problem. Currently Taiwan has a limited anti-ballistic missile deterrent in the form of PATRIOT (PAC-2), HAWK, and SKYBOW/TIEN KUNG surface-to-air missile batteries. However, given the PATRIOT's performance in OPERATION DESERT STORM, there is doubt about the system's ability to successfully destroy a DF-11.<sup>92</sup> The more advanced PATRIOT PAC-III system that Taipei seeks to acquire would have more success against incoming ballistic missiles. But with only 330 missiles on order, Taiwan's defenders would be hard-pressed to provide a lasting shield even for their capital city.<sup>93</sup>



**Figure 1. Major Taiwan Air Bases and Ports**

Shortly after the first wave/waves of DF-11 and DF-15 strikes, China is expected to launch cruise and anti-radiation missiles. Beijing has a growing land-attack cruise missile arsenal composed primarily of the DH-10, as well as three air-launched cruise missiles. The DH-10 reportedly has a CEP of 16 feet and a range of over 932 miles,

<sup>92</sup> Theodore A. Postol, "Lessons of the Gulf War Experience with Patriot," *International Security* (MIT Press) 16, no. 3 (1991-1992): 119-171.

<sup>93</sup> Richard D. Fisher, October 16, 2008, "Strait Shooter - PLA Expands and Upgrades Missile Arsenal," *Jane's Intelligence Review*.

making it the People's Liberation Army's premier long-range cruise missile.<sup>94</sup> Possible targets for the DH-10 cruise missiles include immobile, hard-to-strike, high-value assets. We note that these cruise missiles would also be a significant challenge for Taipei's defenders.

While the 2<sup>nd</sup> Arty's ballistic missiles can destroy individual surface-to-air missile launchers in their revetments, the anti-radiation HARPY attack drone is able to target otherwise hidden air-defense radars. These radars often service an entire surface-to-air battery of six to eight dispersed launchers. Unlike the launchers, whose location is often known through satellite imagery, the radars are hidden and typically placed at some distance from the missile launch systems. This is not a problem for the radiation-seeking HARPY, a platform that is able to loiter above a pre-selected search area for hours waiting for a radar to "light up." Once a battery's radar is turned on, the HARPY homes in for the kill—thereby potentially blinding an entire battery with a single shot. The HARPY could be further enhanced through employment of the J-6 drone. These drones as well as being used as a pilotless cruise missile (see text box below) could also be used to fly over the island as bait for surface-to-air missile crews.

#### ***The PLA's Expanding Asymmetric Capabilities: J-6/MiG-19 Drone***

Sources on Taiwan claim China has converted 200+ J-6/MiG-19S aircraft into pilotless drones. This drone could be used in a variety of roles, including service as a cruise missile or a target to "absorb" Taiwan's surface-to-air missiles. At one point the PLAAF had over 2,000 J-6s in its inventory—suggesting that this drone, like China's ballistic missiles, could be employed in overwhelming numbers. We believe the J-6 drone has characteristics similar to its piloted forerunner—a 863-mile range at cruising speed. It is unknown what guidance and targeting mechanisms are onboard. However, if the drone's intended role is to mimic a cruise missile, GPS-based guidance is a logical option. (Jane's Information Group, June 2008, "Procurement, China" *Jane's Sentinel Security Assessment*.)

Remaining targets on Taiwan would be attacked by the People's Liberation Army Air Force and Navy's fleet ground-attack aircraft, including the Su-30MKK/FLANKER, as well as the older JH-7 and JH-7A. These airframes will be used to continue strikes against Taiwan's air defenses using the supersonic AS-17/KRYPTON (Kh-31P) anti-radiation air-launched cruise missile. The Kh-31 can be fired at a standoff distance of 125 miles, allowing the cruise missile to be launched from the safety of Chinese airspace.<sup>95</sup> Other standoff weapons include Beijing's YJ-62 and YJ-63 air-launched cruise missiles. Both are indigenously developed air-launched cruise missiles that would

<sup>94</sup> Jane's Information Group, June 2008, "C-602 (HN-1/-2/-3/YJ-62/X-600/DH-10/HN-2000)" *Jane's Strategic Weapons Systems*.

<sup>95</sup> Jane's Information Group, September 2008, "Kh-31 (AS-17 'Krypton')" *Jane's Strategic Weapons Systems*.

target high-priority fixed targets and can similarly be launched within China's airspace by the aging B-6 medium bomber.

As previously mentioned, the goal of these strikes is to sufficiently "soften" air defenses so as to allow PLAAF fighter aircraft to attain air superiority over the Strait and the island of Taiwan. Achieving air superiority allows ground attack aircraft to continue targeting the aforementioned critical nodes, mobile and smaller targets such as Taiwanese ground forces, and provide cover and air support for an amphibious invasion.

### The Battle for Air Supremacy Over the Strait

*To meet the requirements of informationized warfare, the Air Force is working to accelerate its transition from territorial air defense to both offensive and defensive operations, and increase its capabilities for carrying out reconnaissance and early warning, air strikes, air and missile defense, and strategic projection.*

—China's National Defense in 2008<sup>96</sup>

At some point after the initial volley of short-range ballistic missiles, the People's Liberation Army Air Force and Navy fighters will launch to engage surviving Taiwan air force assets. We do not know what this air strike will look like. Furthermore, an examination of the tactics, techniques and procedures (TTP), doctrine, maintenance, and sortie regeneration rates that might significantly affect this number is beyond the scope of our paper. As such, Table II should be considered as a list of airframes that both sides enter the campaign with. For Taiwan, airframe attrition begins with initial missile strikes—potentially resulting in destroyed fighters on the ground, and then continues as Taipei orders air force commanders to defend against ingressing Chinese fighters. For China, the number of fighters committed to the conflict is limited by airfield availability and capacity. As a result many fighters on this list, and their respective units, will be kept in reserve, brought forth to restock attrited airframes. Other aircraft will be excluded from the conflict in order to provide deterrence and security along China's other borders and key cities such as Beijing.

Depending on warning time, Taiwan could launch all available fighter and interceptor airframes to defend the island against a forthcoming attack. This number will be constrained by how many of the 17 runways are operational at Taiwan's 15 airbases.<sup>97</sup> As runways are repaired, other fighter units will also be able to join the fray. While there is little Taiwan's air force can do against incoming ballistic and cruise missiles, they will be tasked with intercepting China's attack and accompanying fighter planes that seek to

---

<sup>96</sup> *China's National Defense in 2008* (Beijing: Information Office of the State Council of the People's Republic of China, 2009).

<sup>97</sup> This includes nine Taiwan air bases where units are located (Tainan\*, Hsinchu, Ching Chuan Kang, Chiayi, Hualien, Pingtung South, Taitung, Makung, Sungshan, and Kangshan\*), four alternate airbases (Hengchun, Taoyuan, Taichung, and Fengnin), and two naval airbases (Pingtung North and Tso Ying). An "\*" denotes an airbase with two runways, all other airbases only have one.

destroy targets on the island. As such, the Taiwan air force's primary mission is defensive counter-air (DCA).

**Table II. Total Taiwan and PLAAF/PLAN Fighters and AEW&C Aircraft**

<i>Name</i>	<i>Type</i>	<i>Nos.</i>	<i>Service</i>	<i>IOC*</i>
Mirage 2000-5EI/5DI	Fighter-Interceptor	57	ROCAF	1997
F-16A/B Falcon	Fighter-Multirole	144	ROCAF	1996
F-CK-1A/B Ching Kuo	Fighter-Multirole	125	ROCAF	1994
F-5E Tiger II	Fighter-Multirole	50	ROCAF	1974
<b>Total</b>		<b>375</b>		
E-2T/2T-2000E Hawkeye	AEW&C	6	ROCAF	1995-2004
<i>Name</i>	<i>Type</i>	<i>Nos.</i>	<i>Service</i>	<i>IOC*</i>
Su-30MKK/MK2 Flanker	Fighter-Multirole	127	PLAAF/PLAN	2000/2004
Su-27SK/J-11B	Fighter-Multirole	132	PLAAF	1992/2001
J-10	Fighter-Multirole	80	PLAAF	2001
J-8A/B/D/E/F/H Finback	Fighter-Interceptor	390	PLAAF/PLAN	1985-2002
J-7B/C/D/E/G	Fighter-Multirole	579	PLAAF/PLAN	1971-2003
Q-5 Fantan	Fighter-Ground Attack	235	PLAAF/PLAN	1970
JH-7A	Fighter-Ground Attack	70	PLAAF	2004
<b>Total</b>		<b>1,543</b>		
KJ-2000/A-50 Mainstay	AEW&C	5	PLAAF/PLAN	2004/2007
Y-8J Balance Beam	AEW&C	2	PLAN	1998

Source: Jane's Sentinel Security Assessment - China and Northeast Asia, September 29, 2008. \*A slash denotes initial operational capacity by service whereas a hyphen denotes IOC for the first and most recent variant.

