May 30, 2007

The Honorable ROBERT BYRD
President Pro Tempore of the Senate, Washington, D.C. 20510
The Honorable NANCY PELOSI
Speaker of the House of Representatives, Washington, D.C. 20515

DEAR SENATOR BYRD AND SPEAKER PELOSI:

We are pleased to transmit the record of our March 29-30, 2007 hearing on "*China's Military Modernization and Its Impact on the United States and the Asia-Pacific.*" The Floyd D. Spence National Defense Authorization Act (amended by Pub. L. No. 109-108, sect. 635(a)) provides the basis for our hearing, as it requires the Commission to study China's military modernization. During the hearing, the Commission heard from Representatives Dana Rohrabacher, Madeleine Bordallo, and Tim Ryan, and received a written statement from Representative Duncan Hunter. The Commission also heard the views of senior defense and intelligence officials, including the Commander of the U.S. Strategic Command, General James Cartwright, and DIA Senior Intelligence Analyst Mark Cozad. An array of notable experts from outside the U.S. government also participated in the hearing.[1]

The hearing was timely, coming only three months after a successful direct-ascent anti-satellite test by China that destroyed one of its own aging weather satellites in low-earth orbit. This test was only the third of its kind by any nation in history and served as a useful reference point during the hearing to illustrate not only China's advances in military capabilities, but also the extent to which China's decision making process is still very much opaque. This incident raises questions about Chinese intentions in space. The Commission will address these questions as it continues to monitor developments.

The Commission took a novel approach to this hearing on China's military modernization, its first on this topic in 2007. Using the threat scenarios outlined in the Department of Defense's 2006 Quadrennial Defense Review (QDR) as its analytical framework, the Commission examined China's capacity to threaten the United States and its allies in the domains of irregular warfare, traditional warfare, and disruptive warfare. This approach generated testimony that illuminated many important aspects of China's military strategy and modernization programs, including the heavy emphasis China has placed on asymmetric strategies and capabilities.

China's Capacity for Irregular Warfare

Several experts testified that if China were to find itself in an armed conflict with the United States and its allies such as that resulting from a Taiwan dispute, China is likely to

[1] An electronic copy of the full hearing record is posted to the Commission's web site: http://www.uscc.gov/hearings/hearingarchive.php#hearings2007

employ an array of irregular warfare strategies against its adversaries. According to Michael Vickers, Senior Vice President for Strategic Studies at the Center for Strategic and Budgetary Assessments, a Chinese attack on Taiwan could entail special operations and cyber attacks on U.S. regional bases in Japan and South Korea, and might even include cyber attacks on the U.S. homeland that target the U.S. financial, economic, energy, and communications infrastructure.

China's search for asymmetric capabilities to leverage against U.S. vulnerabilities represents a serious form of irregular warfare preparation. China is convinced that, financially and technologically, it cannot defeat the United States in a traditional force-on-force match up. However, as Chairman of the Defense Science Board Dr. William Schneider highlighted, if it can acquire niche weapons systems that are relatively inexpensive and that can exploit U.S. vulnerabilities, it stands a chance of deterring or defeating the United States in a limited engagement. This strategy explains China's emphasis on acquiring sophisticated ballistic and cruise missiles, submarines, mines, and information and electronic warfare capabilities.

According to Dr. Derek Reveron, Professor at the U.S. Naval War College, Beijing also engages in a much softer form of irregular warfare through its perception management operations, both in times of tranquil relations and in times of crisis. Perception management is not unique to China – all nations have similar international perception goals. However, because the Chinese Communist Party maintains tight political and media controls, Chinese perception management campaigns are more tightly coordinated with diplomacy.

China has worked diligently over the last two decades, as Dr. Reveron stated, "to promote a non-aggressive image of itself through a policy of non-interference, outreach to foreign publics and governments through public works projects, participation in the international system, and comparisons to the United States, which it characterizes as a hegemon on the offensive." This is in keeping with an internal and foreign policy statement made in 1991 by Party Chairman Deng Xiaoping when he put forward that China should, "Observe calmly; secure our position; cope with affairs calmly; hide our capacities and bide our time; be good at maintaining a low profile; never claim leadership."

Similarly, Dr. Reveron noted that in times of crisis China has sought to manipulate information in order to cast itself in a positive light or as the victim of U.S. aggression. He illustrated his point by recounting China's response to the crisis that ensued when a Chinese fighter collided with a U.S. EP-3 reconnaissance aircraft in international airspace in April 2001. The damaged EP-3 was forced to land on China's Hainan Island. By holding the crew in isolation for the first three days and monopolizing information, by characterizing the EP-3 as a spy plane, and by charging that the U.S. had violated China's sovereignty by landing the aircraft on Hainan Island, Chinese leaders were able to portray the United States as the aggressor in the crisis and elicit a statement of regret for the loss of the Chinese pilot.

