FY04 REPORT TO CONGRESS ON PRC MILITARY POWER
Pursuant to the FY2000 National Defense Authorization Act

ANNUAL REPORT ON THE MILITARY POWER OF THE PEOPLE'S REPUBLIC OF CHINA

Section 1202 of the National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65, provides that the Secretary of Defense shall submit a report "on the current and future military strategy of the People's Republic of China. The report shall address the current and probable future course of military-technological development on the People's Liberation Army and the tenets and probable development of Chinese grand strategy, security strategy, and military strategy, and of the military organizations and operational concepts, through the next 20 years."

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KEY DEVELOPMENTS
BETWEEN THE 2003 AND 2004 REPORTS TO CONGRESS

Between 2003 and 2004, DoD has identified improvements in China's military capabilities in a significant number of areas. Highlights of these developments include:

Political. "Lessons learned" from Operation IRAQI FREEDOM (OIF):

- The PLA is rethinking the concept inferred from Operation ALLIED FORCE that airpower alone is sufficient to prevail in a conflict.
    - The speed of Coalition ground force advances and the role of special forces in OIF have caused PLA theorists to rethink their assumptions about the value of long-range precision strikes, independent of ground forces, in any Taiwan conflict scenario.
- Other OIF "lessons learned" impacting PLA thinking include the integration of psychological operations with air and rapid ground operations designed to target enemy leadership, its ability to communicate, and its will to fight.
- Allied weapon system integration/interoperability has reinforced the PLA's decision to accelerate acquisition of improved information technology and improvements to its weapons mobility, firepower, and precision weapons capabilities.
- The success of Coalition joint operations has confirmed the PLA's decision to improve its joint operations capability by developing advanced C^4ISR systems and improving inter-service cooperation.

Defense Economics. This report's assessment of China's announced defense budget and estimated defense-related expenditures includes:

- An expanded treatment of the economic context of defense spending, specifically including additional fidelity interpreting the breakout of the budget and how the budget fits within the context of the leadership's economic priorities; total defense-related expenditures; and national budget priorities, including a discussion of public trends within the announced defense budget and its lack of transparency.
- Identification of sizable annual increases in procurement expenditures which have been allotted to fund the current military modernization.
- Assessment that rising personnel costs strain budget allocations, especially since the divestiture of a number of PLA enterprises have reduced that funding source.

Arms Sales. Another change from the 2003 Report to Congress is a 7% increase in arms agreement values. Significant agreements include two Russian contracts:

- $1 billion for 24 Su-30 fighter aircraft

- $500 million for SA-20 surface to air missile systems.

PLA Training and Exercises.

- Increased interaction and cooperation with foreign militaries likely improved political and military ties, a prime example being a counterterrorism exercise with members of the Shanghai Cooperation Organization.

Logistics. The primary theme identified in this year's report to Congress is the PLA's desire to continue building a joint logistics system, primarily as a result of lessons learned from Operation IRAQI FREEDOM.

Defense Industries and Military Modernization. The 2004 Report to Congress contains more specific data than the 2003 report on defense industry/production material and its impact on military modernization. Broadly speaking:

- Self-sufficiency will continue to be China's long-term defense industrial goal, with plans to achieve weapon quality levels approaching those of the industrialized world within the next 5 to 10 years. At best, we expect China to meet with uneven success meeting this goal.

- Chinese defense industries have pursued a variety of measures, to include imports of foreign equipment, technology, and expertise; cooperative research, development, and production efforts; domestic research initiatives; and, facility expansion and modernization.

- China's extensive and well-established ballistic missile industrial infrastructure continues to concentrate on replacing liquid-propellant missiles with mobile solid-propellant ones, reflecting concerns for survivability, maintenance, and reliability and developing high-priority LACMs for theater and strategic missions.

- Specifically concerning conventional weapons platforms, Beijing:

    - Continues to research, develop, and produce a variety of systems – including tactical and special purpose (e.g., aerial refueling tankers, airborne early warning and collection, and electronic countermeasure) aircraft – as well as modern turbofan engine technology.

    - Continues to build more modern and combat-capable surface combatants, submarines, and amphibious vessels.

    - Continues to produce advanced armored systems, upgrade older models, and develop next-generation models.

Space. Beijing is advancing its military space capabilities across the board, including reconnaissance, navigation, communications, meteorology, small satellite technology, and manned space. Major breakthroughs during 2003 include:

- Launching and recovering of its first manned space mission.
- Launching a new type of a geosynchronous orbit (GEO) military communications satellite (COMSAT).
- Orbiting of a new type of film-based imagery satellite.
- Launching a prototype low earth orbit COMSAT, a key step in China's development of mini-satellites.
- Continuing efforts to investigate various means of tracking and defeating the space systems of potential opponents.

Missiles Forces. Changes since the 2003 Report to Congress include:

- Increasing the number of SRBMs, from an estimated 450 (2002) to an estimated 500 (2003).
- Continued development of conventional MRBMs, with deployment in the near future.
- Continued development of LACMs, with LACM brigades likely to form by decade's end.
- Continued improvements to missile C3, precision strike, and denial and deception capabilities.

C4ISR. Since the 2003 Report to Congress, China has continued to improve its potential for joint operations via development of an integrated command and control network, a new command structure, and improved C4ISR platforms. As in previous years, China's leaders realize that most of the PLA's C4ISR equipment lags generations behind that of the West and are encouraging a new generation of researchers, engineers, and officers to find ways to adapt to the demands of the modern battlefield. The acquisition of advanced C4ISR technology is one of the principal objectives of PRC collection activities.

I. DRIVERS FOR FORCE MODERNIZATION

Overview

China's People's Liberation Army (PLA) is embarked on an ambitious, long-term military modernization effort to develop capabilities to fight and win short-duration, high-intensity conflicts along its periphery. China's defense modernization is broad reaching, encompassing the transformation of virtually all aspects of the military establishment, to include weapon systems, operational doctrine, institution building, and personnel reforms. China values military power to defend economic interests, secure territorial claims, and build political influence commensurate with its status as a regional power with global aspirations. In recent years, the PLA has accelerated reform and modernization in response to the central leadership's concerns that developments across the Taiwan Strait could put at risk Beijing's objectives for Taiwan unification.

- The PLA is focused on developing a variety of credible military options to deter moves by Taiwan toward permanent separation or, if required, to compel by force the integration of Taiwan under mainland authority. A second set of objectives, though no less important, includes capabilities to deter, delay, or disrupt third-party intervention in a cross-Strait military crisis.

The PLA has made progress in meeting those goals through acquiring and deploying new weapon systems, promulgating new doctrine for modern warfare, reforming institutions, and improving training; however, it continues to lack the capability to project significant power beyond its borders. Nevertheless, the PLA's determined focus on preparing for conflict in the Taiwan Strait--to include accelerated deployments of short-range ballistic missiles opposite Taiwan--casts a cloud over Beijing's declared policy of seeking "peaceful reunification" under the "one country, two systems" model.

The priorities and objectives guiding China's military modernization are based on authoritative assessments of internal and external threats to China's security interests, the availability of resources, and the nature of modern warfare. The following sections discuss the role of these drivers in shaping the course of military-technological development in China; however, what appears below is little more than our best estimate.

The Department of Defense continues to have much to learn about the motivations and decisionmaking behind China's military modernization, in large part because of the extensive secrecy surrounding Chinese security affairs and a distinct aversion to real transparency on the part of China's leaders. Despite some recent improvements--such as publication of official white papers on defense issues every 2 years--China's leaders continue to closely guard and resist public revelation of basic information, such as the full amount and distribution of government resources dedicated to national defense or, as witnessed in 2003, details on the origin and incidence of infectious disease.

The Role of National Strategy

Beijing seeks to acquire and establish a favorable security environment that is conducive to continued economic growth, thus allowing it to develop its economic strength to continue its military modernization. However, the key notion behind China's overall national objectives can be found in its "comprehensive national power" (CNP). The CNP asserts that military modernization is key in protecting China's security and unity, as well as building a prosperous society.

CNP is the concept by which China's strategic planners evaluate and measure national standing in relation to other nations. It first appeared in the early 1980s in conjunction with Deng Xiaoping's national development strategy. Combined with traditional Chinese concepts of statecraft and strategy, the CNP represents an adaptation of Western methodologies for monitoring and assessing national power.

As China's leadership focuses on the country's overall national development, it is constantly assesses the broader "strategic configuration of power" for potential challenges and threats that might prompt it to adjust or change its national strategy, as well as for opportunities to advance national interests. China's leaders believe that three essential conditions – national unity, stability, and sovereignty – must exist if China is to survive and develop as a nation. Among these conditions, Beijing believes that national unity is the most important. Its preoccupation with maintaining unity is driven by China's internal and external security environment and national condition, historical experience, national goals, and perhaps more importantly, challenges to the CCP's legitimacy.

Ensuring domestic stability and a secure international environment is crucial to Beijing's national development strategy. Senior leaders are focused on the short-term task of ensuring regime stability by maintaining domestic order and leadership control while dealing with several sources of internal unrest and instability. Chinese leaders also believe they must maintain conditions of state sovereignty and territorial integrity. This view is reflected in China's response to a range of international issues, including human rights and democracy, and territorial and resource disputes with its neighbors.

Should China become involved in a major war, the relative priority it places on its national goals is likely to change. In peace time, there is an effort to arrive at a favorable "strategic configuration of power" more gradually—through economic development—but that effort might be eclipsed in a crisis. Deng Xiaoping and Jiang Zemin both indicated publicly that the goal of reestablishing a favorable "strategic configuration of power" would override the goal of developing national power if China faced a fundamental threat to its national unity, internal stability, or sovereignty.

Such circumstances were defined as situations in which China faced with the possibility of it being involved in a large-scale conflict, such as a war between China and Taiwan that included direct U.S. military intervention. While Deng and Jiang indicated that ensuring a favorable strategic "configuration of power" would be the primary national

goal in such situations, they also emphasized that one of China's war aims would be to end the war on favorable terms as soon as possible so that Beijing could refocus on the goal of developing national power.

China's grand strategy has been influenced primarily by a combination of the ancient tenets of Chinese statecraft as well as more modern national development theory. While ancient Chinese statecraft and national development theories are prevalent, other factors also shape China's grand strategy. China has had a longstanding geopolitical challenge in maintaining control over the heartland of China and major elements of "Inner Asia." It also has sought to secure the vast periphery of coastal and land boundaries, as well as maritime territory in a region populated by traditional rivals and enemies. These challenges shape how China approaches grand strategy, especially its emphasis on maintaining a favorable domestic and international "strategic configuration of power." It must be noted that in the effort to enhance their own approach to issues of strategy, security, and development, the Chinese study how other nations approach international security affairs.

Beijing has sought to describe its long-term political goals of developing CNP and ensuring a favorable strategic configuration of power in positive, passive, cooperative, benign, and peaceful themes. These themes include China's emphasis on "peace and development," the non-use of force in settling international disputes, non-intervention in the internal affairs of other countries, the defensive nature of China's military strategy, its "no-first-use of nuclear weapons" declaration, its support for nuclear-free weapons zones, and claims that China would never deploy its military forces on foreign soil.

These principled themes should not cloak the ambitious nature of China's national development program and the nature of China's approach to the use of force, which is contingent on the actions of others, rather than inherently passive or defensive measures. In particular, sovereignty issues that Beijing considers internal and defensive in nature -- most notably Taiwan -- may not be perceived by others as benign and peaceful. In addition, Beijing probably calculates that ambiguity in international discourse helps to buy China time in developing its national power.

One of Deng Xiaoping's key directives to China's security and development establishment was the so-called "24- character strategy:" "keep cool-headed to observe, be composed to make reactions, stand firmly, hide our capabilities and bide our time, never try to take the lead, and be able to accomplish something." This often-quoted adage not only suggests a desire to downplay China's ambitions; it also affirms a long-term strategy to build up China's CNP with a belief to maximizing China's options in the future.

From Beijing's perspective, strategic ambiguity--including strategic denial and deception--is a mechanism to influence the policies of foreign governments and the opinions of the general public and elites in other countries. China's leaders believe that ambiguity and stressing the "just nature" of Chinese actions has the effect of "drawing out" those who oppose and those who support China's interests abroad. Afterwards, they

can develop and tailor themes to counter opposition and advance their overall agenda. Moreover, such distinctions position China to reward "friends" abroad, or alternatively, punish "enemies" to enhance its own position in the balance of power.

Authoritative commentary following the Party Congress described China's development goals as follows: double the 2000 gross national product by 2010, further develop and improve the structure of the national economy by 2020, and achieve the level of development of an "intermediate developed country" with roughly $3,400 gross domestic product per capita (2003 data shows China had a per capita gross domestic product of approximately $1,058) by 2049--the 100-year anniversary of the founding of the People's Republic of China.

The role of the PLA as a "safeguard" of Chinese national strategic goals suggests that China's leaders view the military--more specifically, CCP control of the PLA and other instruments of coercion--as necessary for self-preservation and regime survival, to ensure that China's economic power will rise, to shape the international environment and defend national interests, and to support China's emergence as a great power and the preeminent power in Asia.

- China's aspirations and efforts to achieve great power status have accelerated in recent years, especially the past two, as China's leaders have evinced a greater sense of confidence in the international arena. Largely because of the political influence Beijing has accrued from over a decade of sustained economic growth, as well as the status inherent in China's geographic size, manpower, seat on the UN Security Council, and nuclear-capable forces, Beijing views itself as operating from an increasingly competitive position relative to other established world powers, including the United States.

- In addition, authoritative media since early 2002 have frequently included references to the 11 September 2001 terrorist attacks in New York City and Washington, DC, and subsequent U.S. involvement in the Global War on Terrorism (GWOT) as creating a "strategic window of opportunity" for China. Various Chinese observers have noted, for example, that U.S. focus on counterterrorism has reduced perceived U.S. "pressure" on and "containment" of China, opening opportunities to strengthen internal security and create a more favorable situation along the periphery.

Within the context of Beijing's strategic goals of perpetuating CCP rule, accelerating national development, and building regional and global influence, China's security objectives and threat perceptions form the primary drivers of its military modernization program. Chinese analysts characterize the security environment as being composed of internal and external spheres, with the external sphere divided broadly into great power relations, the situation along the periphery, the status of China's relations in the developing world, and nontraditional security issues. The threat of crisis or conflict in the Taiwan Strait, however, remains a foremost concern for China's leaders and

contributes significantly to decision making on near-term military modernization goals and objectives.