This defensive counter-air mission would be undertaken with the express purpose of maintaining air superiority. In carrying out this task, the Taiwan air force has the support of any remaining air defenses—including surface-to-air missiles, anti-aircraft artillery, and man-portable air defense systems, as well as the ability to loiter for longer periods of time over the island. Taiwan also possesses six E-2T/HAWKEYE airborne warning and control (AWACS) used to locate and track incoming Chinese strike groups and then task Taiwanese fighters for intercept missions.

Taiwan's F-16, Mirage 2000, and F-CK-1 fighters are equipped with medium range air-to-air missiles allowing them to strike PLAAF and People's Liberation Army Navy Air Force (PLANAF) aircraft 31 to 38 miles away. However, these airframes can only use platform-specific air-to-air missiles (the AAMRAM, TIEN CHEN (SKY BOW) 2, and MICA, respectively). This limitation potentially hinders sortie regeneration rates, particularly when certain airfields are undergoing repairs. For example, if Hsinchu Air Base were undergoing repairs as a result of PLA strikes, it might take extra time to re-arm the unit's Mirage 2000 fighters at other facilities instead.

While Taiwan's goal is to deny China air superiority through defensive counter-air missions, Beijing's foremost priority is to gain air superiority through offensive counter-air missions. PLAAF strike packages would include fighter escorts (such as Su-27/J-11 and Su-30) and attack aircraft (such as JH-7A). These strike packages can be directed by the PLAAF and PLANAF KJ-2000/A-50/MAINSTAY airborne early warning and command aircraft.

While Beijing is rapidly closing the qualitative gap through continued procurement (and to a lesser extent development) of modern fighters such as the Su-30 and Su-27/J-11, Taiwan retains a quantitative advantage in terms of modern aircraft in any air-to-air engagement. One strategy China could chose to employ in its offensive counter-air campaign could be to swarm the island with its older, less-capable fighters such as the J-7 and J-8. Serving as sacrificial targets, these older, less-capable fighters could overwhelm Taiwan’s pilots, while modern PLAAF assets engage Taipei’s F-16, Mirage 2000, and F-CK-1 at beyond vision range with advanced air-to-air missiles such as the Russian-built AA-10/ARCHER and AA-12/ADDER.

### Taiwan’s Offensive Counter-Attack Capabilities

Far from being entirely at Beijing’s mercy in the opening rounds of an attack, Taipei has a limited offensive counter attack capability resident in its HF-2E cruise missiles as well as ground attack airframes such as its F-16/FALCON and indigenously produced CHING KUO (F-CK-1A). These platforms could engage in standoff attacks against key targets on the mainland such as air bases, surface-to-surface missile launch sites, command and control, and amphibious forces embarkation points.

**Table III. PRC Ballistic, Cruise, and Anti-Radiation Missiles**

<i>Name</i>	<i>Nos.</i>	<i>Type</i>	<i>Range (mi)</i>	<i>Launch Platform</i>	<i>No. Launch Platforms</i>
Hsiung Feng HF-2ER	unknown	cruise missile	777	TEL	unknown
Hsiung Feng HF-2E	500	cruise missile	373	TEL	unknown
Hsiung Feng HF-2B	unknown	ALCM	93	F-CK-1?	125
Tien Chen IIA Sky Sword	unknown	anti-radiation	unknown	F-CK-1	125
Wan Chien	unknown	ALCM	124?	F-CK-1	125

Source: Jane’s Sentinel Security Assessment China and Northeast Asia 2008; Jane’s Strategic Weapons Systems 2008; Jane’s Air-Launched Weapons 2008.

However, this resident capability should not be confused with probability of employment. Surface-to-surface cruise missile strikes are likely to be the only offensive option Taiwan launches against the mainland. Taiwan’s multi-role fighters are likely to be reserved for air defense.<sup>98</sup> Even if Taiwan achieved complete air superiority and could allocate airframes to strike missions, Taipei’s modest offensive capabilities—coupled with a dizzying number of potential targets—would necessitate a focused effort. Taiwan’s targeting community would need to identify critical nodes within the immediate vicinity of the Strait. The intent of such counterattacks would be to limit the People’s Liberation Army’s effectiveness and raise the cost of continuing conflict, rather than to stop an invasion in its tracks.

Taiwan’s foremost standoff weapon is the HSIUNG FENG 2ER (HF-2ER), a surface-to-surface cruise missile that can strike mainland targets 363 to 776 miles inland using a high-explosive warhead. The foremost targeting priorities for the HF-2ER would be the

<sup>98</sup> “To use a fighter as a fighter-bomber when the strength of the fighter arm is inadequate to achieve air superiority is putting the cart before the horse,” Luftwaffe Lt. General Adolph Galland, quoted in: Shaw, Robert L., *Fighter Combat: Tactics and Maneuvering* (Annapolis, Maryland: Naval Institute Press, 1985).

2<sup>nd</sup> Arty's surface-to-surface missile sites, but targeting the 305 mobile TELs carrying the DF-11, DF-15, and DH-10 would be extremely difficult, as the number of potential launch points is vast, and the intelligence, surveillance, and reconnaissance required for such an option is unlikely to be available. Instead, the cruise missiles could be used to strike central missile repositories, command and control facilities for the Nanjing and Guangzhou military regions, or even air bases or ports contributing to China's war efforts.

### *Debate over Taiwan's "Offensive-Defense Strategy"*

With the offensive counter-attack capabilities that the indigenously developed HF-2E/2ER cruise missiles bring to Taipei's arsenal, a new debate has been ignited. Aside from efficacy debates that bring into question the actual utility of such weapons against a staggering array of mainland targets, American opposition to Taiwan's possession of this system centers around the ability of the U.S. to control conflict escalation with China. If Taiwanese military action is only defensive in nature, Washington can inject forces into a future crisis in a defensive posture and have more control over if and when to escalate against China. The worst-case scenario for the United States is a Taiwan that either initiates conflict or rapidly stokes China's ire in a time of crisis. Regardless of Taiwan's intentions, it is clearly committed to procuring weapons that provide it with an "offensive defense," even if it means domestically producing such platforms as it has with the HF-2E/2ER.

For more on this debate, see Michael Chase, 26 July 2007, "Taiwan's Han Kuang 23 Military Exercise and the Offensive Counterstrike Debate," *China Brief*, pp. 4-6.

The effectiveness of China's strikes on Taiwan's air defenses would play a role in determining how aggressively Taipei would employ its multipurpose ground attack airframes such as the F-16 and F-CK-1A. These airframes could be used to fire standoff weapons such as the TIEN CHEN IIA (SKY SWORD), an anti-radiation missile, as well as the WAN CHIEN air-to-surface cruise missile.

Under these circumstances the first priority for Taiwan's ground attack aircraft would be to disable or destroy the Russian-built SA-10/20 surface-to-air missile batteries that can engage Taiwan's airframes over most of the Strait. Destroying the People's Liberation Army's forward air defenses provides Taiwanese aircraft more room to maneuver and the ability to strike the eight or so forward airfields on the mainland. If successful such a move would push Chinese aircraft to bases anywhere from one to three hundred miles inland.

## II. Naval Surface- and Sub-surface Warfare

### PLAN Command of the Sea: To What End?

*The Navy is a strategic service of the PLA, and the main force for maritime operations. It is responsible for such tasks as safeguarding China's maritime security and maintaining the sovereignty of its territorial waters, along with its maritime rights and interests.*

—*China's National Defense in 2008*<sup>99</sup>

There are much more than mere force ratios that serve to determine actual effectiveness and success by one belligerent over another. If China achieves air superiority over the Strait and Taiwan proper, Taipei's naval forces would have few places to hide and would ultimately be overwhelmed by air and surface attacks. Furthermore, in such an environment, Taiwan's anti-submarine warfare assets such as its maritime patrol aircraft and helicopters would not be able to operate.<sup>100</sup> For Taiwan to win back a modicum of favor in the balance, Taipei needs to deny China air superiority. If this occurs, Taiwan's navy could then place its assets on the east side of the island to ensure safe transit of materiel to reinforce the island's defenses.

The local balance of forces (see Table IV) suggests Beijing enjoys a nearly 29:1 advantage in attack submarines,<sup>101</sup> a 7:1 advantage in destroyers, and an approximately 2:1 advantage in frigates and fast missile craft. The PLAN also has two highly advanced Russian-built supersonic anti-ship cruise missiles, the SS-N-27/SIZZLER and the SS-N-22/SUNBURN. Both missiles provide Beijing with an ability to strike Taiwan's surface fleet at extended ranges. The PLAN has 12 Russian-built KILO submarines equipped with the SIZZLER and can attack targets 175 miles distant.<sup>102</sup> Taipei's naval forces have three variants of the HARPOON anti-ship cruise missile, the most capable of which, the RGM-84L, can only engage targets at 80 miles.<sup>103</sup>

The People's Liberation Army Navy's foremost mission is to gain command of the sea in and around Taiwan. This mission is intended to facilitate an amphibious invasion or blockade of the island. In the former role, the PLAN is focused on controlling the Strait while invasion forces are transiting to beachheads. The more expansive goal envisioned in the latter mission would be to interdict surface assets transiting to and from the island.