China's Traditional Warfare Capabilities

Western literature on Chinese military modernization, as well as Chinese national defense white papers, acknowledges that China is presently in the midst of a lengthy round of holistic military modernization begun in 1992 with the aim of creating a professional, high-technology fighting force equal to those of the world's best militaries. To this end it has raised

its defense budget 10 percent or more each year over the last 11 years. This March, Beijing announced that its 2007 defense budget would rise by 17.8 percent to total $44.94 billion. The Pentagon believes this figure is significantly understated and that China's actual defense budget is closer to two or three times this amount, or $90-$135 billion. Because of the opacity of Beijing's expenditures, particularly those that are military-related, it is difficult for analysts to agree on precise amounts. Nonetheless, the increasingly sophisticated capabilities purchased with such expenditures are readily demonstrated. In his testimony, Defense Science Board Chairman Schneider illustrated the benefit of looking at capabilities rather than budgets by saying, "I think looking at it from an output perspective may in some ways be more informative than trying to calculate how the inputs are measured." Therefore, while larger defense budgets do not necessarily reflect an increase in capabilities, in the case of Beijing's funding of the PLA there is a strong correlation in this regard.

According to the testimony of LTC (Ret.) Cortez Cooper of Science Applications International Corporation, China's weapons acquisitions and training are guided by an overall strategy of preparation to win "informationized wars" – or wars that are heavily reliant on computers and information systems. He also noted that Beijing's strategists believe that, in the future, conflicts that involve China will be limited in geographical scope, duration, and political objectives, and will be highly dependent upon command, control, communications, and computer (C4) systems.

As China surveys scenarios of potential future conflict, one of the most likely is a conflict over Taiwan in which the United States and/or Japan might intervene. This understanding has guided China's financial investment in the military over the last 15 years, during which the majority of the resources for weapons acquisition has gone to the Navy and Air Force rather than the land forces. Nonetheless, the pattern of military modernization and acquisition by China suggests the possibility it is consciously preparing for other types of and locations for armed conflict (or efforts to deter conflict with shows of force).

Navy

The PLA continues to modernize its Navy with an emphasis on those platforms that are best suited for littoral or "green water" operations. China has completed the acquisition of its fleet of a dozen Kilo-class submarines from Russia along with a complement of advanced SS-N-27 "Sizzler" supersonic anti-ship missiles. These low altitude sea-skimming missiles were specifically designed for attacking U.S. aircraft carriers by defeating the Aegis anti-missile system. Simultaneously, it is launching ever-larger numbers of indigenously developed Song and Yuan-class submarines, the latter of which may be equipped with an air-independent propulsion system for improved endurance.

The PLA Navy surface fleet has also made substantial progress in raising its air defense and surface warfare capabilities. Its three newest classes of surface combatants, the Luyang II and Luzhou-class destroyers and Jiangkai II-class frigate, are all equipped with sophisticated air search and missile guidance radars and long-range, vertical launch, surface-to-air missiles. However, the anti-submarine warfare capabilities of these vessels are weak – as was the case with their predecessors.

In the assessment of Dr. Andrew Erickson, Professor at the U.S. Naval War College, naval power projection remains lower on the PLA Navy's list of priorities than littoral operations in the near term. Despite their latent production capacity, China's shipyards have not engaged in the serial production of replenishment-at-sea ships, considered essential for the re-supply of surface action groups engaged in blue water operations. Similarly, even though China has benefited from close to two decades of aircraft carrier design study, it still has not produced a single operational carrier platform. However, there are indications that the PLA Navy soon may refurbish the Russian carrier Varyag that it acquired from Ukraine and place it in an operational state.

If China launches ten of its new nuclear-powered Shang-class submarines by the end of 2008, as posited by Mr. Cooper, this would reflect a new emphasis on blue water naval capabilities on the part of Chinese strategists. In fact, so substantial have been Chinese advancements in naval modernization that they are leading some to begin to consider China as a partner, along with the U.S. Navy, in protecting freedom of navigation and maritime security on the high seas. During the hearing, RADM (Retired) Eric McVadon, former U.S. Defense Attaché in Beijing, suggested that, "[i]t is reasonable to envision the PLA Navy as part of our thousand ship navy concept, described by the U.S. Chief of Naval Operations as an international fleet of like-minded nations participating in security operations around the world. U.S. policies can foster, if not ensure, a favorable outcome." There may be problems in building such a partnership with China, however. Among those is the fact that, according to section 1203 of the National Defense Authorization Act for Fiscal Year 2000, the U. S. Navy likely would not be permitted to engage in the forms of operational information sharing with the PLA that would be required for such military-to-military collaboration.