Taiwan

Preventing further steps by Taiwan toward permanent separation from the mainland and securing eventual resolution of the Taiwan issue on China's terms are priority security concerns for Beijing. China's leaders consider Taiwan's integration under mainland authority an essential step toward completing "national reunification" following reversions of Hong Kong and Macao in 1997 and 1999, respectively. While there is no apparent timeline to resolve the Taiwan issue, no Chinese leader would want to be saddled with responsibility for "losing" Taiwan. Many Chinese strategists and analysts view Taiwan as occupying a critical geostrategic location whose control would enable the PLA Navy to move its maritime defensive perimeter further seaward and improve Beijing's ability to influence regional sea lines of communication. Alternatively, according to some observers, permanent separation of Taiwan from the mainland would constrain China's ability to project power and provide the United States with a strategic foothold adjacent China's coastal economic centers.

The Taiwan issue has taken on a greater sense of urgency in recent years, especially because of the election of Taiwan President Chen Shui-bian, from the traditionally independence-leaning Democratic Progressive Party, in 2000 and Beijing's concerns that improvements in U.S. defense and security assistance to Taiwan will strengthen Taiwan's ability to resist mainland coercion.

Beijing is concerned about Chen's decision to proceed with a "defensive" referendum to address the growing missile threat from the mainland as part of the ballot during the March 2004 presidential election, as well as the Kuomintang-dominated opposition Pan-Blue camp's perceived abandonment of "reunification" as the inevitable course for the future of Taiwan. These concerns have been reinforced following Chen's victory in the hotly contested March 2004 Taiwan Presidential election and stated plans to revise the island's constitution – an act which some mainland commentators have characterized as a "timeline" for Taiwan independence.

Consequently, the focus of China's short- and medium-term conventional modernization efforts has been to prepare for military contingencies in the Taiwan Strait, to include scenarios involving U.S. military intervention. Potential conflict scenarios dictate a PLA emphasis on acquiring air, sea, and missile systems to overwhelm Taiwan defenses and defeat the Taiwan military and the political leadership's will to resist, to counter, delay, or raise the costs of effective U.S. military intervention. These military modernization goals and priorities support China's overall political strategy toward Taiwan, which is fundamentally coercive, by enabling Beijing to portray an increasingly credible military threat to Taiwan as a backstop to nonmilitary efforts to isolate Taiwan diplomatically and pressure Chen to resume dialogue based on the "one-China" principle.

China's leaders have affirmed a preference for "peaceful reunification" but have refused to abandon use of force as an option to resolve the dispute. As described in China's February 2000 white paper, *The One China Principle and the Taiwan Issue*, Beijing maintains that it will resort to force if Taiwan's present de facto independent status becomes official through a declaration or international recognition as such or if foreign military forces "invade" or "occupy" Taiwan. Moreover, China's leaders have threatened force if Taiwan indefinitely delays resumption of dialogue aimed at eventual "reunification."

Internal

China's leaders continue to view the internal situation as a distinct strategic problem. They believe domestic instability can invite external intervention and pose challenges to national unity and economic development. Since at least 2001, China's leaders have grouped these threats under the rubric of the so-called "three evil forces"--international terrorism, national separatism, and religious extremism. Beijing perceives ethnic and separatist unrest in western China and Tibet and the persistence of the quasi-religious Falungong as often supported by foreign sources and as presenting acute threats to central control. In addition, Beijing faces domestic stability challenges from displaced urban workers, disaffected demobilized military veterans, a political dissident movement, and widespread rural joblessness and underemployment, the latter contributing to a "floating population" of upwards of 130 million migrant workers, according to official estimates; unofficial estimates peg this number closer to 200 million.

The Chinese armed forces, which include the paramilitary People's Armed Police (PAP), play a central role in managing internal threats to stability. While, overall, the PAP manages internal security, China's 2002 defense white paper clearly provides for participation by PLA regular units in domestic security operations if required.

Maintaining internal security in wartime also appears to be an important consideration in military planning for crisis and conflict. China's national defense mobilization system, for example, envisions use of reserve and militia units to preserve social order during wartime, suggesting a tendency for China's leaders to see a linkage between fighting an external enemy and heightened unrest at home.

External

Among the world's powers, China's leaders view the United States as presenting the greatest opportunity--primarily in terms of trade and technology--and as posing the greatest challenge to accomplishing its overall national goals. At present, according to a variety of official and semiofficial publications, China views the United States as the only country that poses a real military threat to China and the only country that can impose effective economic sanctions against the regime. Consequently, Beijing is seeking mechanisms to ensure bilateral relations with Washington remain stable and nonconfrontational and is expanding its relations with other great powers to create strategic counterbalances against the United States, especially in the Asia-Pacific region.

- While the United States is central to Beijing's calculus for great power diplomacy, China's leaders are seeking to strengthen relations with other powers such as Russia, the European Union, and Japan and institutions such as the United Nations, to expand political and economic ties, and to influence U.S. policies they consider inimical to Chinese security interests. China's leaders evaluate the balance of "triangular relationships" (China-Russia-U.S., China-Japan-U.S.) and seek to create favorable conditions or exploit opportunities, such as bilateral friction between third parties and the United States, to advance China's goals.

China's leaders maintain an ambivalent if not skeptical attitude toward the U.S. regional military presence. While they recognize the U.S. role as providing stability, they believe it to be a manifestation of a long-term strategy to sustain the U.S. dominant geostrategic position by containing the growth of Chinese power. China views the strengthened U.S.-Japanese alliance and Washington's encouragement of Japan to expand the scope of its military operations as part of Operation ENDURING FREEDOM and postwar Iraq, as well as the U.S. decision to base heavy bombers, cruise missiles, and nuclear attack submarines on Guam, as extensions of this strategy.

Similarly, Beijing assesses U.S. efforts to develop missile defenses will challenge the credibility of China's nuclear deterrent and eventually be extended to protect Taiwan. China's leaders are likely to believe that missile defense coverage of Taiwan would degrade the coercive value of the PLA's growing conventional theater ballistic missile capability opposite the island.

Finally, while seeing opportunities for cooperation with the United States emerging from the GWOT, China's leaders appear to have concluded that the net effect of the U.S.-led campaign has been further encirclement of China, specifically by placing U.S. military forces in Central Asia, strengthening U.S. defense relations with Pakistan, India, and Japan, and returning the U.S. military to Southeast Asia. Although most Chinese observers believe the U.S. force posture post-September 11 is based on a legitimate need to prosecute the GWOT, many remain suspicious and have implied that the "real" U.S. intentions behind the realignment will not be known until the GWOT is more or less over.

Because of these perceptions of Washington's strategy and presence, Beijing believes U.S. intervention in conflict scenarios involving China, such as Taiwan and the South China Sea, is increasingly likely. Authoritative commentary and speeches by senior officials suggest that U.S. actions over the past decade, to include the NATO Operation ALLIED FORCE, have reinforced fears within the Chinese leadership that the United States would appeal to human rights and humanitarian concerns to intervene, either overtly or covertly, in any internal dispute with ethnic Tibetan or predominantly Muslim Uighur minorities. China's leaders recognize that China will not be able to engage in direct military competition with the United States for the foreseeable future, giving rise to a priority emphasis in the military modernization program on preventing effective intervention by superior U.S. forces in the first instance. This emphasis involves using asymmetric

solutions to blunt U.S. intervention or deny access to the theater of operations, including development of so-called "assassin's mace" (*shashoujian*) and "trump card" weapons.

- Developing "assassin's mace" weapons is not a new concept in China. However, since 1999 the term has appeared more frequently in Chinese professional journals, particularly in the context of fighting the United States in a Taiwan conflict. What actually classifies as an "assassin's mace" weapon is unclear. However, the concept appears to include a range of weapon systems and technologies related to information warfare, ballistic and antiship cruise missiles, advanced fighters and submarines, counterspace systems, and air defense.

- The Chinese concept of "trump card" weapons extends beyond specific systems and technology to include nontangibles such as "people's war" as a deterrent to a land invasion of China or "economic and trade diplomacy" as increasing China's competitiveness with the United States in the Asia-Pacific region.

Beyond China's efforts to secure its position among other world powers, Beijing focuses security policy on its periphery, to include the "greater periphery" encompassing Central Asia and the Middle East. The security goals behind this emphasis on the periphery include securing China's borders and territorial claims, maintaining access to natural resources and markets, and pursuing a "counter-containment" strategy by establishing a regional presence and influence to balance and compete with the United States and, along China's immediate periphery, the regional influence of Japan and India. In this context, Beijing appears to pay particular attention to those areas and countries where it perceives U.S. interest and attention waning.

China's leaders maintain that the situation along China's periphery is basically peaceful and stable. However, as the 2002 defense white paper asserts, "factors of instability still exist" in the region. These factors include -- beyond the Taiwan issue -- the potential for crisis or conflict on the Korean Peninsula, tensions between India and Pakistan, instability in the new Central Asian states, and the potential for foreign terrorist collusion with domestic separatist groups such as the East Turkistan Independence Movement.

- Beijing is concerned that the North Korean nuclear impasse could lead to a crisis or instability on the Korean Peninsula. In response, Beijing has pursued a diplomatic approach to help forestall U.S. military action, but has avoided taking real steps to pressure North Korea. However, as a potential hedge against uncertainty, the PLA assumed responsibility for border security along the northeast frontier in fall 2003, increasing security along the porous border with North Korea and strengthening China's ability to stem refugee flows or respond to a breakdown of the North Korean regime.

- In South Asia, Beijing is seeking to stabilize and improve its own relations with India in an effort to balance perceived improvements in Indo-U.S. relations. Highlighting this threat perception in a recent article, a PLA academic asserted that "the [U.S.] intention to use India to contain China goes without saying." At

the same time, China is encouraging both New Delhi and Islamabad to reduce tensions while preserving its historical strategic partnership with Pakistan.

- In addition to improving its domestic response to terrorism, China is also using counterterrorism to strengthen its regional partnerships, especially with Russia and Central Asian nations. In this vein, China is investing heavily in the Shanghai Cooperative Organization--China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan--as a cooperative security forum and mechanism to preserve its foothold in the region. In 2002 and 2003, respectively, China held bilateral and multilateral counterterrorism exercises with other member states.

- Finally, Beijing is using stepped up bilateral military and economic relations and greater multilateral engagement in Southeast Asia--primarily through direct dialogue with the Association of Southeast Asian Nations (ASEAN) in the 10+3 format (ASEAN plus China, Japan, and South Korea) and participation in the ASEAN Regional Forum--to strengthen its regional influence. Chinese leaders point to the conclusion of a Declaration of Conduct of the Parties in the South China Sea in 2002 as a hallmark of its efforts to preserve national equities while ameliorating tensions.

Similarly, China's strategy for the developing world seeks to expand the scope and depth of its relationships, primarily as a means to secure access to natural resources and markets, but also to build influence and political support in multilateral bodies such as the United Nations and restrict Taiwan's diplomatic space. To build these relationships, China emphasizes its status as a leader of the developing world and one that can sympathize with local dissatisfaction over the effects of globalization and perceptions of a widening "north-south" gap.

- In support of these goals, China's global military engagement plays an important--in some cases, dominant--role gaining access and influence with host country governments. By 2003, Beijing had established military relations with more than 140 countries, more than at any other time in its history. China uses these relationships to build binding security assistance relations involving primarily sales of aircraft, small arms, ammunition, and military supplies and professional military education exchanges.

- China has also stepped up its naval diplomacy, completing its first round-the-world cruise in July 2002. Aside from improving familiarity with open-ocean operations, the voyage advanced Beijing's network of global and regional relationships.

- In return, Beijing seeks access to technology and resources. For example, one Chinese observer noted that Beijing has interests in building closer ties with South Africa to gain access to mines and mineral deposits, with Brazil for satellite technology, and with India for computer software.

In addition to traditional security interests and concerns, Chinese strategic planners in recent years have begun to recognize the potential negative impact to China's economic development and domestic stability posed by global and transnational threats such as HIV/AIDS; international crime and narcotics trafficking; proliferation of nuclear, chemical, and biological weapons and their delivery systems; environmental degradation; and, as discussed earlier, terrorism. China's leaders also increasingly perceive threats to "economic security" and "information security" and erosion of national independence as a consequence of globalization. These concerns will only grow in future years with China's entry into the World Trade Organization.

- While these nontraditional security issues bear little relation to China's near-term military modernization priorities, they are issues China's leaders recognize that, if left unchecked, could in the long term contribute to domestic or regional instability and possibly conflict.

The Role of the Economy and Technological Resources

A second set of PLA force modernization drivers relates to the economic resources Beijing can devote to the problem and the availability of technology, both indigenous capabilities and access to foreign technology.

Economic Base

China's leaders view continued economic growth and reform as essential to managing internal and external security challenges, and they assess that China must maintain at least a 7 percent annual increase in gross domestic product for the duration of the 10th Five-Year Plan period (2001-05) to sustain the momentum from the previous decade. The imperative for growth necessitates that China prioritize investment in agriculture, industry, and science and technology ahead of purely military endeavors, implying there are inherent limits to China's ability--and willingness at present--to provide resources for military modernization. Reinforcing these limits are pressing structural reforms, to include financial sector reform, which if left unattended could serve as a drag on economic growth and a source for instability.

- While we do not known the full extent of China's defense expenditure, estimates based on official data support this notion by revealing a consistent defense budget burden between 1 and 2 percent of gross domestic product from 1990 to 2003. Similarly, official estimates of the defense budget place it as falling generally between 7 and 10 percent of central government expenditures for the same period--exceeding 10 percent slightly in 1992.

- As will be discussed later in this report, the officially announced budget--185.3 billion RMB in 2003 (about $22 billion)--most likely substantially underreports total expenditures on defense, to include off-budget funding for foreign weapon system imports.

At the same time, Beijing calculates that broad-based modernization of China's economy has raised and will continue to raise the overall levels of industry, technology, and human resources necessary to sustain long-term military modernization. Moreover, the increasing capacity of China's economy--experiencing a five-fold increase in total output per capita from 1982 to 2002--has enabled consistent devotion of ever greater resources to the military over time. For example, estimates, again based on publicly available data, show China was able to sustain double-digit increases in the announced defense budget from 1990 to 2002 and a 9.6 percent increase in 2003; combined with the low inflation China has experienced since the mid-1990s, these increases translate into real double-digit increases from 1996 to 2002, with a slightly less than 10 percent increase in 2003.