---

<sup>99</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009). p. 31.

<sup>100</sup> This includes 3 S-2E aircraft, 9 MD-500 helicopters, and 21 S-70C Helicopters.

<sup>101</sup> The Taiwanese Navy's two Guppy II-class submarines, commissioned originally in 1945 are not included as their operational status is doubtful.

<sup>102</sup> "Club/Caliber (SS-N-27 'Sizzler'/3M14/3M54/91R1/91R2," Jane's Strategic Weapons Systems 2008.

<sup>103</sup> "AGM/RGM/UGM-84 Harpoon/SLAM/SLAM-ER," Jane's Strategic Weapons Systems 2008.



This section will briefly explore both strategies, while weighing their likelihood of success.

**Table IV. PLAN and ROCN Surface and Subsurface Fleets**

<i>PLAN Fleet</i>	<i>Nos.</i>	<i>IOC</i>	<i>Taiwan Fleet</i>	<i>Nos.</i>	<i>IOC</i>
<b>Destroyers</b>	<b>27</b>		<b>Destroyers</b>	<b>4</b>	
Luyang I, II (Type 052C)	4	2004	Keelung (Kidd-class)	4	1981
Luzhou (Type 051)	2	2006			
Sovremenny	4	1999			
Luhu (Type 052)	2	1994			
Luda I, II	14	1971-91			
Luhai	1	1999			
<b>Frigates</b>	<b>48</b>		<b>Frigates</b>	<b>22</b>	
Jiangkai, I	3	2005-07	Cheng Kung (Perry-class)	8	1993
Jianghu I, II, III, IV, V	31	1984-86	Kang Ding (La Fayette)	6	1996
Jiangwei I, II	14	1991-98	Knox	8	1970
<b>Attack Submarines</b>	<b>57</b>		<b>Attack Submarines*</b>	<b>2</b>	
Han (Type 091)	4	1980	Hai Lung	2	1987
Shang (Type 093)	1	2006			
Yuan	1	2006			
Song	13	1999			
Kilo	12	1995			
Ming	19	1971			
Romeo	7	1962			
<b>Fast Attack Missile Craft</b>	<b>77</b>		<b>Fast Attack Missile Craft</b>	<b>50</b>	

Source: Jane's Sentinel Security Assessment - China and Northeast Asia 2008. \*Two ROCN Guppy-II attack submarines built in 1945 were not listed as their operational status is uncertain.

The first strategy, establishing command of the seas in the area immediately adjacent to the Taiwan Strait as a means of enabling an amphibious invasion, is the more easily achievable task. In this situation, Beijing's surface and sub-surface forces would cordon off an area in the northern and southern approaches to the Strait, and clear any resistance within the Taiwan Strait. This would allow an amphibious force unimpeded access to the western shores of Taiwan. Beijing's air assets and coastal missile batteries would further underwrite the PLAN's sea-denial campaign.

The second strategy, cutting Taiwan off from the rest of the world in order to force capitulation through a blockade is more difficult. First, China would need to achieve air superiority over Taiwan and project continuous naval power around the island. Beijing could only maintain this blockade by also denying U.S. and allied forces access to the island until Taipei capitulated—an unlikely prospect given the U.S. Navy's qualitative and quantitative advantage in surface and sub-surface platforms.

### **III. Amphibious Invasion of Taiwan**

*Large-scale amphibious invasion is one of the most complicated and logistics-intensive, and therefore difficult, military maneuvers. Success depends upon air and sea supremacy in the vicinity of the operation, rapid buildup of supplies and sustainment on shore, and an uninterrupted flow of support thereafter.*

—Office of the Secretary of Defense, 2008<sup>104</sup>

Often, assessments of the military balance between China and Taiwan include tables comparing total force ratios. Inevitably, one is drawn to the ratios, specifically numbers that currently show Beijing having a 10:1 advantage with ground force personnel.<sup>105</sup> Relying solely on such comparisons, however, is a specious method of assessing the actual balance, as the potential belligerents do not share a common land border and are separated by over 80 miles of open water. A more informed comparison seeks to establish how many of China's forces (and with what equipment) are able to cross the Strait to participate in the initial invasion—and then to assess China's subsequent need for follow-on-forces. Implicit in this assessment is the need to understand the numbers and capabilities of China's sealift and airlift assets, which in turn will dictate maximum initial PLA invasion numbers and capacity for follow-on forces.<sup>106</sup>

#### **PLA Invasion Considerations**

Prevailing wisdom is that an attacker contemplating an amphibious invasion needs a 5:1 ratio advantage in forces. Assuming roughly 43,000 PLA soldiers arrive safely across the strait through air and sealift, the defender (Taiwan) has almost a 5:1 ratio in force strength and a 40:1 ratio if reserves are included. Of course, China has a capability to bring follow-on forces, but those forces will have to make use of surviving lift assets. PLA forces on the beach will face severe attrition from Taiwanese defenders and the lift platforms themselves will suffer attrition, mechanical breakdown, and other turnaround-time issues. To achieve a 5:1 advantage in forces against Taiwan, the PLA would need to amass anywhere from 1 million to 8.6 million soldiers on shore to achieve a favorable force ratio. Of course, the will of the defender and the survival of a coherent national control structure on the island of Taiwan would play a significant part in determining whether or not force ratios remained pertinent to the outcome.

---

<sup>104</sup> U.S. Department of Defense, 2008, "Annual Report to Congress: Military Power of the People's Republic of China 2008."

<sup>105</sup> In case of the recent OSD report to Congress, this number is 1.25 million to 130,000, respectively. U.S. Department of Defense, 2008, "Annual Report to Congress: Military Power of the People's Republic of China 2008." Though this report provide a further layer of nuance in showing PLA personnel located in the "Taiwan Strait Area" this does not add additional clarity.

<sup>106</sup> Even this does not begin to delve into PLA-ROC differences in training, doctrine, equipment, as well as a host of other factors crucially important in actual battle.

## Overview of PLA Airborne and Amphibious Assets

*In recent years [the Army aviation wing] has been working to shift from being a support force focusing on transportation missions to being an integrated combat force focusing on air assault missions.*

—*China's National Defense in 2008*<sup>107</sup>

Amphibious forces are divided between the PLA and the PLAN. The former consists of two amphibious divisions, while the PLAN Marine Corps is made up of two brigades. Since China's amphibious tanks and armored personnel carriers do not have the range to cross the Strait unassisted,<sup>108</sup> all PLA invasion forces other than airborne troops are dependent on some form of sealift. Unfortunately for Beijing, sealift is not a strong point. The PLAN's approximately 235 amphibious vessels can carry up to 26,500 troops or 771 tanks or some mixture thereof. The PLAAF's 75 airborne capable cargo aircraft can lift approximately 8,250 paratroopers and the PLA's 260 transport helicopters can lift roughly 8,300 soldiers.

Compounding the PLAN's difficulties of moving sufficient numbers of forces 80+ miles across the Taiwan Strait is the relatively slow speed of the sealift vessels themselves. The fastest of these ships travel at speeds of 20 miles per hour—though standard transit is conducted at approximately 10-15 miles per hour. This means that a one-way trip of 80 miles will require four to seven hours. These slow, and for the most part undefended vessels—China's 235 amphibious ships<sup>109</sup>—will be easy targets for Taiwan's defenders. We note China could employ civilian sealift, but these cargo ships require a secure and relatively intact port for offload.

PLAAF Airborne forces consist of three divisions with approximately 30,000 troops.<sup>110</sup> Airlift assets include 50 Il-76 and 25 Y-8 cargo airframes that can deliver a maximum of 8,250 paratroopers in the first wave.<sup>111</sup> Unlike China's sealift, its airborne forces could be conceivably over their targets in Taiwan within 20 or 30 minutes from launch. However, for Beijing to commit these forces, the PLAAF would need to achieve air superiority over Taiwan.

---

<sup>107</sup> *China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009). p. 29.

<sup>108</sup> The PLA and PLAN Marine Corps have roughly 2,550 Type 63 and Type 77 amphibious tanks and APCs. However these vehicles only have a water range of 75 miles and are at least 5 miles short of shore to say nothing of the need to maneuver once in Taiwan proper. Jane's Information Group, 2008, *Jane's Armour and Artillery*.

<sup>109</sup> Not included in these numbers are the approximately 10 air-cushioned vehicles (ACV) that China possesses.

<sup>110</sup> Dennis J. Blasko, *The Chinese Army Today: Tradition and Transformation for the 21st Century* (New York: Routledge, 2006). p. 69.

<sup>111</sup> This assumes no attrition of aircraft or parachuting soldiers, no maintenance failures, and a 100 percent readiness rate of these aircraft. The total capacity is derived from the PLAAF's 50 Il-76s that are able to carry 125 paratroopers added to 25 Y-8s with a paratroop capacity of 80.