Air Force

China has always considered air superiority over the Strait as a necessary precondition to successful invasion and to this end has funded the PLA Air Force heavily over the last 15 years. In the early 1990s, China abandoned its hope of building an advanced fleet of fighter aircraft through only indigenous means and instituted a two track system of acquiring advanced types from abroad while continuing to pursue parallel domestic programs. Today, the PLA Air Force possesses close to 300 of the Russian Sukhoi family of aircraft, including fourth generation, imported Su-27 and Su-30s, and licensed, co-produced Su-27s, designated the "J-11." It is also manufacturing its first indigenous, light-weight, fourth-generation fighter, the J-10, in increasing numbers.

China continues to rely primarily on foreign purchases to fulfill its requirements for strategic lift and aerial refueling. The IL-78 still serves as the mainstay for PLA Air Force aerial refueling, though it has been supplemented by H-6 bombers reconfigured for this purpose. According to Mr. Cooper, China recently agreed on a deal to purchase additional IL-76 transport aircraft that would increase its lift capacity for airborne forces by as much as 150 percent.

As evidenced by its modernization trends, the PLA Air Force understands the importance of developing a fleet with information systems that can be integrated into a theater-wide command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR) system. It has sought to install data links in all its advanced fighter

aircraft and to build or acquire airborne early warning aircraft. China's handful of Y-8 and KJ-2000 aircraft fulfill this latter requirement to a limited degree. The second of these is China's answer to the United States blocking the $1 billion deal for China to purchase Israel's "Phalcon" system in 2000. The KJ-2000 system is based on the Russian A-50 airframe and uses an indigenous phased array radar.

Army

Despite the fact that China's defense budget has favored the Navy and Air Force over the last decade and a half, the modernization of China's ground forces continues to constitute an important component of the overall development of China's armed forces. The Army continues to train in combined arms warfare and to focus on improving the quality of its infantry, armor, and artillery operations. It also conducts joint operations with the Navy and Air Force to train in the types of air mobile and amphibious assault operations that it would be called upon to undertake in a potential conflict over Taiwan. According to Mr. Cooper, about a quarter of the PLA's maneuver divisions and brigades focus on training for amphibious operations at four or more major amphibious training bases.

Even though training across the Army continues to lag behind that of the Navy and Air Force, in recent years the U.S. Defense Department has witnessed significant efforts dedicated to improving the professionalism and effectiveness of all PLA services. These efforts include developing a professional non-commissioned officer corps, improving the professional military education programs for officers, reforming and improving the quality of training, raising the pay of enlisted personnel, and emphasizing integration of information technology in daily operations.

Second Artillery

Development continues on both the nuclear and conventional components of China's strategic missile forces, otherwise known as the Second Artillery. Presently, China's land-based, solid-fueled, road-mobile DF-31 intercontinental ballistic missile constitutes its sole means of nuclear deterrence. However, with the introduction of the DF-31's naval counterpart, the JL-2, on the Jin-class submarine, China will possess an even more survivable nuclear deterrent.

China's conventional force, consisting of medium and short-range ballistic missiles, constitutes a crucial component of the deterrent force arrayed against Taiwan and is expected to fulfill an important theater-level precision strike role for China if armed conflict should arise. Presently, the Second Artillery's arsenal of 850 short-range ballistic missiles is being augmented at a rate of roughly 100 missiles per year. Additionally, the lethality of these missiles has increased through the development of more sophisticated warheads.

One other development in China's conventional missile force is noteworthy. The Second Artillery is designing a variant of the DF-21 intermediate-range ballistic missile with a maneuverable reentry vehicle (MaRV). This weapon will be very difficult to defend against due to its extremely high terminal speed. According to Mr. McVadon, if this capability is achieved, U.S. carrier groups responding to a Taiwan crisis may need to operate much further from China's coast, increasing the difficulty of air operations over the Strait.

The Taiwan Strait

Contingencies involving Taiwan remain the focus of Chinese planning and force acquisitions in the near term. The goals of PLA strategists are to deter Taiwan from declaring independence and to deter or delay the arrival of intervening third party forces, such as those of the United States or Japan. According to Dr. Bernard Cole, professor at the National War College, while Taiwan's armed forces are arguably better trained than their mainland counterparts, they also are under-armed in every service. Cole emphasized the importance of this by noting that if armed conflict were to break out between the two, it is unlikely that Taiwan could withstand the pressure from the mainland for more than a few weeks. He also remarked that, even with the addition of the defense systems that would be funded by the Special Budget that has been held up in the Legislative Yuan for more than five years, Taiwan's armed forces still would face a significant challenge defending the island. Indeed, it has become the consistent criticism of the United States government over the past decade that Taiwan is not preparing sufficiently for its own defense and is too reliant on the potential intervention of U.S. forces.