Even with sizable increases in resources for defense, competing requirements within the defense budget itself limit the extent to which additional funding for the armed forces can be applied to modernization accounts for acquiring newer weapon systems.

- The 2002 defense white paper, for example, cites rising personnel costs within the PLA--in part a consequence of the PLA's need to compete with the civil sector to attract and retain skilled talent--as absorbing much of the defense budget increases. Officer and enlisted salaries have increased 84 percent and 92 percent, respectively, over the past decade.

- In addition, consistent with the transition from a planned to a market-based economy and the decline of local government contributions to national defense, the PLA since 1998 has had to allocate funds for medical and retirement benefits and upgrading and renovating physical plants, such as housing and dining facilities.

- Finally, with the divesture of most of the PLA's vast enterprise system beginning in 1998, increases in the PLA budget have served to replace lost commercial revenues.

Recognizing the need to simultaneously accelerate military modernization and develop the national economy, the Chinese leadership is seeking to leverage dual-use developments in the civilian economy under the principle of "combining peacetime needs with wartime ones, considering both military and civilian use, and integrating military needs with civilian purposes," realizing efficiencies through reducing personnel, eliminating excess infrastructure, and outsourcing certain support and logistic functions.

- In September 2003, Central Military Commission Chairman Jiang Zemin announced a decision to reduce the size of the PLA by another 200,000 by 2005. This decision follows the reduction of 500,000 personnel between 1997 and 2000 and could include eliminating 3 group armies from the PLA and excess headquarters elements from the PLA Navy and PLA Air Force.

Availability of Technology

With few exceptions, such as ballistic missile research, development, and production, most of China's domestic defense industries are inefficient and remain vulnerable to dependencies on foreign suppliers of technology. Over the past decade, Russia has been the primary source of foreign military technology, although China has also benefited significantly from transfers and sales of defense and defense-related technologies from Israel, France, Germany, and Italy.

- For the past 5 years China has sought to diversify its sources of foreign technology--to include military technology--in an effort to avoid over reliance on a single source for military technology and to reduce its dependence on the United States for dual-use and civilian technologies.

- Most recently, China has lobbied European Union nations to lift the Tiananmen-era arms embargo. The measure could pave the way for China to gain increased access to European suppliers of modern weapon systems and technologies, providing Beijing increased bargaining power with, and reduced dependency on, suppliers in Russia and other nations of the former Soviet Union.

The Role of Modern Warfare and Perceptions of U.S. Defense Transformation

China closely observes foreign military campaigns and defense modernization initiatives, forming a third set of drivers for PLA modernization. The United States factors heavily in these observations, not only because of Chinese interests in learning and applying lessons from U.S. military operations, but also because of the desire to identify potential vulnerabilities Beijing could exploit in the event of a future conflict. PLA theorists and observers frequently cite the impact that Operation DESERT STORM (1991) and Operation ALLIED FORCE (1999) had on PLA concepts of modern warfare. These observations have expanded to include Operations ENDURING FREEDOM and IRAQI FREEDOM.

Operation DESERT STORM stands as a watershed event in terms of Chinese observations of future warfare. The PLA noted that the rapid defeat of Iraqi forces--which resembled the PLA at that time in many ways--revealed how backward and vulnerable China would be in a modern war. The Gulf War sparked a concerted effort to update and refine PLA operational-level doctrine for joint and combined warfare to reflect the requirements of speed, agility, and precision in modern warfare and accelerate force-wide reform and modernization. The Gulf War also spurred internal PLA debate on the implications of an emergent revolution in military affairs, in which the conflict became a point of reference for efforts to build capabilities in command, control, communications, computers, intelligence, surveillance, and reconnaissance (C^4ISR), information warfare, air defense, precision strike, and logistics.

Operation ALLIED FORCE had as much impact on PLA thinking, although more as a validation of earlier assessments of the requirements of modern warfare than as a catalyst for change. In contrast to Gulf War operations, which emphasized how a superior adversary would fight, NATO's air operations over Serbia provided the PLA insights into

how a technologically inferior force could defend against a superior opponent. PLA observers noted how effective use of low-tech counter reconnaissance measures, such as camouflage, decoys, dispersion, and frequent movement of forces, could stymie allied situational awareness and precision-strike capabilities. Moreover, the air campaign reinforced the PLA's focus on passive defense measures such as hardening or burying high-value targets, shifting to fiber-optic communications, and concealing supply depots. Despite the positive impression the PLA took away from the Serb defense, many military observers noted the Serbs suffered from inferior equipment, inadequate defense of civilian installations, and poor logistics.

The PLA applied the most significant lessons from Operation ALLIED FORCE in a revamped air defense training regime referred to as "Three Attacks, Three Defenses" (attack stealth aircraft, cruise missiles, and helicopters; defend against precision strikes, electronic warfare, and enemy reconnaissance). PLA theorists also began to conclude that the role of airpower and long-range strike in modern warfare had diminished the role of ground forces. These observations led to discussion on the coercive applications of precision air and missile strikes in targeting leadership and command and control nodes to isolate and "decapitate" the enemy, forcing rapid capitulation with a minimum commitment of ground forces. The observations most likely were the basis for decisions to accelerate development and deployment of greater numbers of more capable ballistic missiles, to accelerate cruise missile development, and to acquire newer multirole fighter aircraft to support a new PLA Air Force doctrine for independent, strategic operations.

The PLA continues to digest the full implications of Operations ENDURING FREEDOM and IRAQI FREEDOM and, likewise, continues to seek a better understanding of the U.S. Department of Defense transformation goals. At a minimum, the PLA drew lessons on the application of unmanned aerial vehicles for reconnaissance and strike operations and the role of modern, well-trained special forces in precision targeting. Some PLA observers were impressed with weapon system integration and interoperability and flexible logistic support to mobile operations. In addition, the notion that airpower alone was sufficient to prevail in a conflict was being questioned.

Similarly, Operation IRAQI FREEDOM probably highlighted the expanding technological gap between modern Western military forces and those of developing countries. This expanding gap has already prompted China's senior leaders, including President Hu Jintao, to call upon the PLA to pursue "leap ahead" technologies to accelerate acquisition of improved capabilities, especially in information technology, to increase the mobility, firepower, and precision of PLA weapons and equipment--the so-called "informationization" of the force.

While reinforcing many of the observations the PLA made about previous conflicts, several PLA writers have focused on the speed of Coalition ground force advances in Iraq, suggesting some of their assumptions about the potential value of long-range and precision strike, independent of ground forces, in a Taiwan conflict may be beginning to come under question. Several experts from the Academy of Military Science also have pointed to integration of psychological operations with air and rapid ground operations to

target the leadership and its ability to communicate to degrade an adversary's will to fight. Chinese military theorists and planners probably will capture these lessons in revisions to PLA doctrine and acquisition priorities over the next decade.

II. TRENDS IN MILITARY STRATEGY, DOCTRINE, AND TRAINING

China's Views on the Use of Force

Beijing's calculus for deciding to use military force or other instruments of national power for settling regional or international disputes is ambiguous. Currently, China emphasizes economic, political, and other nonmilitary options to achieve its political objectives; however, its preference for nonmilitary instruments does not preclude using force. Since the 1990s, in professional journals PLA military strategists have increasingly discussed the efficiency of limited applications of force to accomplish political goals. Moreover, advances in military technologies may provide Beijing with an expanded set of limited force options that could result in the opposite trend, in which China's strategies increasingly favor military over passive approaches to coercion. Some possible influences on a decision to use force include:

- Improvements in the PLA's military capabilities.
- The enemy's vulnerability to coercion.
- The perceived possibility of deterring intervention by third parties in any resulting conflict.

Beijing would measure its costs associated with a decision to use force in international image and prestige, expenditure of resources and material, and overall impact on the economy.

China's Military Strategy

China's military strategy, "Active Defense," reflects the ambiguity with which its leaders seek to cloak military and security affairs. It declares a *defensive* military strategy and asserts that China does not initiate wars or fight wars of aggression, but engages in war only to defend national sovereignty and territorial integrity and "attacks only after being attacked." However, Beijing's definition of an "attack" on national territory or sovereignty, or what constitutes an initial attack, remains vague. Consequently, the term *active defense* indicates little about when or how China would choose to initiate hostilities. Moreover, once Beijing determines that hostilities have begun, evidence suggests the characteristics of active defense are distinctly offensive. PLA writings on the campaign level of war imply this offensive nature of active defense. The PLA text *The Study of Campaigns* (*Zhanyi Xue)*, published in 2000, explains:

> *While strategically the guideline is active defense, in military campaigns, though, the emphasis is placed on taking the initiative in "active offense." Only in this way, the strategic objective of "active defense" can be realized.*

Accordingly, active defense calls for forces to be postured to defend against perceived security threats. At the same time, however, China's leaders seek not only to react but also to positively shape their security environment and prevent adversaries from engaging in actions contrary to China's national interests. This desire suggests a general deterrent role for China's military and provides for coercive uses of force. For example, the 1979 Sino-Vietnamese border conflict was a punitive measure Beijing conducted in response to the threat from Vietnam's incursions into Cambodia, which at that time was China's closest regional partner. The 1979 case underscores the contention that China's military strategy is not purely defensive but rather calls for attacks and offensive actions in support of foreign policy aims. In this context, peacetime applications of active defense provide for using force short of war for coercion. China's launch of missiles into closure areas off Taiwan in 1995 and 1996, in an attempt to pressure Taipei and intimidate the Taiwan people, is an example of this form of military coercion.

Joint Operations

PLA theorists and planners believe that future campaigns will be conducted simultaneously on land, at sea, and in the air, space, and the electronic sphere. Therefore, the PLA is improving its joint operations capabilities by developing an integrated C^4ISR network, a new command structure, and a joint logistics system. China is also strengthening inter-service cooperation to facilitate development of joint operations capabilities; these capabilities will reflect Chinese military requirements and, while influenced by Western capabilities, are not likely to mirror them. Most notably, the PLA's concept of joint operations is centered on coordination at the operational level of war and does not filter down to tactical levels.

The PLA's ambition to conduct joint operations can be traced to lessons learned from U.S. and allied operations in the past decade. Although the PLA spent much of the 1990s developing doctrinal concepts for joint operations, its concept of joint operations is not focused on interservice integration at all levels, but more on coordination at the campaign level. As more advanced weapons, sensors, and platforms enter the inventory and training begins to reflect multiservice operations, further development of a joint operations capability may provide the PLA with significant enhancements to its overall military capabilities.

In 1999, the PLA issued a series of doctrinal publications incorporating lessons learned from DESERT STORM, Kosovo, and other U.S. military operations. Operational units are gradually incorporating this doctrine, which emphasizes joint operations; however, at this time, the PLA's joint operations doctrine remains somewhat undeveloped. The PLA has not demonstrated a capability to conduct Western-style joint operations; however, it has conducted some multiservice activity with "joint" characteristics and "joint" command and control during past exercises that reflects new Chinese concepts of joint operations. Although the PLA has devoted considerable effort to develop these capabilities, its primary shortfalls are a lack of experience in carrying out joint operations and a lack of interservice cooperation. As the PLA continues its efforts to develop a joint warfighting capability, future exercises possibly will focus on improving service interoperability.

Logistics

The PLA's renewed emphasis on joint operations reinforced the need to establish an efficient logistic system. The PLA's logistic capabilities are reported to be a serious deficiency and a major obstacle to its ability to project force. PLA observers of U.S. military operations from the Gulf War to Operation IRAQI FREEDOM have cited examples espousing the advantages of joint logistics and integration of technology.

The PLA implemented a 10-year logistic reform plan in 1999 that establishes a joint logistic structure. This structure would combine the three armed services' logistic departments with civilian support activities. In addition, the PLA will outsource logistic functions to civilian infrastructure.

Air Operations

The PLA Air Force (PLAAF) is transitioning from a defensive force to one with a modern, offensive strike capability. China's force modernization plan and acquisition strategy for its air forces have been aimed mainly at defeating regional air forces, defending against aircraft operating at long ranges from China's coast, denying U.S. naval operations, and striking regional targets such as airbases and air defense sites. As part of the modernization process, the PLAAF and PLA Naval Air Force (PLANAF) are acquiring advanced weapon systems, improving training, developing new tactics to complement modern technology, and training technically proficient personnel. This ambitious modernization effort is in its early stages.

China is trying to modernize its air defense capabilities under the "Three Attacks, Three Defenses" concept. Accordingly, the PLA seeks to develop the capability to attack stealth aircraft, cruise missiles, and attack helicopters while defending against electronic warfare; adversary intelligence, surveillance and reconnaissance (ISR) efforts; and precision-guided munitions. Although training and air force modernization are focused on developing these capabilities, the PLA's air defenses are limited to providing point defense for major cities and high-value assets and do not allow for an indepth or flexible air defense throughout the country. However, Beijing recognizes this weakness and has assigned it a high priority, making rapid improvements possible.

The PLAAF's primary strength remains its size--approximately 3,000 combat-capable aircraft. Also, the PLAAF and PLANAF are undergoing significant upgrades, which include acquiring fourth-generation aircraft, air defense systems, advanced munitions, and C^4ISR equipment. These upgrades eventually will improve the PLAAF's capability to conduct both offensive and defensive operations. In addition, air combat tactics continue to evolve, and training is becoming more advanced, though both remain behind Western standards. By 2010-15, the PLAAF will have made additional progress toward

becoming a modern air force and will be equipped with modern weapons that most likely will enable the PLA to execute the regional combat operations its current military doctrine envisions.

As more advanced equipment enters the inventory, the PLA's most significant challenges will be to integrate these systems into the current force and train and retain skilled pilots and officers. These efforts usually take considerable time for the PLA and most likely will prove to be serious challenges as more modern systems enter the inventory. Also, as more modern fighter and attack platforms are introduced into the PLAAF, China will need to begin procuring support aircraft, such as ISR platforms, command and control aircraft, and an aerial refueling system. By decade's end, China probably will have a more robust fleet of fourth-generation fighters augmented by modern missiles, electronic countermeasures, and several airborne warning and control system (AWACS)-type aircraft. Although PLAAF pilot capabilities are likely to remain poor by Western standards, improvements in other areas, particularly procurement of advanced weapons, will increase the air force combat potential.

Conventional Missile Operations

Beijing's growing conventional missile force provides a strategic capability without the political and practical constraints associated with nuclear-armed missiles. The PLA's short-range ballistic missiles (SRBMs) provide a survivable and effective conventional strike force, as will future procurement of conventionally armed ballistic missiles and land-attack cruise missiles.