## Taiwan's Army and Marine Corps Assets

Awaiting PLA forces that make it to the shores of Taiwan are approximately 215,000 active-duty soldiers and marines (and another 1.5 million in reserve), 1,000 M60 and M48 main battle tanks, almost 2,000 artillery pieces, and 100 attack helicopters.<sup>112</sup> Though older than current U.S. M1/ABRAMS, Taiwan's main battle tanks have laser targeting, and roughly 40 percent have a gun stabilizer. Both features allow for increased accuracy in firing while moving. These tanks and their 105 mm cannons would have a decisive advantage over the PLA's Type-63 light amphibious armor that lack gun stabilization for their 85mm rifled guns and have only 14mm of armor at their strongest point.

Furthermore, Taiwan's strategists are eminently aware of potential invasion locations on the western side of the island and have planned defenses accordingly. The island's modern road network will also be used to quickly move reserve forces to shore up defenses wherever PLA amphibious forces decide to make landfall. Taiwan's geography also heavily favors the defender, as impenetrable mud flats reach three to eight miles off of the coast during low tide, daily tidal variance is over 16 feet, and two distinct monsoon seasons obscure visibility during a majority of the year.<sup>113</sup>

### ***PLA Ability to Attack U.S. and Allied Military Forces and Assets***

Chinese anti-access strategies and capabilities are becoming increasingly formidable. The core capabilities that threaten U.S. freedom of movement and action in a Taiwan conflict theater of operations include conventional strike threats to U.S. platforms and bases, and counter-C4ISR and counter-space threats to U.S. forces' "eyes and ears." At the operational level, Chinese capabilities conceivably could:

- Effectively limit U.S. military aircraft operations from mainland Japan, Okinawa, the Philippines, and all of the Senkaku islands;
- Degrade, or deny, U.S. air- and space-based surveillance and reconnaissance capabilities in the western Pacific;
- Disrupt U.S. command and control to deployed forces in the western Pacific;
- Limit logistical support to U.S. forces operating in the western Pacific;
- Force U.S. aircraft carriers to adopt "safe operating zones" out to as much as 1,000 miles off the Chinese mainland; and
- Compel U.S. warfighters to conduct a short-duration campaign over long distances where few kinetic rounds are expended but C4ISR systems are blinded .

---

<sup>112</sup> IISS, *The Military Balance 2008* (London: Oxford University Press, 2008).

<sup>113</sup> IISS, "Taiwan's Military: Assessing Strengths and Weaknesses," *Strategic Comments* 6, no. 4 (May 2000), pp. 1-2.

## PLA Conventional Medium-Range Strike Capabilities

China has a limited but growing arsenal of conventional long-range precision strike missiles that can hit targets throughout the region. Foremost among these are the DF-21B ballistic missile and the DH-10 cruise missile. Both expand China's reach beyond Taiwan, and can be used to target U.S. and allied bases on Okinawa, Japan proper, and in South Korea. Though both missiles fall short of the range necessary to hit U.S. targets on Guam, a possible air-launched version of the DH-10 would put this island within range. China has a number other ballistic missile systems such as the DF-4, DF-5, DF-31, and the submarine launched JL-2—but these platforms currently only carry a nuclear warhead. If modified for conventional strike or electro-magnetic pulse (EMP) blast, China could target Hawaii, Alaska, and most of the continental United States.

### ***China Seeks to Target U.S. Carriers with Anti-Ship Ballistic Missiles***

Multiple stories in the news media confirm that China is seeking to deploy a version of the road-mobile DF-21 medium range anti-ship ballistic missile to counter the threat posed to its forces by U.S. aircraft carriers. These missiles can travel over 1,550 miles and have a terminally guided maneuverable warhead—necessary for hitting a moving target. The CEP of the DF-21D is thought to be close to 32 feet, making the large deck of a nuclear powered Nimitz-class carrier a likely target. Beijing has approximately 60-80 of these missiles, and if launched in a swarm attack at a carrier strike group could possibly overcome AEGIS based SM-3 defenses. The U.S. will be severely tested if an aircraft carrier were crippled or sunk, resulting in an enormous toll in American blood and treasure.

Possession of the DF-21 ASBM gives China the ability to push back U.S. carrier strike groups further from the Strait (see Figure 3) and forces their air wings of F/A-18E or F/A-18F to fly to the limit of their combat range to engage targets in the Strait. This limits both time on station and total number of aircraft over the Strait. However, as Figure 3, shows even a carrier strike group that is launching its fighter wings at the extent of their combat range is still within range of the DF-21, further limiting U.S. access in a region with few bases available in the immediate vicinity of Taiwan.

Sources: Wendell Minnick, "China Developing Anti-Ship Ballistic Missiles," DefenseNews, January 14, 2008, <http://www.defensenews.com/story.php?i=3307277> (accessed January 25, 2009); "Procurement, China," *Jane's Sentinel Security Assessment - China And Northeast Asia*, September, 29 2008; Andrew S. Erickson & Michael S. Chase, "PLA Navy Modernization: Preparing for "Informatized" War at Sea, *China Brief*, Vol. 8, Issue 5, February 29, 2008, The Jamestown Foundation; Ronald O'Rourke, "China Naval Modernization: Implications for US Navy Capabilities – Background and Issues for Congress," *Congressional Research Service*, October 8, 2008.

**Table V. The PLA's Standoff Strike Capability**

<i>Name</i>	<i>Range (mi)</i>	<i>Nos.</i>	<i>Warhead*</i>	<i>CEP (ft)</i>	<i>Propulsion</i>	<i>Launch Platform</i>
DF-3A (CSS-2)	1,491	15-20	N, HE	3,281	liquid	TEL
DF-21 (CSS-5)	1,336		N, HE, SM, C	2,297	solid	TEL
DF-21A (CSS-5)	1,553	60-80 total	N, HE, SM, C, EMP	164	solid	TEL
DF-21B (CSS-5)	1,553		N, HE, SM, C, EMP	33	solid	TEL
DH-10	1,242	50-250	N, HE, SM	10	turbofan?	TEL/B-6D

\*N: nuclear; HE: high explosive; SM: sub-munitions; C: chemical; EMP: electro-magnetic pulse

Sources: Jane's Strategic Weapons Systems, 2008; OSD, Military Power of the People's Republic of China 2008. Miles converted from kilometers, feet converted from meters.

### Counter-C4ISR and Counter-Space Capabilities

While seeking to enhance its own C4ISR capabilities, China is simultaneously searching for ways to deny an adversary those same options. This effort includes anti-C4ISR platforms such as ASAT missiles; direct energy weapons (DEW); jamming devices; missiles designed to destroy airborne and terrestrial ISR platforms; and the use of cyber warfare to disrupt the computer networks that are the backbone of C4 systems.<sup>114</sup> China recognizes that the highly integrated C4ISR systems that make the U.S. such a formidable opponent are also one of its greatest vulnerabilities.

#### *Counter-Space Platforms*

Recognizing it cannot currently compete with U.S. space dominance, China's response has been to develop asymmetric capabilities to deny or even destroy American space assets. Recent advances on this front include the 2007 direct ascent, kinetic kill vehicle ASAT test, as well as the production of direct energy weapons (DEW) and jammers designed to blind or deafen U.S. space-based sensors.

The Chinese ASAT test of January 2007 signaled an emerging counter-space capability. The test showed that China can destroy satellites in low-earth orbit (LEO) with a kinetic kill. That the missile was apparently fired from a road-mobile launcher<sup>115</sup> and had to close with a target that had a velocity of 4.6 miles per second (mi/s) shows considerable technical prowess in tracking, command, and control.<sup>116</sup> China will probably continue to develop these capabilities—specifically addressing the range and scope of ASAT systems—so as to destroy satellites in medium-earth orbit (MEO) and geosynchronous orbit (GEO).

<sup>114</sup> Roger Cliff, et al. *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, (Santa Monica: RAND, 2007). pp. 44-46.

<sup>115</sup> Phillip C. Saunders and Charles D. Lutes, , June 2007, "China's ASAT Test: Motivations and Implications." Institute for National Strategic Studies.

<sup>116</sup> Geoffrey Forden, "Measure of Success – Analyzing the Results of China's ASAT Test." Jane's Intelligence Review. Accessed at: <http://www.janes.com>.

Months before the ASAT test, media reports surfaced concerning a Chinese laser that had “painted” a U.S. optoelectronic satellite, temporarily blinding the system.<sup>117</sup> In the future, DEW—including high-powered microwaves (HPM) and lasers—could be used to disrupt or even destroy U.S. satellites. This DEW “soft kill” renders sensitive electronic components unusable, a potentially more politically acceptable approach than the physical obliteration of a kinetic kill. (“Soft kill” options do not create a field of space debris dangerous to other nation’s systems.)

### *Counter-Airborne C4ISR Platforms*

Missiles like the HQ-12 (FT-2000B) are specifically designed to target airborne platforms such as the E-3/AWACS, E-8/JSTARS, and E2/HAWKEYE.<sup>118</sup> These road-mobile missiles have a range up to 75 miles and are designed to seek out AEW&C and electronic countermeasure (ECM) aircraft through employment of a passive anti-radiation seeker.<sup>119</sup>

### *Cyber Warfare*

Attacks against military and civilian computer networks are a main tenet in China’s doctrinal precept to win the information superiority battle at the outset of any campaign.<sup>120</sup> This can occur through a variety of ways—including hacking, denial of service, and viruses—resulting in individual systems being taken offline or even the disruption of entire command and control networks. Cyber warfare could also be used as a stand alone event or as a part of a larger offensive operation.