Chinese strategists are well-aware of the historical precedent of U.S. armed intervention on behalf of Taiwan and are developing strategies and capabilities to deter or delay the arrival of such forces in the theater. Chinese doctrine in this area stresses the use of pre-emptive, decisive strikes on forward bases and staging areas, such as Guam and Okinawa, and employment of a variety of platforms to deny the operational use of the waters in the Chinese littoral. Presently, the PLA possesses the capabilities to maintain sea denial operations out to 400 miles from China's coastline for a period of days. By 2010 China is expected to be able to sustain such operations for a period of weeks.

China's Capabilities to Execute Disruptive Warfare

Disruptive warfare is a form of non-traditional warfare with the aim of undermining the qualitative advantages of an opponent. Usually, fielding these asymmetric capabilities does not involve as much research and development or fiscal investment as traditional capabilities. Thus, developing disruptive capabilities is a strategic choice for a nation with a nascent military force preparing for conflict with a comparatively advanced adversary.

As evidenced by the trajectory of its military modernization, Chinese defense planners are seeking to accomplish the goal of undermining the U.S. military's technological edge through a variety of disruptive means. Among these is cyber warfare. USSTRATCOM Commander General Cartwright testified before the Commission that China is actively engaging in cyber reconnaissance by probing the computer networks of U.S. government agencies as well as private companies. The data collected from these computer reconnaissance campaigns can be used for myriad purposes, including identifying weak points in the networks, understanding how leaders in the United States think, discovering the communication patterns of American government agencies and private companies, and attaining valuable information stored throughout the networks. General Cartwright testified that this information is akin to that which in times past had to be gathered by human intelligence over a much longer period of time. He went on to say that in today's information environment, the exfiltration that once took years can be accomplished in a matter of minutes in one download session.

Speaking of the magnitude of the damage cyber attacks could cause, General Cartwright said, "I think that we should start to consider that regret factors associated with a cyber attack could, in fact, be in the magnitude of a weapon of mass destruction." Here, by "regret factors," General Cartwright was referring to the psychological effects that would be generated by the sense of disruption and chaos caused by a cyber attack.

One subsequent panelist posited a mitigating analysis. James Lewis from the Center for Strategic and International Studies testified that asymmetric attacks, including cyber attacks, are more likely to solidify the resistance of the targeted population than to cause real damage. Speaking about the practical outcomes of asymmetric attacks, Lewis said, "The effect is usually to solidify resistance, to encourage people to continue the fight, and if you haven't actually badly damaged their abilities to continue to fight, all you've done is annoy them, and what many of us call cyber attacks [are] not weapons of mass destruction but weapons of mass annoyance." Despite the different estimates of potential damage from cyber attacks, all the panelists agreed that developing asymmetric capabilities is a primary focus of the PLA's military modernization endeavor.

This modernization also includes efforts to build competitive space and counter-space capabilities, the latter demonstrated by the January 2007 anti-satellite test. According to Hudson Institute Research Fellow Mary FitzGerald, Chinese military strategists and aerospace scientists have been "quietly designing a blueprint for achieving space dominance" for more than a decade.

Recommendations

Based on the information presented at the hearing, we offer the following four preliminary recommendations to the Congress:

1) In order to minimize the possibility of miscalculation and conflict, the Commission recommends that Congress urge the Administration to press Beijing to engage in a series of measures that would provide more information about its strategic intentions and the ultimate purpose of its increasing military expenditures.

2) To further facilitate mutual understanding and avoid conflict resulting from inaccurate perceptions of interests or values by either nation, and to establish relationships that could prove critical for de-escalation of crises, the Commission recommends that Congress call on the Defense Department to develop a strategic dialogue whereby the senior military staff from the United States and China can discuss potentially contentious issues of the day such as non-interference in other nations' satellite activity and protocol for the use of nuclear weapons.

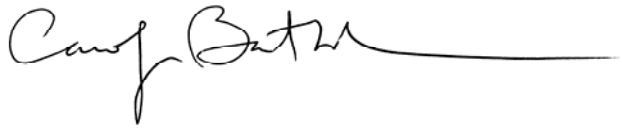
3) The Commission recommends that Congress ensure the adequate funding of military and intelligence agency programs that monitor and protect critical American computer networks and sensitive information.

4) The Commission recommends that Congress give high priority to the support of American space programs that ensure continued freedom of access to space and the

safety of space-based commercial and defense-related assets. This would include hardening satellites, maintaining quick-launch replacement satellites, and other defensive measures called for by the Operational Responsive Space framework.

The transcript, witness statements, and supporting documents for this hearing can be found on the Commission's website at www.uscc.gov. We hope these will be helpful as the Congress continues its assessment of China's military modernization.

Sincerely yours,



Carolyn Bartholomew
Chairman

Daniel Blumenthal
Vice Chairman

cc: Members of Congress and Congressional staff