Given this strategy, missile force modernization and training developments in recent years highlight China's continuing effort to improve quantitatively and qualitatively the capabilities of its conventionally armed SRBM force. The deployed inventory numbers about 500 SRBMs, a figure that probably will increase considerably in the next few years. The accuracy and lethality of this force also are expected to increase through use of satellite-aided guidance systems.

The Second Artillery will continue to focus on integrating the SRBM force into multiservice operations. Additional brigades, employing land-attack cruise missiles, are likely to be formed in the latter part of this decade. Precision-strike capabilities, denial and deception, improved command, control and communications, as well as an increased variety of conventional warheads will remain the emphasis for Chinese conventional missile forces in the next decade.

Naval Operations

China's security environment has placed increasing emphasis on the role of the navy in defending China's economically robust eastern coastal provinces and offshore economic assets. Shifts in China's strategic focus have prompted changes in PLA doctrine to that of "offshore defense," prompting a shift from a once-static coastal defense force to development of a navy more capable of open-ocean operations. The PLA Navy (PLAN)

is developing forces to support its strategy of "offshore defense," which includes developing the capability to protect China's island and maritime claims, including Taiwan and the Spratly and Diaoyutai/Senkaku Islands. Beijing realizes it must have forces available to respond rapidly to a multitude of regional contingencies, and it is seeking to build a balanced naval force for surface warfare, antisubmarine warfare, submarine warfare, air defense, mine warfare, and amphibious warfare; however, it will use these capabilities selectively, based on the contingency. Also, China's maritime strategy calls for developing a modern submarine force, and Beijing has begun to build this force with the acquisition of additional KILO submarines. China also is building new nuclear-powered attack and ballistic missile submarines that most likely will enter service in a few years.

C^4ISR

China's desire to fight and win "local wars under modern high-tech conditions" requires a survivable, robust, reliable, and sophisticated C^4ISR system to harness battlespace information and make it available to commanders and civilian decisionmakers. Communication nodes and intelligence fusion centers are critical at all levels to support joint operations. The PLA continues to upgrade its communication capabilities, which eventually will rival the most modern civil networks. Command, control, communications, computers, and intelligence (C^4I) modernization and automation have been a PLA priority for nearly 25 years. China is steadily improving its C^4I capabilities by leveraging commercial information technologies to advance ambitious plans to create a high-technology electronic environment capable of supporting a modern military in both peace and wartime. The PLA is trying to develop a command network capable of rapidly passing orders and information up and down the chain of command and moving intelligence to decision makers at the national and war zone levels. China's development and deployment of state-of-the-art ISR capabilities are uneven and will further complicate the PLA's ability to train in a realistic joint warfare environment and ultimately to fight a modern battle. Currently targeting is a problem; however, with the emphasis on space-based imagery and reconnaissance satellites, this likely will improve over the next decade.

Information Operations

The PLA is developing its information operations (IO) capabilities to target and damage or destroy enemy information systems and weaken the enemy's command, control, and overall operational capabilities. Even though these capabilities are improving and the PLA is conducting IO training, equipment is dated and does not appear to be readily available to most units. Although current PLA IO systems are older, domestic production, along with foreign technology transfers, probably will give the PLA access to a wider range of modern equipment in the future.

The Role of Surprise and Reduction in Warning Time

Chinese military writings prescribe use of deception at the campaign level to achieve maximum surprise and therefore reduce warning time. Campaign deception is military deception implemented under the unified leadership of campaign commanders to achieve campaign goals and falls between strategic and tactical deception. This type of deception can be accomplished through camouflage, feints, and simulation. PLA writings affirm the belief that a surprise attack can determine the success or failure of a campaign. However, surprise in an attack cannot ensure the favorable outcome of a war. In the Chinese view, using surprise attacks to launch a war plays an important role in seizing the initiative during the initial phase of a conflict. To achieve surprise, a campaign or battle must meet two basic conditions: "swift action" and "hidden undertakings," with the latter the denial and deception measures the Chinese would employ to achieve tactical surprise on the battlefield.

Training and Exercises

PLA doctrine dictates that training focus on the ability to conduct operations in local high-intensity, short-duration conflicts. The PLA is meeting its training objectives through professionalization of its officer and NCO corps, standardization of its training programs, increased realism of its exercises, and improvements in training facilities.

The PLA has placed significant emphasis on training NCOs and improving its professional military education (PME) programs to develop a more modern, professional military force. Following the reduction of compulsory service from 3 to 2 years, the PLA's NCO system underwent a major reform, which included efforts to improve training, recruit soldiers with specialized skills, and improve pay and benefits. The PLA views improving PME as critical to ensuring it has a professional, properly trained leadership cadre.

In 2001, the PLA published the Military Training and Examination Program (MTEP). Developed and implemented along service lines, it provides standardized guidance for all PLA military training. China is attempting to use this program as a mechanism to implement a more realistic training program directed toward developing a force capable of operating in a modern, high-technology combat environment. The MTEP provided a departure from previous PLA training standards by dictating that tactical training be tailored to a unit's specific operational tasks. Although early in its implementation phase, the MTEP is quite different from previous PLA training norms and could have a significant effect on developing military skills.

Training facilities and infrastructure have received increased resources. These facilities and infrastructure include training aids and centers and ranges that offer access to more realistic training, sometimes through use of simulations and other computer-based technology. The PLA has emphasized the benefit of being able to evaluate training at these facilities and encourages commanders to exchange roles for greater exposure to the other services during training. Access to the more realistic training at these facilities will become more important in the next several years as the PLA continues to take delivery of and integrate advanced weapon systems into its inventory.

PLA training and exercises have focused increasingly on areas related to modernization, particularly development of new combat methods, operational experimentation, joint operations, communications, amphibious operations, and air defense. In recent years the PLA appears to be trying to improve training realism by stressing adverse conditions, diverse terrain, and night operations.

Several factors hampered PLA training in 2003. The outbreak of SARS in China prompted the military to take precautions that most likely were factored into planning and execution of PLA training. In late April, a MING submarine accident that killed more than 70 sailors garnered high-level attention and most likely influenced PLA naval training and operations.

The PLA has increased its interaction and cooperation with foreign militaries to improve political and military ties. This activity has taken the form largely of combined exercises geared toward exposing the PLA to foreign ideas and theories of warfare. An important example is an August 2003 counterterrorism exercise involving the PLA and five Shanghai Cooperation Organization member countries.

The PLA will continue to focus on improving training standards and realism. Training concepts and doctrine will evolve, along with experimentation with new tactics and combat methods. Much of this experimentation and development will come in the areas of communications, joint operations, and integration of advanced weapons. In the next year, training probably will become more complex and will place more emphasis on applying skills rather than increasing basic familiarization. The PLA also will continue increasing its interaction with foreign militaries. This effort will remain a high priority for the PLA as it tries to modernize and incorporate warfighting concepts--augmenting its capability to fight local, high-intensity, short-duration conflicts in a high-technology environment.

III. RESOURCES FOR FORCE MODERNIZATION

Defense Budget

In March 2004, China announced that a real increase of 11.6 percent ($2.6 billion) to its 2004 defense budget, bringing the total to $25 billion. The 2003-4 defense increase reflects Beijing's sustained commitment to PLA modernization. However, the announced budget markedly understates actual defense-related spending and does not include major spending categories, such as weapons research and foreign weapon purchases. In addition, the PLA receives funding or bartered material from a multitude of sources at every level of government. It also avoids some support costs by using soldiers to grow food and produce materiel. It even subcontracts soldiers out for public and private projects. DoD estimated total defense-related expenditures for 2003, counting the large but difficult-to-calculate off-budget financing, could be between $50 billion and $70 billion, making China the third largest defense spender in the world, after the United

States and Russia, and by far the largest defense spender in Asia followed by Japan. (figure 1).

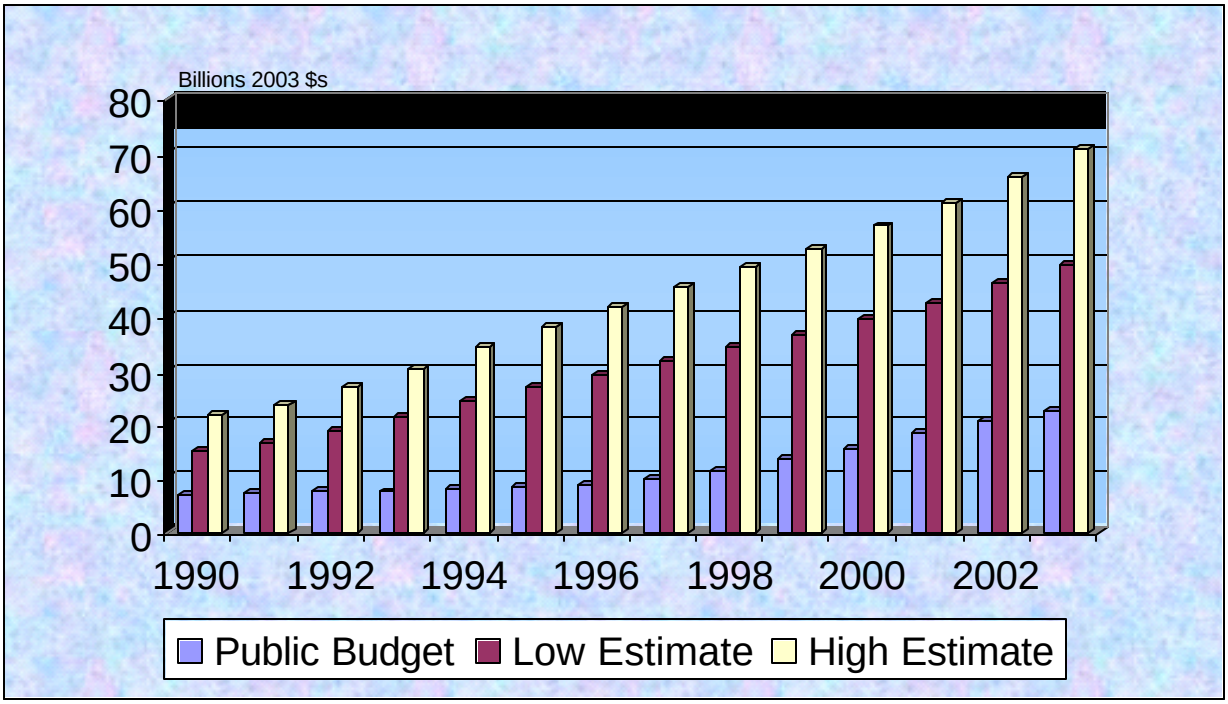


Figure 1. Comparison of Public Budget and Estimated Total Defense-Related Expenditures

Additional near double-digit budget increases are likely in the midterm to underwrite escalating personnel costs, to fund PLA modernization and downsizing, and to offset funding losses from divested PLA commercial enterprises. However, a lack of detailed and consistent information makes accurately tracking total defense-related spending impossible. Furthermore, there is little information, with any confidence, indicating specific allocations by service or resource category, to include research and development (R&D), procurement, construction, and personnel.

China's December 2002 Defense White Paper (the latest version published), despite official claims that it reflects increased transparency, reveals little about the PLA's budget. While Beijing's White Paper does provide a breakout of the official defense budget, it does so in poorly defined resource categories, such as personnel expenses (33 percent), maintenance of activities (34 percent), and costs of equipment (32 percent), which provide little insight into how much funding actually is allocated to each service or military mission.

Projecting China's defense spending over a long period is problematic, especially because total defense spending is not adequately reported or defined. However, overlaying commercially available estimates of anticipated economic growth with DoD military spending estimates defines somewhat the boundaries of future defense

expenditures. With this method, annual defense spending could increase in real terms three-four fold by 2025 (figure 2).

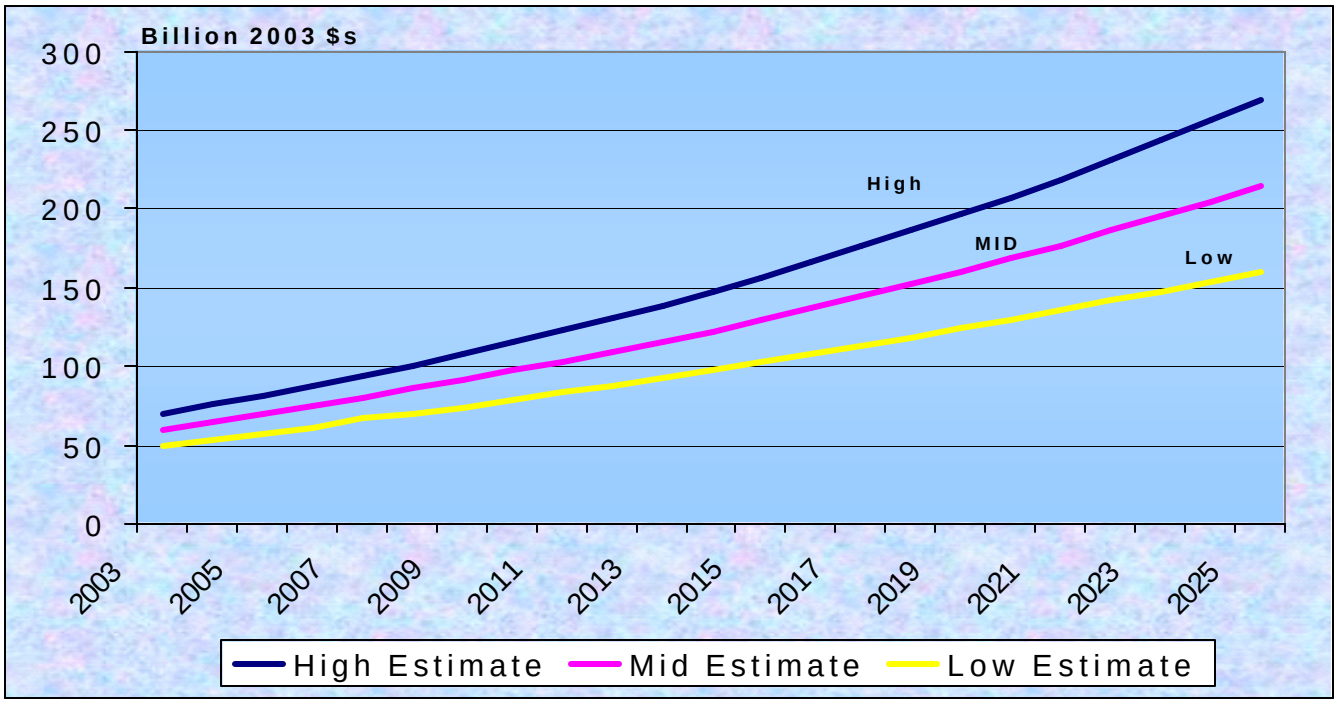


Figure 2. Estimated Chinese Defense Expenditure Projections

Domestic Defense Industry

Overview

Self-sufficiency will continue to be China's long-term defense industrial goal. Beijing plans to infuse increasingly advanced technology into the defense industry, hoping to achieve weapon quality levels approaching those in the industrially developed world within the next 5 to 10 years. Chinese defense industries have taken near-term steps to address deficiencies, but Beijing realizes long-term modernization will take time and entail a variety of measures, to include imports of foreign equipment, technology, and expertise; cooperative research, development, and production efforts; domestic research initiatives; and facility expansion and modernization.