A recent study for the US Air Force<sup>121</sup> concluded that U.S strategists are faced with a number of challenges vis-à-vis China that should correlate to specific threat mitigation programs or concepts of operation:

- China’s ability to strike targets using conventional weapons on Guam, Hawaii, and the U.S. mainland in the event of a conflict;
- China’s ability to strike airfields throughout the western Pacific;
- China’s efforts to deny U.S. supremacy in space;
- China’s efforts to seize and control the electromagnetic spectrum;
- Maturation of Chinese doctrinal/strategic thinking on space and electronic warfare;
- China’s ability to complicate targeting—via jamming of GPS and/or denial/deception; and

---

<sup>117</sup> *Open Source Center*, 31 March 2007, “Russia: Report on Chinese ASAT Test,” CEP20070523322013, <http://www.opensource.gov>.

<sup>118</sup> Carlo Kopp., “Almaz S-300 – China’s “Offensive” Air Defense.” International Assessment and Strategy Center. <http://www.strategycenter.net>.

<sup>119</sup> Jane’s Information Group, March 2009, “FT-2000,” *Jane’s Land-Based Air Defence*.

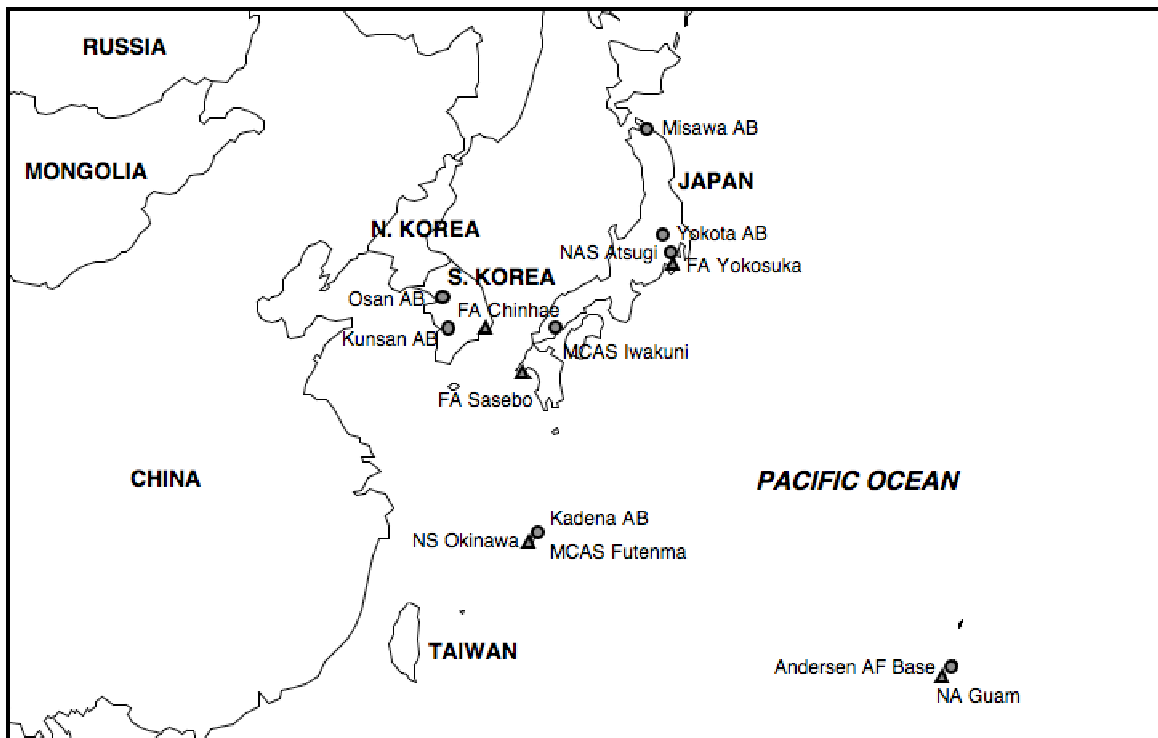
<sup>120</sup> Roger Cliff, et al. *Entering the Dragon’s Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, (Santa Monica: RAND, 2007). 54-56.

<sup>121</sup> *National Air and Space Intelligence Center*, “China: Connecting the Dots—Strategic Challenges Posed by a Re-emergent Power,” U.S. Air Force, 2007.

- Diminishing U.S. comprehension of Chinese air and air defense tactical and technical capabilities.

### ***Overview of US and Allied Forces in the Region***

This section provides a quick overview of the major air force and naval facilities that could be potentially used by the U.S. and allied forces during a Taiwan crisis. It is these installations that China would be most likely to attack during a future conflict, as they could be the origin of air and naval strikes against the mainland—and support carrier strike groups.



**Figure 2. U.S. Basing in East Asia**

#### **United States**

The closest territory to China sovereign to the United States is Guam. Guam is home to both Andersen Air Force Base and NA Guam, a Naval Support Facility. With two runways greater than 10,000 feet, Andersen Air Force Base can support long-range heavy bombers such as the B-52/STRATOFORTRESS and the B-2A/SPIRIT. NA Guam is a repair yard as well as the homeport for three to five fast-attack submarines. Both Andersen and NA Guam are over 1,800 miles from the Chinese coast at its closest point and thus out of range of the bulk of Beijing’s standoff strike capabilities, with the



exception of the DH-10 ALCM variant and possibly other air-launched or ship-launched standoff weapons—provided the respective platform survives long enough to be in range.

## Japan

The United States uses six air bases (Kadena Air Base, Misawa Air Base, Yokota Air Base, NAS Atsugi, MCAS Iwakuni, MCAS Futenma) and three ports (Yokosuka, Sasebo, and Okinawa) as well as other facilities located on Japanese soil. Collectively, these installations are home to the 7th Fleet, the Fifth Air Force, and the 3<sup>rd</sup> Marine Expeditionary Force.<sup>122</sup> Not including the bases where U.S. and Japanese forces are co-located, the Maritime Self-Defense Force and the Air Self-Defense Force major installations include 29 air bases, three ports, and various other installations.<sup>123</sup>

## South Korea

There are three U.S. Air Force and Navy bases in South Korea (Osan Air Base, Kunsan Air Base, and FA Chinhae). These facilities house Seventh Air Force as well as a small U.S. naval presence. Set up to deter North Korea, these bases are within short distance of northeastern China (Manchuria) and northern China, including Beijing. The Republic of Korea's Navy (ROKN) and Air Force (ROKAF) have over 18 air bases and eight ports, as well as other installations.<sup>124</sup>

## ***Options US and Allied Forces Have in a Near-Term Taiwan Straits Crisis***

U.S. and allied forces' ability to respond to a China-Taiwan conflict is largely contingent upon having the ability to launch strikes from regional bases. Absent access to these facilities the U.S. is pushed to Guam and carrier-based strike groups. Washington could be denied use of these forward basing options by one or both of two sources: PLA military anti-access measures that limit or prevent use of forward bases, and political unwillingness of an allied partner to support full U.S. use of bases. The bilateral "hub and spoke" arrangement between the U.S. and her allies in East Asia is the key facet of the existing Asia-Pacific security architecture. Missing, however, is a NATO-like