Defense Industry Highlights

Beijing has active domestic production programs in all major military-industrial sectors, and China currently produces a wide variety of military equipment, including missiles, fighter aircraft, bombers, destroyers, frigates, submarines, tanks, and armored personnel carriers. However, many programs rely on foreign suppliers for critical components, such as engines for its fighters, for much of the domestically produced equipment. Also, China has an extensive and well-established ballistic missile industrial infrastructure and

has developed and produced a wide variety of land- and sea-based ballistic missiles. China is concentrating on replacing liquid-propellant missiles with mobile solid-propellant ones, reflecting concerns for survivability, maintenance, and reliability, and is developing high-priority land-attack cruise missiles for theater and strategic missions. In addition, China produces several types of land-, sea-, and air-launched cruise missiles, mostly for short-range and anti-ship operations.

Beijing continues to pursue a wide variety of domestic military aircraft programs. In addition to fighter and bomber production, China is developing special purpose aircraft, including aerial refueling tankers, airborne early warning and collection aircraft, and electronic countermeasure platforms. While difficulty in producing turbofan engines has hampered the Chinese aviation industry for years, there are signs of advancement. Progress has been made on developing the WS10A, the turbofan engine for the F-10--recent testing reportedly has attained the standard of the Russian AL-31F.

In recent years, the PLAN's maritime mission has evolved from a static coastal defense into that of an "active offshore defense." This change in operations requires newer, more modern warships and submarines capable of operating out to the Ryukyu Islands and into the South China Sea. China has active surface combatant, submarine, and amphibious construction programs, with several vessels currently under construction, and plans for additional units. One of the top priorities for the PLAN during the 10th Five-Year Plan is manufacture of submarines.

China's ground force modernization focuses on producing more advanced tanks, upgrading older models, and continuing extensive development efforts on next-generation models. China is designing a next-generation infantry fighting vehicle incorporating the upgraded version of Russian BMP-3 turret technologies (including the fire-control system). Reportedly, a prototype vehicle is undergoing testing. China also is looking into upgrading older Type 69 main battle tanks with new fire-control systems, engines, turrets, and explosive reactive armor.

Future Trends

The PLA domestic production programs will focus future modernization efforts on incremental improvements in fire-support, armor, C^4ISR, logistics, denial and deception, and air defense. Developing and fielding new missile, advanced air, and naval systems as well as fielding ground force equipment, to include self-propelled artillery and air defense systems, will improve overall capabilities and mobility and survivability on the battlefield. Fielding and integrating C^4ISR systems and fielding satellite communications at lower echelons will improve the potential for battlespace management among the services. Improvements in camouflage and use of decoys also will enhance battlefield survivability.

China's Access to Foreign Technology and Weapon Systems

Overview

China relies heavily on former Soviet Union (FSU) governments for access to modern weapons, materials, and technical support to achieve strategic goals established under the 10th Five-Year Plan (2001-05) defense modernization program. However, as this program approaches completion, Beijing may experience problems in meeting some of its modernization goals, with actual deliveries falling about 27 percent in 2003 and new agreements off by about two-thirds over 2002 levels. China's arms imports now are experiencing a moderate decline, which most likely results from a surge in imports in recent years coupled with the PLA's difficulty in integrating modern weapons into a force comprising mostly1960s technology. However, the reduction in deliveries could be part of a calculated strategy to integrate these new weapons before proceeding with additional purchases. Historically, China appears to slow defense spending subsequent to an aggressive buying spree to absorb the influx of new equipment, ensure that all new products meet its defense needs, validate the functionality of the equipment, secure force infrastructure integration, and adequately train personnel to operate the new equipment.

FSU Arms Sales and Technology Transfers to China Since 1991

Arms agreements between China and FSU governments since 1991 total $20 billion, with actual deliveries to date estimated at $12 billion. Russia, Ukraine, and Belarus appear to be China's chief sources of weapons and materiel, reportedly providing in excess of 95 percent of all China's arms imports since 1990. Among FSU governments, Russia clearly is China's largest arms supplier, accounting for over 90 percent of all FSU arms sold to China over the past decade. In 2003, China's primary focus was aerospace buildup, spending more than $1 billion dollars on 24 Russian advanced fighter aircraft alone.

The Sino-Russian military trade relationship has been extensive, with China purchasing advanced Russian weapon systems for its military forces, weapon components for its domestic production programs, and military technology for its weapon development programs. Beijing's purchase of advanced Russian weapon systems available for export has included Su-27 and Su-30 fighter aircraft; AA-12 air-to-air missiles; SA-10, SA-15, and SA-20 surface-to-air missiles; 3M-54E Novator Alpha antiship cruise missiles; KILO submarines; SOVREMENNYY destroyers; and associated weapon systems. China also relies on key Russian components for several of its weapon production programs and, in some cases, has purchased production rights to Russian weapon systems. For example, China assembles Su-27 fighters from Russian kits and eventually is expected to fabricate major components for the aircraft. In addition to weapon components, Russia continues to cooperate with China for technical, design, and material support for numerous weapon and space systems.

Ukraine ranks as the second-largest FSU arms supplier to China; however, signed arms contracts between Kiev and Beijing total about $300 million, accounting for less than 2 percent of China's arms purchases during this period. Ukraine's arms sales to China reportedly have consisted primarily of weapon system components and equipment to

support China's aircraft and missile programs. For example, Ukraine is reported to have sold aircraft engines for use on China's K-8 jet trainer.

While Belarus is not a major arms supplier, Minsk has contracts with Beijing to provide equipment and technical support. Since the breakup of the Soviet Union, Minsk reportedly has signed contracts with Beijing valued at about $225 million, most earmarked for equipment, technical assistance, and technology to support development of China's various missile systems.

Uzbekistan is a minor Chinese arms supplier. Since 1990, Tashkent has signed arms agreements with Beijing valued at some $100 million, accounting for less than 1 percent of China's arms agreements, reportedly involving primarily the sale of the Il-76/CANDID transport aircraft.

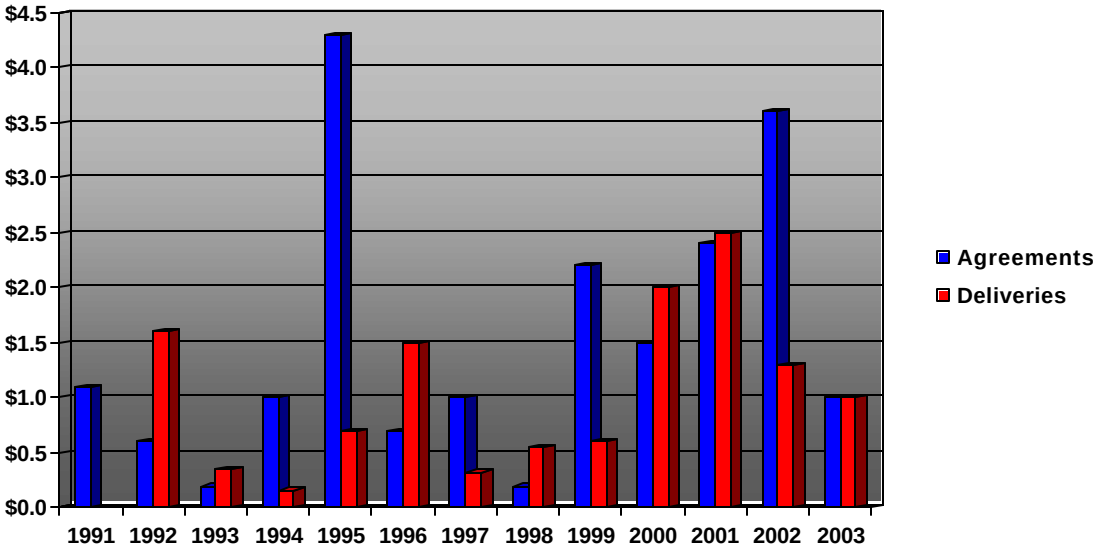


Figure 3. FSU Arms Transfers to China, 1991-2002 (in $ billions). *China has signed arms agreements with FSU states worth about $20 billion and has taken delivery from these states of about $12 billion in weapons and materiel since 1991.*

Drivers in China's Weapon Acquisition Strategy and Indicators for Future Cooperation

In addition to maintaining potential suppliers of major weapon systems, modern electronics, communications, and other advanced technologies for incorporation into its own weapon programs, Beijing uses arms trade as an avenue to strengthen political alliances with Russia and its other FSU partners. From 1999 to 2003, Beijing entered into several major new weapon negotiations with Moscow, suggesting China will continue to rely on Russia as its primary source of modern military weapons and advanced technology.

China pursues a two-track weapon acquisition strategy to satisfy both long- and short-term military requirements; Russia figures prominently in both tracks. In the first track,

China's preference is to develop and produce a weapon system domestically to satisfy a particular long-term military requirement. To accomplish this, it uses technologies and commodities from domestic and foreign sources. The second track involves acquiring advanced foreign weapon systems and technologies to satisfy immediate military requirements, often also acquiring related manufacturing technologies. This demand for technology transfer as part of an end-item sale is known as an "offset." Since at least 1993, China reportedly has acquired advanced Russian weapon technologies for development of air, ground, and naval weapon systems, as well as advanced materials and manufacturing technologies associated with missiles, lasers, and space system manufacturing. Beijing has expressed interest in or is currently negotiating the purchase of additional Russian weapon systems and military technology, to include additional KILO submarines, antisubmarine helicopters, and various aircraft engines. China's interest in assembling or producing Russian weapons apparently remains strong.

China and Russia have typically maintained a robust defense and security relationship, including bilateral policy consultations and professional military-to-military intelligence exchanges. Selling arms and military technology to China is a major component of Russia's foreign and security policy. Russian conventional weapon technology transfers will help advance the speed of development and improve the lethality of every major category of weapon system under development in China. The pace of this technology transfer continues unabated as China strives for self-sufficiency. Military-technical cooperation with Beijing acts as a source of revenue to fill state coffers, support defense industries, and enrich influential Russian individuals and groups. It also provides Moscow with a vehicle to bolster relations with an emerging power and provides a primary source of funding for continued Russian military R&D efforts.

Beijing reportedly purchased, on average, some $1.2 billion worth of Russian weapons each year during the 1990s, accounting for about 30 percent of total Russian arms sales. However, beginning in 1999, China's purchases from Russia rose and have averaged approximately twice that amount annually. Russian leaders are not likely to significantly reduce their sales effort in China, even under pressure from a third party. Similarly, improved U.S.-Russian relations after the 11 September 2001 terrorist attacks are unlikely to cause Moscow to scale down arms transfers to Beijing.

Because of persistent concerns over the direction of China's foreign and security policies, Russia's leadership has placed some limits on the types and sophistication of weapons sold to China. However, arms and technology sales also strengthen Russia's relationship with China. Access to Russian weapons gives Beijing a strong stake in cooperating with Moscow. Russian leaders probably view China's commitment to good relations as particularly important because of the length of their common border, demographic trends in Russia's eastern regions, Beijing's growing power, and mutual concern over U.S. policies, in particular the growing U.S. military presence in Central Asia.

Ukraine is a moderate supplier in the world arms market and has active military cooperation agreements with dozens of nations, including China; however, Kiev's arms sales to China make up only a small percentage of its total world sales. Since Ukraine

has no political sanctions against China, no diplomatic barriers prevent growth in military cooperation agreements or arms sales. Ukraine most likely would resist international pressure to limit cooperation with China, or it would declare its cooperation but move some of its sales into the gray market to obscure direct government links.

The Belarusian arms trade is closely tied to that of Russia. Minsk uses arms sales to generate hard currency and to keep its struggling arms industry afloat. China is a lucrative target for arms sales, and, since there are no internationally recognized sanctions against China, Minsk does not perceive a need to limit its sales or military cooperation with Beijing. Although Belarus is a signatory to major international agreements regarding proliferation of weapons of mass destruction, it does not believe it should be subject to any constraints on transferring conventional technologies and systems.

Uzbekistan recently joined the Shanghai Cooperation Organization (SCO), in which China is a leading member. Despite some concerns over Beijing's intentions in Central Asia, Uzbekistan's bilateral military cooperation with Beijing has increased in recent years, primarily through professional military exchanges and military assistance. Available evidence indicates that arms-related sales and technology transfers to China are limited.

Kazakhstan apparently pursues defense and security contacts with Beijing primarily as a mechanism to promote economic cooperation and address shared regional security issues, such as Islamic extremism, border delimitation, and demilitarization. Available information does not show a significant Kazakh-Chinese military arms relationship. Any growth in bilateral military cooperation, including arms sales or professional military exchanges, most likely would reflect a balance of Kazakhstan's interests to support economic and security cooperation with the Russian-led Commonwealth of Independent States while pursuing closer economic ties and continuing dialogue with China through the SCO framework.

Although Kyrgyz military contacts with China have increased in recent years, no available information suggests significant arms transfers to China. Kyrgyzstan has agreed to headquarter the SCO Counterterrorism Center in Bishkek, indicating that closer defense and security relations with Beijing most likely will include cooperative measures to combat Islamic extremism. In late 2002, the PLA and the Kyrgyz military held a joint exercise on the border to coordinate their counterterrorism efforts.

Like Kyrgyzstan, Tajikistan is a member of the Commonwealth of Independent States Collective Security Pact and the SCO. While Tajikistan faces practical political restraints on military cooperation with China, it reportedly has begun a program of military-to-military exchanges with Beijing. However, there is no evidence of arms or technology transfers from Tajikistan to China.