---

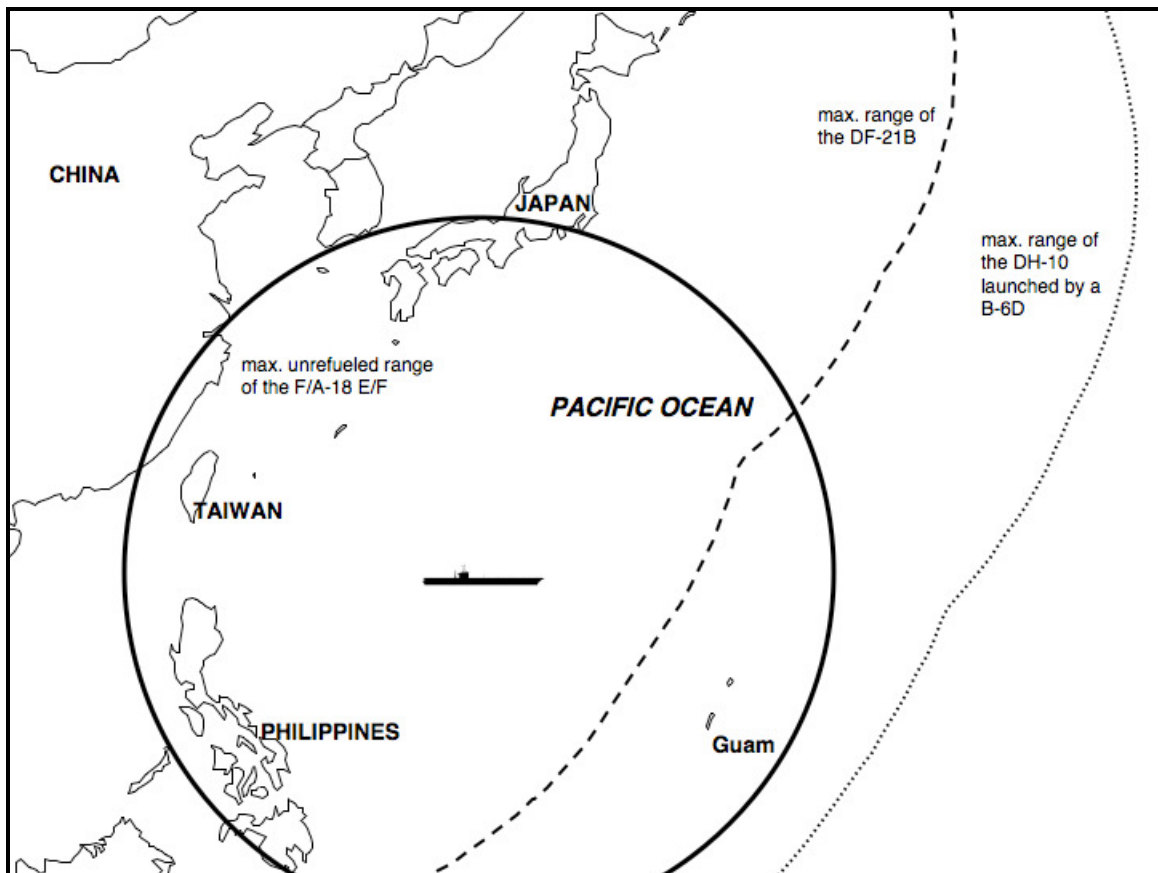
<sup>122</sup> Jane's Information Group, 1 August 2008, *Jane's Sentinel Security Assessment - North America*.

<sup>123</sup> In addition to shared ports at Yokosuka and Sasebo MSDF ports are located at Kure, Maizuru, and Ominato. The MSDF also uses 11 air bases in addition to Atsugi and Iwakuni that are similarly shared with US forces: Hachinohe, Iwo Jima, Kanoya, Komatsujim, Naha, Ohmura, Ominato, Ozuki, Shimofusa, Tateyama, and Tokushima. The in addition to shared a base in Misawa the ASDF also uses 18 other bases: Akita, Ashiya, Chitose, Gifu, Hamamatsu, Hofu-Kita, Hyakuri, Iruma Kasuga, Komaki, Komatsu, Matsushima, Miho, Naha, Niigata, Nyutabaru, Shizuhama, and Tsuiki. Jane's Information Group, 8 October 2008, *Jane's Sentinel Security Assessment - China And Northeast Asia*.

<sup>124</sup> In addition to Chinhae, the ROKN has naval bases at these ports: Donghae, Pyongtaek, Pusan, Inchon, Kimpo, Mokpo, Mukho, Pengyongdo and Pohang. The ROKN also has two naval air bases at Cheju and Pohang. The ROKAF has bases in Cheongju, Daegu, Gangneung, Gimhae, Gunsan, Gwangju, Jungwon, Sacheon, Seongmu, Seongnam, Seosan, Suwon, Wonju, Yecheon. Jane's Information Group, 8 October 2008, *Jane's Sentinel Security Assessment - China And Northeast Asia*.

architecture where an attack on one is an attack on all. As a result, the United States may find itself defending a partner (*e.g.*, Taiwan, South Korea, or Japan) without help from either or both of the other partners.

The worst-case scenario is for the U.S. is to be without allied support and without full use of bases in allied territory. If the costs in political, economic terms, as well as the potential to be attacked were deemed too severe by an ally, these restrictions would become likely.<sup>125</sup> This possibility is certainly not without precedent.<sup>126</sup>



**Figure 3. Maximum Range of the DF-21B, DH-10 ALCM, and the F/A-18E/F.**

The U.S. alliance with South Korea has been occasionally strained in recent years as the two partners have not seen eye-to-eye on a number of regional security issues, including North Korea's nuclear disarmament and the continuing role of U.S. forces on the peninsula. A government in Seoul that seeks to avoid antagonizing Beijing is less likely to allow U.S. full offensive use of bases in a Taiwan-China conflict, to say nothing of

<sup>125</sup> Chambers, Michael R., "Rising China: The Search for Power and Plenty," in *Strategic Asia 2006-07: Trade, Interdependence, and Security*, (Seattle, WA: National Bureau of Asian Research, 2006).

<sup>126</sup> Though it faced virtually no chance of being subjected to military reprisals, Ankara made this decision in 2003 for internal political reasons. IISS, "Turkey and the United States: Drifting Apart?," 9, no. 3 (2003).

providing forces for the fight. These concerns would particularly be acute if U.S. forces were conducting strikes against targets in China.

Japan, on the other hand, has in recent years strengthened its bilateral military alliance with the U.S., while simultaneously “normalizing” its defense posture. Japan, unlike South Korea, also has territory near Taiwan, including the disputed Senkaku/Diaoyutai Islands. At a minimum, Tokyo can be expected seek to preserve its sovereignty and defend its territory during a Taiwan-China conflict through defensive air, surface, and anti-submarine warfare patrols. Fortunately for U.S. defense planners, it is not a stretch to assume Washington will have use of bases in Japan, specifically Kadena and Futenma Air Bases on Okinawa. These bases are vitally important for military actions in defense of Taiwan. Without this access, Washington would have to rely on in-theater carrier strike groups and Guam (over 1,800 miles from the Strait), severely curtailing U.S. fighter and attack capacity and further complicating an already difficult logistical challenge. What remains unanswered is whether or not Japan would participate in offensive missions against Chinese targets and, if so, the conditions and context in which Tokyo would agree to such operations. Washington’s ability to gain Japanese anti-submarine warfare support might prove to be a decisive factor in mitigating Chinese anti-access operations.

The criticality of these forward bases also demands increased consideration of missile defenses to ensure their survival and operational effectiveness. While US-Japan partnership in ballistic missile defenses maintains a place of highest priority, ensuring that an integrated air and missile defense against cruise missiles and other air threats should be of equal importance in mutual defense discussions.

## Other Options: Influencing the Direction of PLA Modernization

*The culture and mind-set required for practitioners of post-modern warfare...are very different, requiring recognition that the end-state that matters most is not the military end-state, but the political one...operational success is not achieved primarily by the application of lethal firepower and targeting; that out-maneuvering opponents physically is less important than out-maneuvering them mentally.*

—John Kiszely, December 2007<sup>127</sup>

While military strategists often think in primarily in competitive terms, there is also considerable leverage to be gained from employing strategies that appear complimentary to a potential adversary. Thomas Barnett argues there are at least four reasons for U.S. military planners to consider cooperative approaches to dealing with the Chinese. First, he writes, China—and other emerging actors—are “where the action is on new technology.” Second, China and similar emerging economies will be “the dominant sales markets for high technology over the coming decades.” Third, economic competition among these newly emerging powers will generate a race toward the developed world that shouldn’t be allowed to “spill over into the security realm.” And, finally, domestic politics and a desire to exhibit independence from a dominant power could otherwise result in the emergence of alliances in direct contradiction to Washington’s interests.<sup>128</sup>

In contrast to this focus on engagement—keeping one’s friends close, and one’s enemies closer—some strategists argue the U.S. must prepare for a political future in East Asia that presents the possibility of “tamping down” a belligerent China. Aaron Friedberg, a former deputy assistant for national security affairs for Vice President Cheney, advocates just such an approach. In a 2008 article published in *Commentary*, Friedberg contends we should take a more “activist” approach in dealing with Beijing. First, he holds, “Washington needs to reinforce the foundations of its regional position by continuing to tend to existing alliances and quasi-alliances.” Second, “Washington should also do what it can to encourage existing tendencies toward the formation of a largely informal, multilayered network of cooperative ties among various combinations of Asian states.” Third, Friedberg argues, “the United States will need to develop, deploy, and maintain forces that are capable of deterring and if necessary defeating China’s growing ‘anti-access’ capabilities, which are designed to push the U.S. military back from the Western Pacific.”<sup>129</sup>

---

<sup>127</sup> John Kiszely, December 2007, “Post Modern Challenges for Modern Warriors,” Defense Academy of the United Kingdom, London.

<sup>128</sup> Thomas Barnett, *Blueprint for Action*, (New York: Putnam, 2005), pp. 167-168.

<sup>129</sup> Friedberg, Aaron, October 2007, “Are We Ready for China?” *Commentary*, Washington DC. We note there is little enthusiasm for developing U.S. capabilities that could militarily curtail Chinese economic activity. For instance, two scholars at the U.S. Naval War College just released a study contending a naval campaign aimed at significantly disrupting the flow of oil into China would be of limited utility—more specifically, they argue “China is not fundamentally vulnerable to a maritime energy blockade in

Both competitive and complimentary approaches offer the potential for influencing the direction of PLA modernization. As noted earlier, Hu Jintao's "Historic Missions" require that Beijing address broader global security challenges in order to protect China's vital economic interests. Direct military competition with the U.S., and heavy-handed approaches to the Taiwan issue are clearly not in line with these broader interests—nor do they facilitate development of effective mechanisms for global engagement and security. This fact reinforces a number of potential options for addressing problems inherent in China's rapid, comprehensive military modernization effort.