The remaining FSU states -- Armenia, Azerbaijan, Estonia, Georgia, Latvia, Lithuania, Moldova, and Turkmenistan -- are not believed to have a significant defense, security, or military-technical component to their bilateral relations with China.

Implications of a Potential Lifting of the EU Arms Embargo

Efforts underway to lift the European Union (EU) embargo on China will provide additional opportunities to acquire specific technologies from Western suppliers. In the near-term, Beijing likely will continue to look to Russia to fulfill its military procurement goals. Russia most likely will remain the primary supplier of China's advanced conventional weapons, with Europe acting as an emerging supplier; however, a more diverse post-embargo supplier base may enhance China's leverage in negotiating purchases of advanced conventional weapons and technology.

IV. FORCE MODERNIZATION

PLA Strategy and Doctrine Influence on China's Investment in Military Modernization

China's military modernization is oriented on developing the capabilities to fight and win "local wars under modern high-tech conditions." Based largely on observations of U.S. and allied operations since Operation DESERT STORM, PLA modernization envisions seeking precision-strike munitions, modern command and control systems, and state-of-the-art ISR platforms. Beijing sees its potential future adversaries, particularly the U.S. Armed Forces, acquiring these advanced systems, and this is a driver in PLA defensive and offensive force modernization. In addition, although the PLA views these components as significant force multipliers, it also sees them as centers of gravity that, if denied, degraded, or destroyed, could greatly hinder a modern enemy's capabilities to wage war.

In this context, the PLA has sought to upgrade key components of its military through purchases of foreign weapons and domestic development. These efforts have focused mainly on modern aircraft, ballistic missiles, naval combatants and weapons, advanced C^4ISR systems, and information warfare. Although Beijing has emphasized these programs, it faces modernizing a military that comprised mainly older generation weapons with limited capabilities against a modern adversary. In addition, China faces challenges in integrating the newly acquired equipment.

PLA Weapon Acquisition Strategy

Air Forces

China continues its force-wide modernization program to improve overall combat capabilities in the next decade. Beijing continues to acquire advanced aircraft and weapons, with the goal of improving the abilities of the PLAAF and PLANAF to defend national airspace from attack and to interdict and strike enemy forces at greater distances from China's land and sea borders.

China continues to upgrade its air-to-air capabilities with additional Su-27/FLANKER aircraft produced from licensed Russian kits and Su-30MKK multirole fighter aircraft purchased directly from Russia. The PLANAF is expected to acquire a naval strike version of the Su-30 by the end of 2004. China has acquired the AA-12/ADDER active-radar-guided air-to-air missile from Russia and continues to develop advanced air-to-air munitions. China flew its domestically developed FC-1 lightweight fighter for the first time during 2003. Also in development is a domestic advanced fighter, the F-10, which is to become operational in the next few years. In addition, Beijing has continued to pursue domestic upgrades to its F-8II fighters. Since China received its first advanced aircraft in 1992, training, tactics, and operational concepts have progressed slowly. In the past 3 years, the pace of advanced fighter integration has quickened. Air combat tactics continue to evolve, and training is becoming more advanced, although it remains behind Western standards.

With the acquisition of multirole aircraft and advanced munitions, China is beginning to make significant strides toward improving its maritime and land-attack strike capabilities. The primary focus is on improving sensors and weapons to increase the survivability and lethality of attack airframes, allowing them to defend themselves while en route to the target and to deliver guided munitions once there. The Su-30 aircraft destined for the PLANAF will be capable of supporting the launch of radar-guided air-to-surface missiles (ASMs), such as the AS-X-17b/KRYPTON antiship cruise missile. China still is developing the FB-7, an all-weather, supersonic, medium-range fighter-bomber with an antiship mission. Improvements to the FB-7 most likely will include a better radar, night-attack avionics, and more advanced weapons. With development and acquisition of guided munitions, land-attack capabilities are improving as well; important developments in this area include antiradiation missiles and laser- and TV-guided ASMs and bombs the Su-30MKK can deliver.

China has sought to improve the capabilities of its special-mission aircraft, with a focus on electronic warfare aircraft, C^4ISR platforms, and tankers. China reportedly has developed jamming versions of several of its larger aircraft, and it may have several programs under way to deploy new standoff and escort jammers using bombers, transports, tactical aircraft, and unmanned aerial vehicles (UAVs). China has been pursuing an advanced airborne surveillance and control aircraft since the early 1990s. In 1999, it introduced an airborne early warning (AEW) aircraft, the Y-8 AEW. Israel's cancellation of the more capable PHALCON program in 2001 forced Beijing to pursue other alternatives, including possible acquisition of the A-50/MAINSTAY AWACS aircraft from Russia or a domestic program. China began developing its air-to-air refueling capability in the mid-1980s using a converted B-6/BADGER bomber as an aerial tanker. PLANAF fighters and tanker aircraft appear to train only on an irregular basis. China is investing considerably in UAV development. The PLA has a number of short- and medium-range UAVs in its inventory for reconnaissance, surveillance, and electronic warfare roles. Research is under way to develop a UAV that eventually will enable continual surveillance well beyond China's coastal waters.

Air Defense Systems

Much of China's more recent air defense modernization effort extends from Beijing's observation of Western military campaigns beginning with the Gulf War in early 1991. Employment of precision-guided munitions, stealth aircraft, and airborne C^4I alerted Beijing to the limitations of its air defenses. Current Chinese air defense acquisitions are an effort to address these threats, as well as extend air defense coverage beyond point defense of major cities and other high-value assets. The design of the domestic HQ-9 surface-to-air missile (SAM) reportedly was influenced by these observations, as were plans to upgrade China's C^4I system. Modernization is occurring in all services. Significant developments over the past few years to improve China's integrated air defense system include:

- Purchase of advanced Russian SAMs, such as the SA-10 and SA-20, to protect against a perceived cruise missile threat and to extend air defense coverage against conventional aircraft.

- Development of an antiradiation SAM, most likely intended to target AWACS aircraft and standoff jamming platforms.

- Purchase of advanced tactical SAMs for short-range point defense and protection of ground forces, to include the SA-15 from Russia.

- Development of the LY-60 tactical SAM system for ships and several shoulder-fired SAM systems, such as the QW-1, QW-2, and FN-6, to replace the domestic HN-5.

- Development of a land-based version of the long-range HQ-9, to precede a naval version, designed to be a long-range counter to high-performance aircraft, cruise missiles, ASMs, and tactical ballistic missiles.

The PLAN is addressing its longstanding concerns about its capability to engage enemy aircraft, cruise missiles, and precision-guided munitions. The problem has become more pressing as the Navy strives to operate at greater distances from the protection of land-based air defenses. Currently, PLAN surface combatants have a limited, mainly self-defense, antiair warfare capability. Future PLAN air defense improvements include development of SAMs to provide area defense. This effort has led to continuing exchanges with Russia on air defense-related radars and missiles. The SA-N-7 provides the most capable system in the near term. Technology from the SA-N-7 probably could assist with development of a domestic naval SAM system. In the next decade, the PLAN could develop a naval missile roughly equivalent to the shore-based SA-10/20s or purchase them from Russia. Although China prefers domestic SAM development, whether it will be able to build its own equivalent within an acceptable period is uncertain. Purchases of additional, more advanced Russian weapons may be required.

Conventional Missile Systems

China has an extensive and well-established ballistic missile industrial infrastructure and has developed and produced a wide variety of land- and sea-based ballistic missiles. Beijing is concentrating on replacing liquid-propellant missiles with mobile solid-propellant ones, reflecting concerns about survivability, maintenance, and reliability. Development of land-attack cruise missiles for both theater and strategic missions is a high priority, and air-, ground-, and land-based versions of these weapons most likely will be operational within the next 5 to 10 years. Although China currently produces several types of land-, sea-, and air-launched cruise missiles, most are short range and for antiship operations.

All of China's known SRBM assets are believed to be based in the Nanjing Military Region opposite Taiwan. China has about 500 SRBMs in its deployed inventory. It is emphasizing SRBM systems, and the size of the force is likely to increase substantially over the next few years. The accuracy and lethality of this force also are increasing. The PLA continues production of the CSS-7 and is developing variants of the CSS-6 that put Okinawa within range when the missiles are forward-deployed or Taiwan when they are deployed near garrison. In the future, China will have the option of employing conventionally armed medium-range ballistic missiles (MRBMs), which will extend the range of its conventional missile strike force.

Nuclear Force Modernization

A ballistic missile modernization program is under way to upgrade all classes of missiles, both qualitatively and quantitatively. Beijing intends this program to improve its nuclear deterrence by increasing the number of warheads that can target the United States and augmenting the nuclear force's operational capabilities for contingencies in East Asia. China is replacing all of its roughly 20 CSS-4 Mod 1 intercontinental ballistic missiles (ICBMs) with the longer range CSS-4 Mod 2. Development of the DF-31 ICBM is progressing, and deployment should begin later this decade. China also is developing two follow-on extended-range versions of the DF-31: a solid-propellant, mobile ICBM and a solid-propellant submarine-launched ballistic missile, the JL-2, which will be deployed on a new ballistic missile submarine by decade's end. The Second Artillery is continuing to supplement its aging inventory of liquid-propellant CSS-2 intermediate-range ballistic missiles with the solid-propellant, road-mobile CSS-5 MRBM. China currently has about 20 ICBMs capable of targeting the United States. This number could increase to about 30 by 2005 and may reach up to 60 by 2010.

Ground Forces

The focus of Beijing's ground force modernization is to continue force reductions begun as early as the mid-1980s. Drawdowns will continue through the next decade and could reduce PLA forces by 500,000 personnel. The objective of this restructuring is to reduce

the costs of supporting a large standing army, improve professionalism, and better equip and train a smaller force. The most recent and still ongoing round of force reductions began in 2003 and most likely will be complete by 2005, resulting in a drawdown of 200,000 troops. This reduction will cut a large portion of the logistic force and transfer nonwarfighter functions to the civilian sector but leave the regular infantry relatively untouched. One goal of the reduction is to free funds for key units and equipment acquisitions; however, the size of the PLA ground forces suggests that continued modernization will remain deliberate and limited through at least 2010. During the next two decades, mechanized infantry, airborne, armored, and army aviation units will make up a much larger percentage of the force. In addition, China has recently focused on increasing the capabilities of reserve and militia units, as well as exploring ways to use civilian assets, such as ships and aircraft, to support military operations.

With the focus on PLA modernization and restructuring, the recent fielding of new equipment has been limited and, with some notable exceptions, has not appreciably improved the capabilities of China's ground forces. Even with consolidation of ground force assets into fewer units, the army remains so large as to impede rapid equipment modernization throughout its force structure. However, new equipment, although not being deployed throughout the whole of China, is being deployed to the PLA's strategically important areas, especially in the southeast.

Equipment modernization within the PLA is focused on deploying more advanced tanks, upgrading older models, and continuing extensive development of next-generation models. The PLA has several new or updated armor assets making their way into the ground force inventory, to include a light tank, an amphibious tank, and an amphibious armored personnel carrier (APC). Production of the Type 96 tank continues, with about 1,500 expected to be deployed by 2005. The Type 98, the PLA's most modern tank, is likely to remain minimally fielded in the next two decades, probably because of production costs. China also is considering upgrading older Type 69 main battle tanks with new fire-control systems, engines, turrets, and explosive reactive armor and designing a next-generation infantry fighting vehicle (IFV) incorporating the upgraded version of Russian BMP-3 turret technologies (including the fire-control system). Reportedly, a prototype IFV vehicle is undergoing testing.

Beijing also has ongoing efforts in artillery development and UAV research. The former emphasizes qualitative improvements to the PLA's artillery forces over quantitative production. Progress continues on an advanced multiple rocket launcher and a self-propelled amphibious howitzer. Interest in UAVs, mainly reconnaissance versions for use with the ground forces, underscores the PLA's requirements to increase reconnaissance and air defense capabilities. Among the representative models produced in the past few years are some dual-use versions, such as the W-50 UAV, which can be employed for missions such as reconnaissance, radio-relay, and electronic jamming. Another UAV starting to enter the inventory is the ASN-206. Its primary military applications reportedly are day and night reconnaissance, battlefield surveillance, target location, artillery fire correction, and battle damage assessment.

The PLA has devoted considerable resources to developing special forces, which are an integral element of China's ground force. They are expected to play an important role in achieving objectives in which limited goals, scale of force, and time would be crucial to victory in a number of military scenarios. Special forces missions most likely include conducting surveillance and battle damage assessment; locating or destroying C^4I assets, transport nodes, and logistic depots; capturing or destroying airfields and ports; supporting invasion forces; destroying air defenses; and conducting denial and deception and information operations.

China's Army Aviation forces provides only minimal support to ground or amphibious operations despite a growing inventory of helicopters, which currently number about 150-250. China has acquired a number of Russian Mi-171V5 medium helicopters in the past few years. Further helicopter deliveries could be planned for the near term. In addition, production of the Chinese Z-10 armed helicopter is progressing. China still lacks a heavy-lift and a dedicated attack helicopter. However, whether China feels the need to fill the heavy-lift gap by acquiring such helicopters remains in question

In addition to procuring new equipment, the PLA is improving the visibility and management of materiel in its logistics. The main objective of this effort appears to be directed toward improving fuel management, with several different fuel storage locations being upgraded with computerized inventory management systems. The inventory management systems are being networked to provide total asset visibility across military regions and the country. Much has been written in the last year about fiber-optic logistic networks. Examples of some recently developed systems are the Army Oil Depot Information System Platform, Theater POL Supply and Management System, Storehouse Automated Operations System, Automatic Fuel Transmission System, POL Support Decisionmaking System, Ammunition Depot Network Automated Support Management System, and a Video Logistics System. Other key areas being modernized are food and medical services.

Naval Forces

In recent years, the PLAN's maritime mission has evolved from a static coastal defense into an "active offshore defense." This change in operations requires newer, more modern warships and submarines capable of operating at greater distances from China's coast for longer periods. To meet the challenges of its new defense strategy, China has active surface combatant, submarine, and amphibious ship construction programs, with several vessels currently under construction and plans for additional units. One of the top priorities for the PLAN during the 10th Five-Year Plan is manufacturing submarines. Where Beijing believes domestic production cannot meet defense needs it has contracted, mainly with Russia and Ukraine, to purchase weapons and equipment.