### ***Confidence Building***

Despite a clear effort to employ all elements of national power—diplomatic, information, military and economic (DIME)—Beijing has done a poor job of integrating civilian and military leadership. The current CCP leadership has little to no military experience, and the PLA is largely run by officers with minimal exposure to the outside world. The resulting potential communications gaps and insularity of perspective raise the odds of Chinese miscalculation—but also create an opportunity for the introduction of confidence-building measures through U.S. leadership insights and perspectives. These opportunities may include:

- Professional Military Education (PME)—the PLA is presently engaged in a military-wide effort to educate and professionalize its non-commissioned officer corps. The U.S. Department of Defense has significant experience in this area, to include working with foreign partners.
- Similarly, the U.S. could offer greater access to Chinese military leaders through provision of billets at our service schools and offers to establish PME instructor exchange programs.
- Educational/exchange opportunities could also be offered to upcoming Chinese political leaders—a background in U.S. civilian-military relations and crisis management are potential starting points.

Chinese resistance to publication of an accurate defense budget could also be emphasized as a problem area that could be resolved to Beijing benefit—at home and abroad. At a minimum, Chinese officials should be asked to publish a defense budget that includes strategic forces expenses, foreign acquisitions, state subsidies for defense industries and research and development.

China's economic ties with the United States present both opportunities and challenges. A potential area for confidence building is likely to be found in the energy sector. China's growing dependency on energy imports and corresponding penchant for seeking a high level of control over energy sources is of great concern to security analysts and

---

circumstances other than a global war." See: Collins, Gabriel and Murray, William, Spring 2008, "No Oil for the Lamps of China?" *Naval War College Review*, Volume 61, Number 2. pp. 79-95.

their policy patrons. China should be encouraged to participate in energy markets in a transparent manner that facilitates equitable and secure energy flows, and in international efforts to rein in destabilizing energy providers such as Iran or Sudan. Similar emphasis could be placed on encouraging Chinese participation in efforts to establish alternative energy sources—a process that could further policies focused on drawing Beijing into the international community as a responsible actor.

### ***China's Role in an Evolving Asia-Pacific Security Architecture***

China's force posture and weapons acquisition and development could perhaps best be influenced by increasing pressure on Beijing to engage in an evolving Asian security architecture that emphasizes mutual interests shared in China and the United States. Such an architecture could serve to curtail more assertive Chinese military approaches to territorial claims through clearly delineated monitoring and patrol agreements. Multilateral agreements should emphasize the role of the U.S. in providing for blue-water and space security—effectively demonstrating Department of Defense capabilities and thereby indicating that others need not duplicate these capabilities. Resolution of regional military-to-military disputes could be arbitrated through mechanisms that recognize the stability and security provided by U.S. presence over the past half century—with U.S. Pacific Command acting as an ombudsman for dialogue.

The greater the intensity with which China pursues the current RMA, the greater the probability that others will seek viable countermeasures. China confronts the possibility that continued pursuit of an RMA might increase problems with neighbors and potential allies.<sup>130</sup> In fact, Beijing is painfully aware of this problem, and is now engaged in a diplomatic campaign to allay concerns. This campaign is potentially conducive for recommendations regarding employment options for growing Chinese military might.

### **Maintaining the Technological Edge**

U.S. interaction with China on the competitive front should to take into account the fact that the ongoing revolution in military affairs seems to be occurring in two stages. The current focus on stealth, stand-off platforms, precision strike capabilities, missile defense, and information dominance comprises the first stage. The second stage is thought to entail employment of cyber warfare capabilities, nonlethality, psychotechnology, and robotics.<sup>131</sup> If this is indeed the case, Washington's current technological lead in the posture and readiness of armed forces could be endangered by the research and development focus underway in China. It would pay for policy makers to heed this concern, and develop and fund programs that specifically address shortfalls in next-generation military technologies.

---

<sup>130</sup> Metz, Steven and Kievit, James, 27 June 1995, "Strategy and the Revolution in Military Affairs: From Theory to Policy," Strategic Studies Institute. p. 20.

<sup>131</sup> *Ibid.* p. 7.

## Conclusion

The PLA is postured to conduct a range of offensive options in a Taiwan crisis, and can employ a wide range of anti-access capabilities to complicate U.S. responses to crises in the Taiwan Strait and elsewhere in East Asia. an option that China's leadership has previously lacked. Anti-access capabilities will remain attractive in the years to come. Advanced conventional ballistic and cruise missiles, counter-C4ISR and counter-space systems and strategies, and modern air and naval strike formations will complicate the direction of Asian security architectures over the next two decades, and perhaps beyond that. U.S. forces must maintain the ability to respond rapidly to events in the region, and to conduct and sustain operations in support of a broad range of interests. Even the perception on the part of Beijing that its capabilities could deny U.S. freedom of action would at best complicate peaceful resolution of issues, and at worst lead to miscalculation and escalation.<sup>132</sup>

---

<sup>132</sup> For a good discussion of priority measures to address anti-access concerns, see Roger Cliff, et al. *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, (Santa Monica: RAND, 2007). pp.111-116.





## Works Cited

Adamsky, Dima, April 2008, "Through the Looking Glass: The Soviet Military-Technical Revolution and the American Revolution in Military Affairs," *Journal of Strategic Studies*, Volume 31, Number 2.

Barnett, Thomas, *Blueprint for Action*, (New York: Putnam, 2005.)

Bernkopf Tucker, Nancy, May 2008, "China's Relations with the West: The Role of Taiwan and Hong Kong," Foreign Policy Research Institute.

Blasko, Dennis J., *The Chinese Army Today: Tradition and Transformation for the 21st Century* (New York: Routledge, 2006).

*Central News Agency*, 13 June 2005, "Armed Forces Psychological Warfare Drill Kicks Off," Taipei.

Chambers, Michael R., "Rising China: The Search for Power and Plenty," in *Strategic Asia 2006-07: Trade, Interdependence, and Security*, (Seattle: National Bureau of Asian Research, 2006).

Chen Zhou, "An Analysis of Defensive National Defense Policy of China for Safeguarding Peace and Development," *China Military Science*, (Beijing: Academy of Military Sciences, 2007).

*China's National Defense in 2008*, (Beijing: Information Office of the State Council of the People's Republic of China, 2009).

Cliff, Roger, et al. *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, (Santa Monica: RAND, 2007).

*CNN*, December 23, 2008, "China Sends Goodwill Pandas to Taiwan," <http://www.cnn.com/2008/world/asiapcf/12/23/china.taiwan/index.html>.

Collins, Gabriel and Murray, William, Spring 2008, "No Oil for the Lamps of China?" *Naval War College Review*, Volume 61, Number 2.

Crane, Keith, et al., 2005, *Modernizing China's Military: Opportunities and Constraints*, RAND.

Dai Qingmin, 20 April 2003, "On Seizing Information Supremacy," *Zhongguo Junshi Kexue*. (*Open Source Center*, 28 July 2003, "Chinese Military's Senior Infowar Official Stresses Integrated Network/EW Operations," CPP200307280000209, <http://www.opensource.gov>.)

Erickson, Andrew S., and Michael S. Chase, February 29, 2008, "PLA Navy Modernization: Preparing for "Informatized" War at Sea, *China Brief*, Vol. 8, Issue 5, The Jamestown Foundation.

Finkelstein, David, "China's National Military Strategy: An Overview of the "Military Strategic Guidelines," in Kamphausen, Roy and Scobell, Andrew, *Right-Sizing the People's Liberation Army: Exploring the Contours of China's Military*, (Carlisle: Strategic Studies Institute, 2006).

Fisher, Richard D., October 16, 2008, "Strait Shooter - PLA Expands and Upgrades Missile Arsenal," *Jane's Intelligence Review*.

Forden, Geoffrey. "Measure of Success – Analyzing the Results of China's ASAT Test." *Jane's Intelligence Review*, <http://www.janes.com>.

Friedberg, Aaron, October 2007, "Are We Ready for China?" *Commentary*, Washington DC.

Hartnett, Daniel, June 2008, "Towards a Globally Focused Chinese Military: The Historic Missions of the Chinese Armed Forces," *Project Asia*, The CNA Corporation.

*International Herald Tribune*, July 17, 2008, "Taiwan Relaxes Restrictions on Investment in China."

IISS, "Taiwan's Military: Assessing Strengths and Weaknesses," *Strategic Comments* 6, no. 4 (2000).

IISS, "Turkey and the United States: Drifting Apart?," *Strategic Comments* 9, no. 3 (2003).

IISS, *The Military Balance 2008* (London: Oxford University Press, 2008).

Jane's Information Group, 2008, *Jane's Armour and Artillery*.