As the PLA develops its weapon programs, its force projection capabilities play a central role in procurement decisionmaking. The complexity of modern warfare has increased in direct relation to the technological advances in weapon systems. The PLA's strategy requires advanced weapon platforms, command and control, and high mobility. China's

technological capabilities lag far behind those of the United States and its allies in East Asia. An abundance of older Soviet-era equipment poses a significant challenge to the PLAN's ability to conduct naval operations and potentially jeopardizes its success. Areas key to PLAN modernization include antisubmarine warfare (ASW), shipborne antiair warfare (AAW), and sustained naval operations. The Navy is addressing these concerns with domestic construction and purchases of state-of-the-art equipment, including Russian submarines, destroyers, and frigates.

To improve the PLAN's surface warfare capabilities, China has purchased two SOVREMENNYY Class destroyers from Russia, with two more on order. These provide an effective multipurpose ship capable of antiship, AAW, and ASW operations and are armed with 8 SS-N-22 supersonic antiship cruise missiles, 48 SA-N-7 SAMs, and 1 Ka-27 ASW helicopter. China is producing a new class of larger, more capable destroyers. Four units have been launched and are the first Chinese craft to incorporate vertically launched missile systems, possibly the domestic HQ-9 SAM. By late 2003, construction of the new-class frigate had accelerated, with production at two shipyards.

China is expanding and upgrading its submarine fleet with the purchase of four Russian KILO Class attack submarines (SSNs). The KILO is a major improvement for the PLAN over its noisy ROMEO Class submarines. In addition, the KILO may be armed with wake-homing torpedoes, which are very difficult to detect. China currently produces two domestically designed diesel-electric attack submarine classes: the MING and the SONG. The MING is modeled after the ROMEO, and newer construction units reportedly have improved sonar and navigation equipment. The SONG is a blend of domestic and Western technology and has several features that point to a major shift in diesel submarine design philosophy. China has launched the lead hull of its next-generation SSN, which is expected to enter service by 2005, with additional units to follow. A new-class nuclear-powered ballistic missile submarine, similar in design to the SSN, will have a missile bay to carry a new sea-launched ballistic missile.

Amphibious Forces

The PLA's amphibious lift assets are insufficient to project force much beyond China's shores. Most of the PLA's landing craft are small and incapable of operating on the open ocean; its larger landing ships are old and in need of replacement. Since the mid-1990s, a number of newly designed landing ships have been under construction; however, the numbers currently believed to be under construction most likely are insufficient to support a sizable amphibious operation in the next 5 years.

Although the PLA is assessed to lack lift assets for a conventional amphibious assault on Taiwan, Beijing continues to focus on modernizing and training PLA ground forces that are believed to have a potential mission against Taiwan. These forces in the Nanjing and Guangzhou Military Regions have been receiving upgraded amphibious armor and other vehicles, such as tanks and APCs, and the units acquiring this equipment regularly train with it. The upgraded amphibious Type 63A tank has a welded turret and rifled 105-mm tank gun. These tanks also have an image-stabilized fire-control system, satellite navigation system, and simple thermal imaging system. Type 63As have been fielded to

PLA and marine units in southeastern China. Introduction of the WMZ551B, an upgraded wheeled amphibious APC, to units in the southeast reportedly will give these forces improved firepower, maneuverability, and reliability.

PLA military planners recognize that logistic support for an amphibious operation is a complex and difficult component in campaign planning and execution, requiring coordination between all services and civilian agencies. An amphibious operation would place great demands on the military and civilian infrastructure. To ensure the success of such an operation, the PLA has identified a need for comprehensive, focused support. Logistic support would require providing sufficient transport assets for moving equipment and supplies to the ports of embarkation, conducting the sea crossing, supplying adequate ammunition and fuel to conduct operations, and repairing damaged equipment and facilities.

Space

Acquiring modern ISR systems remains critical to Beijing's military modernization program and supports the PLA's local wars doctrine. It also most likely is one of the primary drivers behind Beijing's space endeavors. Beijing's ongoing space-based systems with potential military applications include:

- Two new remote-sensing satellites known as Ziyuan-1 and -2, which is the Chinese name for the China-Brazil Earth Resources Satellite. Ziyuan-1B has a resolution of 19 meters and was launched in October 2003. The two Ziyuan-2 satellites probably also are capable of collecting digital imagery and have a sun-synchronous orbit with worldwide coverage and near-real-time download of imagery of most of eastern Asia to potential ground sites in eastern and central China. Beijing also tested a new film-based imagery satellite in late 2003.

- China eventually can be expected to deploy advanced imagery, reconnaissance, and Earth resource systems with military applications. In the next decade, Beijing most likely will field radar and ocean surveillance satellites and also may deploy an improved film-based photoreconnaissance satellite. In the interim, China probably will exploit commercial SPOT, LANDSAT, RADARSAT, Ikonos, and various Russian satellite imagery systems

- China also is interested in electronic intelligence (ELINT) or signals intelligence (SIGINT) reconnaissance satellites. Although all of these digital data systems probably will be able to transmit directly to ground sites, China may be developing a system of data relay satellites to support global coverage. Furthermore, Beijing has acquired mobile data reception equipment that could support more rapid data transmission to deployed military forces and units.

- China is conducting extensive studies and is seeking foreign assistance on small satellites and has launched a number of them, including a scientific mission satellite, SJ-5 (Practice-5), in 1999 and an oceanographic research satellite, Haiyang (HY)-1

(Ocean-1), in 2002. At least two additional satellites in this series, HY-2 and -3, are expected. Other missions for satellites of this class that Beijing eventually may field include Earth observation, communications, and navigation.

- China also is developing microsatellites--weighing less than 100 kilograms--for missions that include remote sensing and networks of electro-optical and radar satellites. A joint venture between China's Tsinghua University and Great Britain's University of Surrey is building the "Tsinghua" system, a constellation of seven minisatellites with 50-meter-resolution remote-sensing payloads. Russia launched the first satellite in June 2000. Later satellites in the series probably will have improved resolution.

Counterspace Developments

China is expected to continue to enhance its satellite tracking and identification network. Beijing's only current means of destroying or disabling a satellite, however, would be to launch a ballistic missile or space launch vehicle armed with a nuclear weapon. Such weapons, however, risk collateral damage to "friendly" space systems. According to press accounts, China can use probable low-energy lasers to "blind" the sensors on low-Earth-orbiting satellites, although whether this claim extends to actual facilities is unclear.

A Hong Kong newspaper article in January 2001 reported that China had developed and ground-tested and would soon begin space-testing an antisatellite (ASAT) system described as a "parasitic microsatellite." This claim is being evaluated. Nonetheless, a number of countries, including China, are developing and proliferating microsatellite (10- to 100-kilogram mass) and nanosatellite (1- to 10-kilogram mass) technologies. Moreover, China clearly is working on, and plans to field, ASATs. Additional press reports and activities at several laser institutes suggest Beijing most likely will continue to pursue development of ground-based laser ASAT weapons and radars. China's current level of interest in laser technology suggests that it is reasonable to assume Beijing eventually could develop a weapon to destroy satellites.

Command, Control, Communications, and Computers (C^4)

China's current leaders have consistently recognized the importance of modernizing the military's C^4I systems. Former Minister of Electronics Industry, former CCP General Secretary, and current chairman of the Central Military Commission Jiang Zemin has emphasized that "electronics is of crucial importance to economic construction and national defense communications." In summarizing the experiences of the Gulf War after 1991, Jiang Zemin went further, asserting that "military electronics has a bearing on national security" and "must be given first place."

To this end, Beijing is continuing development of a joint battle management system that the entire PLA will use for strategic, campaign, and tactical planning and operations. Part of this effort is upgrading a previously existing extensive network of hardened

underground shelters and command and control facilities for both military and civilian leaders. Fear of a possible war with the former Soviet Union in the 1960s and 1970s prompted Beijing to expend considerable resources constructing national-level command posts, civil defense facilities, and associated communications. These facilities are intended to ensure survival of China's leadership and provide a refuge from which it can maintain control over the country's military forces. Renewed emphasis on improving these facilities most likely is to improve the chances of leadership survival in modern warfare.

Both civilian and military communication networks support China's national command and control facilities and provide communications to all levels of the military and civilian leadership. The military communication network provides backbone support to China's national military command and data network. PLA national-level command, control, and communications (C^3) is carried over multiple transmission systems, to include coaxial and fiber-optic cable, satellite communications, microwave radio-relay, and long-range high-frequency radio. China's communication networks, both civil and military, would be capable of supporting a wide range of military operations.

The General Staff Department Communications Department (*Zong canmoubu/tongxin bu*) most likely leads C^4I modernization in the PLA. This unit is the PLA's signal corps, responsible for building, operating, and protecting the military's communication infrastructure. In a 1999 article in *Chinese Military Science*, former Fourth Subdepartment Director Maj Gen Yuan Banggen identified network building, network operation, and communication security as the key roles for units under his command.

A critical element of the PLA's C^4I modernization effort is the China Electronic Systems Engineering Corporation (CESEC), the commercial arm of the General Staff Department Communications Department. The CESEC is the key to PLA telecommunications, with interests ranging from mobile communications to secure telephone lines, computer networks, encryption, microwaves, computer applications, and dedicated military C^4I systems. The CESEC is largely responsible for designing, integrating, and operating the PLA's telecommunication and computer networks. It develops software applications and is closely affiliated with critical General Staff Department research institutes that specialize in C^4I, microwave, and encryption. More important, the CESEC and its affiliated subsidiaries are also well connected to foreign telecommunication companies, providing a window for acquiring advanced information security equipment.

Intelligence, Surveillance, and Reconnaissance

Acquisition of modern ISR systems remains a critical aspect of Beijing's military modernization. China is developing its ISR capabilities based on domestic components, supplemented by foreign technology acquisition and procurement of complete foreign systems. PLA procurement of new space systems, AEW aircraft, long-range UAVs, and over-the-horizon radar will enhance its ability to detect, monitor, and target naval activity in the western Pacific Ocean. It appears, from writings on PLA exercises, that that this

system currently lacks integration and that a fused, efficient ISR capability will not be achieved for many years.

Exploitation of space and acquisition of related technologies remain high priorities in Beijing's ISR improvements. China is placing major emphasis on improving space-based reconnaissance and surveillance, including electro-optical, synthetic-aperture radar, and other satellite reconnaissance systems. These systems, when fully deployed, are expected to provide a regional, and potentially hemispheric, continuous surveillance capability. China has begun to embrace new satellite architecture emphasizing common satellite buses. This approach to satellite construction is based on use of a standard, versatile satellite bus module, with minor modifications to accommodate various payloads. In addition to domestic development, China probably will continue to use commercial satellite imagery and may seek to join an international consortium-owned constellation. China is cooperating with a number of countries, including Russia, Ukraine, Brazil, the United Kingdom, France, Germany, and Italy, to advance its objectives in space.

China's airborne ISR program has placed significant emphasis on UAVs. China's armed forces have operated the Chang Hong (CH-1) long-range, air-launched autonomous reconnaissance drone since the 1980s. China developed the CH-1 by reverse-engineering U.S. Firebee reconnaissance drones recovered during the Vietnam War. An upgraded version of the system was displayed at the 2000 Zhuhai air show and is being offered for export. A PRC aviation periodical reported that the CH-1 can carry a TV, daylight still, or infrared camera. It most likely is not equipped with a data link, which would allow remote-controlled operation, nor is it capable of providing real-time payload feedback to the remote operator. China's armed forces also operate other UAVs, primarily for battlefield reconnaissance or electronic warfare.

China also is pursuing naval ISR programs that include the Y-8 AEW aircraft and efforts to procure or produce an AWACS. These platforms eventually will complement China's other ISR platforms, such as the Tu-154 multirole special mission aircraft equipped for ELINT collection missions and possibly electronic warfare. The PLAAF reportedly also has several aircraft–both fighters and bombers–capable of performing an imagery reconnaissance function. China may have developed passive acoustic sensors for use in coastal waters and also may have at least one underwater acoustic range. This range could be used to track torpedoes during training exercises. Because of China's interest in ASW, development and deployment of additional underwater sensors is probable in the next 5-10 years and will expand through 2020. Some of these future systems may be installed as far offshore as the edge of the continental shelf. Passive sensors would provide only a few miles of coverage against quiet submarines but could detect merchant shipping and noisy combatants at greater distances.

Ground-based ISR research and development is focused on over-the-horizon radar (OTH) radar. China may have as many as three OTH skywave radar systems to track maritime movements in China's contiguous seas and most likely to serve as part of an effort to develop the capability to track and target U.S. aircraft carriers. These systems could be

used in an early warning capacity. China also may have deployed at least one surface-wave OTH radar.

Information Operations

China is experiencing a rapid buildup of its information technology capabilities. The Chinese government effectively uses market access and regulations to force major foreign information technology companies to transfer technology, share know-how, and, more recently, open research and development labs in China. Many of the Chinese companies in these joint ventures are affiliated with state research institutes under the Ministry of Information Industry or the PLA's General Staff Department. As a result of these trends, China is acquiring the personnel and technology bases for a credible computer network operations capability. However, highly skilled information technology personnel may seek to avoid government service or cooperation with the government sector, preferring instead the economic incentives of the private sector. In addition, poor information technology management skills and a corporate culture that does not emphasize innovation are hindering development of advanced technology capabilities and programs.

Electronic Warfare

Electronic warfare (EW) is an important aspect of the PLA's combat operations and is viewed as crucial to achieving information dominance in the battlespace. The PLA is believed to be able to conduct both defensive and offensive EW operations. Basic objectives of an electronic attack campaign are to conceal PLA operational preparations, weaken enemy air defense early warning, and paralyze or disrupt enemy integrated air defense systems. Chinese electronic warfare operational concepts emphasize concealing the activities and disposition of PLA forces and misleading the enemy. Electronic attack can deceive or desensitize enemy battle commanders through insertion of spurious radar tracks or blot out entire avenues of approach.

China's EW modernization program consists of foreign technology procurement, reverse-engineering, and parallel domestic research and development programs. The Chinese intend to accelerate modernization through technological leapfrogging. Beijing may bypass phases of equipment development by purchasing commercial-off-the-shelf technology. However, China does not want to become reliant on importing EW systems. Domestic equipment has been manufactured and offered for export, possibly to fund further research and development. EW research programs reportedly receive high-level visibility and support from Communist Party senior leaders.

Although the capabilities of most deployed EW equipment are limited by Western standards, new designs displayed at air and trade shows display marked improvement over those shown just a few years ago. Furthermore, PLA communication troops increasingly engage in exercises involving simulated EW attacks against notional targets. Nevertheless, while technology improvements are obvious, even the latest Chinese EW equipment remains simple by modern standards.