Jane's Information Group, 2008, "Kh-31 (AS-17 'Krypton')" *Jane's Strategic Weapons Systems*.

Jane's Information Group, June 2008, "C-602 (HN-1/-2/-3/YJ-62/X-600/DH-10/HN-2000)" *Jane's Strategic Weapons Systems*.

Jane's Information Group, September 2008, "Kh-31 (AS-17 'Krypton')" *Jane's Strategic Weapons Systems*.

Jane's Information Group, 1 August 2008, *Jane's Sentinel Security Assessment - North America*.

Jane's Information Group, 8 October 2008, *Jane's Sentinel Security Assessment - China And Northeast Asia*.

Jane's Information Group, March 2009, "FT-2000," *Jane's Land-Based Air Defence*.

Jiang Zemin, 13 January 1993, "The International Situation and Military Strategic Guidelines." (Republished in August 2006, Three Volumes: *Selected Works of Jiang Zemin*.)

*Jiefangjun Bao*, 25 July 2008, "PLA General Staff Department Approves Release of Newly Amended 'Military Training, Examination Outline'," Beijing.

*Kanwa Intelligence Review*, 20 March 2007, "'Three War' and the Role of the PLA Political Commissars," Toronto.

Khalilzad, Zalmay, et al., *The United States and a Rising China: Strategic and Military Implications*, (Santa Monica: RAND, 1999).

Kiszely, John, December 2007, "Post Modern Challenges for Modern Warriors," Defense Academy of the United Kingdom, London.

Kopp, Carlo. "Almaz S-300 – China's "Offensive" Air Defense." *International Assessment and Strategy Center*. <http://www.strategycenter.net>.

Lewis, John and Xue Litai, *Imagined Enemies: China Prepares for Uncertain War*, (Palo Alto: Stanford University Press, 2006).

Li Dapeng, 2 July 2007, "Introduction to Legal Warfare in Complex Electromagnetic Environment," *Zhanqi Bao*, Chengdu Military Region, China.

Liu Wan-lin, 22 April 2008, "Investigation into the Impact of PRC Military's Media Warfare on ROC Military," *Hai-chun Hsueh-shu Yueh-k'an*, Taipei.

Metz, Steven and James Kievet, 27 June 1995, "Strategy and the Revolution in Military Affairs: From Theory to Policy," Strategic Studies Institute.

Minnick, Wendell, January 14, 2008, "China Developing Anti-Ship Ballistic Missiles," *DefenseNews*, <http://www.defensenews.com/story.php?i=3307277>.

*National Air and Space Intelligence Center*, 2007, "China: Connecting the Dots, Strategic Challenges Posed by a Re-emergent Power," U.S. Air Force.

Ni Eryan, 2 July 2008, "Where does the U.S. Military's 'Shock' Come From?" *Wen Wei Po*, Hong Kong.

*Open Source Center*, 24 August 1999, “Excerpts from ‘Unrestricted Warfare’,” FTS19990823001254, <http://www.opensource.gov>.

*Open Source Center*, 17 January 2005, “JFJB: General Staff Headquarters Training Plans Aim to Increase Combat Power,” CPP20050117000085, Washington DC. (Liu, Chunjiang, and Su, Ruozhou, 15 January 2005, “The General Staff Headquarters makes Plans for this Year’s Military Work in a Bid to Comprehensively Enhance Units’ Combat Power,” *Jiefangjun Bao*.)

*Open Source Center*, 8 June 2006, “China: PLA Military Training, Tasks for 2006,” CPP2006060608318001, <http://www.opensource.gov>.

*Open Source Center*, 26 June 2006, “China: PLA Ground Force, Air Force Units Stage Joint Training Exercises,” CPP2006060626702002, <http://www.opensource.gov>.

*Open Source Center*, 17 August 2006, “Nanjing Military Region Infantry Division Improves Communication Confrontation Skills,” CPP20061010318007, <http://www.opensource.gov>.

*Open Source Center*, 18 August 2006, “PRC Second Artillery Unit Leaders on New Directions, Bottlenecks of Training,” CPP200609143118009, <http://www.opensource.gov>.

*Open Source Center*, 13 September 2006, “Strengthening Realistic Opposing Force Exercises,” CPP20060914476001, <http://www.opensource.gov>.

*Open Source Center*, 9 October 2006, “PRC Guangzhou Military Region Army Vessels Unit Plays a Supporting Role in Joint Operations,” CPP20061010702002, <http://www.opensource.gov>.

*Open Source Center*, 29 December 2006, “China Issues White Paper on National Defense 2006,” FEA200612300635508, <http://www.opensource.gov>.

*Open Source Center*, 8 January 2007, “PRC: Military Experts View New PLA Mission in National Defense White Paper,” CPP20070111710012, <http://www.opensource.gov>.

*Open Source Center*, 25 January 2007, “OSC Analysis: PLA Training Directives for 2007 Emphasize ‘Informationalized Conditions’,” CPF20070125443003, <http://www.opensource.gov>.

*Open Source Center*, 14 February 2007, “Jinan Military Region Unit 71960 Writer Discusses Ways to Carry Out Integrated Joint Training,” CPP20070406436011, <http://www.opensource.gov>.

*Open Source Center*, 13 March 2007, “OSC Analysis: Group Army with Possible Taiwan Mission Perfecting Command Skills,” FEA20070314102386, <http://www.opensource.gov>.

*Open Source Center*, 31 March 2007, “Russia: Report on Chinese ASAT Test,” CEP20070523322013, <http://www.opensource.gov>.

*Open Source Center*, 24 April 2007, “Analysis: PRC Military Seeks Integrated Joint Operations,” FEA20070424126867, <http://www.opensource.gov>.

*Open Source Center*, 6 February 2008, “China—Strategic Guidance Establishes Basis for Expanding PLA Activity,” <http://www.opensource.gov>.

*Open Source Center*, 11 February 2008, “OSC Analysis: China’s 2008 Military Training Implements New Strategy,” CPF20080211538001, <http://www.opensource.gov>.

*Open Source Center*, 8 September 2008, “Analysis: Revised PRC Military Training Guidance Codifies Joint Operations,” FEA20080909767592, <http://www.opensource.gov>.

*Open Source Center*, 1 October 2008, “China—Media Highlight Updates to Party’s Military Guiding Theory,” <http://www.opensource.gov>.

*Open Source Center*, 7 January 2009, “Kanwa: Capability of Chinese Military in Recent Integrated Joint Operations,” CPP20090107715016, <http://www.opensource.gov>.

O’Rourke, Ronald, October 8, 2008, “China Naval Modernization: Implications for US Navy Capabilities – Background and Issues for Congress,” *Congressional Research Service*.

Pape, Robert A., *Bombing to Win: Coercion and Air Power in War* (Ithaca: Cornell University Press, 1996).

Peng Guangqian and Yaho Youzhi, eds., *The Science of Military Strategy*, (Beijing: Military Science Publishing House, Academy of Military Science of the Chinese People’s Liberation Army, 2005)

Postol, Theodore A., "Lessons of the Gulf War Experience with Patriot," *International Security* (MIT Press) 16, no. 3 (1991-1992): 119-171.

Qiao Liang and Wang Xiangsui, *Unrestricted Warfare: Assumptions on War and Tactics in the Age of Globalization*, (Beijing: PLA Literature and Arts Publishing House, 1999).

Saunders, Phillip C. and Charles D. Lutes, June 2007, “China’s ASAT Test: Motivations and Implications.” Institute for National Strategic Studies.

Shaw, Robert L., *Fighter Combat: Tactics and Maneuvering* (Annapolis, Maryland: Naval Institute Press, 1985).

Shen Yongjun and Su Ruozhou, 11 January 2006, "PLA Sets to Push Forward Informationalization Drive from Three Aspects," *PLA Daily Online*.

Shlaim, Avi and Raymond Tanter, "Decision Process, Choice, and Consequences Israel's Deep-Penetration Bombing in Egypt, 1970," *World Politics*, Vol. 30, No. 4, (July 1978).

Sun Zhenjiang, 2000, "Exploration of the Factors Restricting Command in Joint Operations" *National Defense University Gazette*.

Thomas, Timothy, April 2003, "New Developments in Chinese Strategic Psychological Warfare," *Special Warfare*.

U.S. Department of Defense, 2008, "Annual Report to Congress: Military Power of the People's Republic of China 2008."

*Wen Wei Po*, 23 October 2004, "Chinese PLA Focusing on Media, Psychological, and Legal Warfare Training," Hong Kong.

Wu Daxiang, 13 January 2003, "Clearly Recognize the New Mission of the Urban Militia," *Zhongguo Guofang Bao*.

Wu Dilun and Liu Feng'an, 6 January 2009, "General Staff Department Lays Out Plan for Military Training Throughout the Armed Forces in the New Year," *Jiefangjun Bao*, Beijing.

Yao Youzhi, 2004, "On Academic Questions Related to the Military Strategic Guidelines."

Zheng Zhidong, April 2005, "Thoughts on Improving Preparations for People's War Under Informatized Conditions," *Beijing Guofang*.