Military researchers in the PLA also have repeatedly emphasized that EW and information warfare are vital for victory in future conflicts. Both military and civilian sectors play active and important roles in China's military electronics program. In addition to a range of research and development institutes in all three services of the PLA, many civilian research organizations, universities, and factories are involved in projects related to developing electronic equipment for military purposes. The China Electronic Import and Export Company acts as a window company for the Chinese military electronic industry to promote its products to foreign countries, with some notable successes.

V. PRC FORCE MODERNIZATION AND SECURITY IN THE TAIWAN STRAIT

Strategies and Options for China's Use of Force in the Taiwan Strait

China's recent economic efforts have more than made up for the self-imposed catastrophes of the Mao era and are diminishing the advantages enjoyed by Taiwan and its economic successes since the 1960s. Chinese diplomatic pressure has left the island bereft of allies willing to help defend it from China. Beijing's military modernization program is eroding the spatial, temporal, and distance challenges that historically inhibited using force against Taiwan.

After close to 20 years of spectacular economic growth in China, Beijing's diplomatic successes, and steady improvement in the PLA's military capabilities, the cross-Strait balance of power is steadily shifting in China's favor. While continuing to declare its pursuit of a peaceful unification, Beijing has refused to renounce use of force against Taiwan and has listed several circumstances under which it would take up arms against the island. These include a formal declaration of independence by Taipei, foreign intervention in Taiwan's internal affairs, indefinite delays in resumption of cross-Strait dialogue, Taiwan's acquisition of nuclear weapons, and internal unrest on Taiwan. These statements, and China's ambitious military modernization program, may reflect an increasing willingness to consider use of force to achieve unification.

While internal debate over how to respond to Taiwan has ebbed and flowed in recent years, Beijing still has a political strategy for unification with a military component, not a military strategy with a political component. Its longstanding approach to resolving the cross-Strait standoff is multifaceted, integrating political, economic, cultural, and military strategies to exert all of its national power to dissuade Taiwan against ever crossing any red lines and ultimately to accept Beijing's terms. Since Chen's March 2004 re-election, Beijing likely has launched an internal debate to assess whether its previous strategy of isolating him by expanding contacts with political and economic elites on Taiwan – who traditionally have held more favorable views toward unification – needs to be discarded in favor of a different mix of political, economic, and diplomatic carrots and sticks.

What does not appear to be in question among China's senior leaders is their belief in the need to maintain a credible potential to deliver swift and decisive military force against

Taiwan as an essential element of Beijing's strategy. The credible threat of military force must complement political, economic, and cultural coercion for the entire strategy to succeed. However much China does not wish to attack Taiwan, it needs to be prepared to do so for the nonmilitary components of its strategy to be sufficiently persuasive. China's military options take into account its resource challenges and Taiwan's comparative weaknesses.

Taiwan Vulnerabilities

Status of the Taiwan Military

Taipei's virtual diplomatic isolation since the late 1970s has isolated it from many global advances in military professionalism and technology. Its military remains largely a ground force, with the Taiwan Army dominating the Taiwan Navy and Air Force by an approximate 2:1:1 ratio, respectively. Conscripts serving for less than 2 years fill most of the military's 385,000 billets. Lack of professional noncommissioned officers overburdens commissioned officers, and a "joint" warfighting culture in which the individual services would complement each other is still evolving.

Despite PLA emphasis on modernizing air, naval, and missile capabilities, the Taiwan Army retains its historic focus on counterlanding operations and has major shortcomings in training and reservist mobilization. Organizationally well run, the Navy benefits from modern destroyer and submarine acquisitions, but Navy operations are not well integrated with those of the Army or Air Force, and multi-mission training is infrequent. The Air Force's recently completed transition from 1960s fighter aircraft to modern "fourth-generation" units retains many of its qualitative advantages over the PLAAF. However, fighter pilot shortages are stressing personnel, and training is conservative and overemphasizes defensive counter-air missions.

Taipei is making a concerted effort to address its military shortfalls. Force streamlining programs under way since 1997 are combining redundant institutions and steadily reducing the military to 270,000 personnel by 2012. As the size of the force declines, Taipei intends to gradually expand the number of volunteer soldiers. Two defense reform laws implemented in 2002 for the first time granted the civilian defense minister control over the entire military and expanded legislative oversight authority. Acquisitions in the next several years will emphasize modern C^4ISR equipment that will vastly improve communications and data-sharing among services. These and other planned acquisitions will gradually shift the island's strategic emphasis to offshore engagement of invading Chinese forces.

The principal indicator of Taiwan's commitment to addressing its shortfalls will be the fate of its annual defense budget. Defense spending has steadily declined in real terms over the past decade, even as Chinese air, naval, and missile force modernization has increased demands for expensive countermeasures that will enable Taiwan to avoid being quickly overwhelmed by the PLA. Many of the force improvements and equipment

acquisitions Taipei plans to make will require expanded training and more professional military personnel who will require more procurement and salary funds.

Taiwan's Will To Fight

Taipei's military challenges are not lost on Beijing. The island's apparent lack of political consensus over addressing them with substantially increased defense spending is undoubtedly seen as an encouraging trend in Beijing. If successful, PLA modernization will threaten that Taiwan autonomy by enabling Beijing to launch a devastating standoff attack with insufficient warning time for foreign forces to mobilize and deploy to aid Taiwan. Taiwan's declining defense spending thus comes at a time when the island's need to improve its own deterrent options is apparent.

One possible reason for Taiwan's attitude toward defense spending might be diverging perceptions of economic and military trends in the Taiwan Strait. Even as the PLA steadily fields more ballistic missiles and modern air and naval systems, Taiwan's need for low-wage labor and China's seeming unlimited need for investment capital and managerial expertise are concurrently expanding cross-Strait economic interdependence. The several hundred thousands of Taiwan's 23 million residents living and working on the mainland are a substantial group with a vested interest in avoiding any cross-Strait tension.

PLA Military Options

The PLA's offensive capabilities improve each year and provide Beijing with an increasing number of credible options to intimidate or actually attack Taiwan. China's primary goal in acquiring this force most likely is to compel Taipei's acquiescence to a negotiated solution by promising swift and effective retaliation if it does not. Such force therefore would need to be capable of achieving a rapid collapse of Taiwan's national will and thereby preclude U.S. intervention. The specific coercive military strategy that Beijing would adopt is unclear but is likely to include some combination of the options specified below. A coercive campaign may seek to deter or punish Taiwan through sudden application of violence. China may choose gradually to escalate the level of military pressure to compel Taiwan's political leadership to adopt policies favorable to Beijing's interests. On the other hand, Beijing may seek to deny Taiwan's military its ability to resist, thereby convincing the leadership to cease resistance. The PLA also could adopt a decapitation strategy, seeking to neutralize Taiwan's political and military leadership on the assumption that their successors would accede to Beijing.

PLA Air Campaign

The PLAAF and PLANAF have a combined total of approximately 3,400 aircraft, consisting of air defense and multirole fighters, ground-attack fighter-bombers, and bombers. However, Taiwan maintains a qualitative edge by possessing three times as many fourth-generation fighters as China. The PLAAF does not appear to have been

putting large numbers of aircraft in the air simultaneously, controlling large numbers of engagements, or sustaining high sortie rates for extended periods. Pilot proficiency is improving, but the capabilities of China's best pilots lag behind those of their Taiwan counterparts.

However, China's force modernization, weaponry, pilot training, tactics, and command and control are beginning to erode Taiwan's qualitative edge. The number of Chinese fourth-generation fighters, principally Su-27 and Su-30 aircraft, is expected to move closer to Taiwan's. China will have improved situational awareness. Beijing's SRBM force also could be used to soften Taiwan's air defenses and disrupt airbase operations, supporting any air campaign designed to cripple the Taiwan Air Force and damage or destroy Taiwan military facilities. Over the next several years, given current trends, China most likely will be able to cause significant damage to all of Taiwan's airfields and quickly degrade Taiwan's ground-based air defenses and associated command and control through a combination of SRBMs, land-attack cruise missiles, special operations forces, and other assets.

Conventional Ballistic Missiles

China's growing force of approximately 500 SRBMs is believed to be based in the Nanjing Military Region directly opposite Taiwan. From their garrisons, any missiles with adequate precision guidance could destroy key leadership facilities, military bases, and communication and transportation nodes with minimal advanced warning. Some can attack U.S. bases on Okinawa. Longer-range conventional MRBMs are expected ultimately to join the inventory.

Naval Blockade

PLAN modernization is expanding options for a naval blockade of Taiwan. The least hostile blockade option would be one enforced in the South and East China Seas that compelled Taiwan-bound ships to stop in mainland ports for inspections. The most effective blockade would involve direct action against major Taiwan ports such as declaring and enforcing closure areas in port approaches, mining ports and roadsteads, attacking ships approaching the ports, sinking ships in port channels, or destroying port facilities.

Information Operations

During a cross-Strait conflict, China most likely would initiate an intensive perception management campaign, with both global and regional audiences, to reduce the desire of Taiwan to resist, justify China's military campaign, and deter U.S. intervention. China anticipates that this strategy will succeed because of the fragility of the Taiwan population's psychology. The Chinese perception management campaign most likely would use Chinese, Hong Kong, Taiwan, and other regional media to deliver messages to the Taiwan people and leaders.

Unclassified Chinese writings reveal that attacking C^4I systems, civilian information technology, and communication infrastructure are critical for gaining information superiority. Prior to an attack, Chinese information operations personnel and special forces or espionage agents most likely would gain and maintain access to such communication nodes for intelligence exploitation and disrupt critical infrastructure, such as the power grid and vulnerable collocated military and civilian telecommunications. Exploiting other portions of the information operations spectrum (through electronic warfare and denial and deception) also could disrupt Taiwan's defenses, and attacks against unclassified DoD computer networks related to logistics could delay U.S. efforts to intervene.

PLA Ground Forces

PLA ground forces have a considerable numerical advantage over Taiwan's Army and Marine forces. Three group armies are based in Nanjing Military Region opposite Taiwan, and several others most likely would be included as part of the primary attack force in the event of an all-out invasion of the island. Airborne units, special operations forces, and marine units most likely would support these group armies. Despite its numerical advantage, China's main ground forces have shortcomings in such areas as sealift and logistics. However, China is steadily expanding its ability to transport ground forces by air.

Special forces could play an important role in achieving objectives in which limited goals, scale of force, and time would be crucial to victory. Special forces missions could include reconnaissance, surveillance, targeting, and battle damage assessments; capturing or assassinating VIPs; locating or destroying communication assets, transport nodes, and logistic depots; capturing or destroying airfields and ports; supporting invasion forces; destroying air defense assets; and conducting denial and deception and information operations.

Amphibious Invasion

If all other military options for subjugating Taiwan failed, Beijing could try to occupy the entire island of Taiwan. Such an operation would require a major commitment of civilian air and maritime transport assets, and success would not be guaranteed. The PLA's success in a D-Day-style invasion of Taiwan would rest on a number of variables, some tangible -- principally lack of amphibious lift -- as well as a number of intangibles, including personnel and equipment attrition rates on both sides of the Strait; interoperability of PLA forces; and the ability of China's logistic system to support the necessarily high tempo of operations. For an invasion to succeed, Beijing would have to conduct a multifaceted campaign, involving all of the above options in concert. The PLA most likely would encounter great difficulty conducting such a sophisticated campaign throughout the remainder of the decade. Nevertheless, the campaign could succeed -- barring third-party intervention -- if Beijing were willing to accept the political, economic, diplomatic, and military costs that an invasion would produce.

PLA Counters to Foreign Intervention

Beijing sees Washington as the principal hurdle to any attempt to use military force to regain Taiwan. Therefore, deterring or defeating foreign intervention ahead of Taiwan's capitulation or defeat would be integral to Beijing's strategy.

Antiaccess Strategy

China could consider a sea-denial strategy to hold at risk U.S. naval forces approaching the Taiwan Strait. Deep-water naval mines, submarines, cruise missiles, and even special forces could be employed to threaten a U.S. aircraft carrier. This strategy's tactical elements might include shallow and deep-water mines, submarines, and surface combatants. Information operations assets could attack U.S. C^4ISR and logistic systems.

Denial and Deception (D&D)

From China's perspective, denial and deception are interrelated. The goal of D&D is "to induce the other side to take action that will benefit the deceiver in attaining his goals." China uses military D&D to induce an adversary to make incorrect decisions and take military actions that favor the Chinese. Chinese D&D practices appear to be intended to delay or reduce U.S. diplomatic and military roles in crises.

Chinese D&D concepts include "counter-surveillance" measures limiting the flow of intelligence adversaries can gather on China, such as restricting news, isolating personnel, and blocking core intelligence. "Strategic deception" would interfere with enemy surveillance. China also could transmit a large volume of false information to enemy surveillance systems. Moreover, the PLA could attempt to conceal and disguise the battlefield to "show the false while hiding the true situation."

Underground Facilities

The Chinese believe they can defeat the U.S. intelligence apparatus by hiding military activity. China has built civil and military underground facilities for at least four decades, initially because of fear of a possible war with the former Soviet Union. Enormous resources were dedicated to building national command posts, civil defense facilities, and associated communications in defensible nuclear-hardened underground facilities. Several of these facilities have fallen into disrepair owing to inadequate maintenance, but China implemented a modernization program in the early 1970s through the early 1980s.

These complexes and others like them have been expanded recently following the Gulf War and other U.S. military operations. Chinese experts have noted that "long-range air

attacks have become an important pattern of modern warfare." The Chinese believe that a successful strategic air campaign involves attacks on the defending country over a long period, with emphasis on C^3 centers, missile facilities (ballistic and air defense), airfields, and transportation hubs. China is implementing these lessons with a program to camouflage and protect such potential targets by expanding underground facilities.

Operation ALLIED FORCE appears to have had at least as much impact on PLA thinking as the Gulf War, although more as a validation of earlier assessments of the trends of modern warfare than as a catalyst for change. PLA commentary on NATO's Kosovo air operation concluded that a superior enemy's situational awareness and precision-strike systems could be stymied through effective, and often low-technology, counter-reconnaissance measures, such as camouflage and concealment, simple decoys, dispersion, and frequent movement of forces. U.S. air operations reinforced the PLA focus on using underground facilities, landline communications, and well-concealed supply depots.

A Non-HEMP Unconventional Nuclear Weapon Option

Effects other than high-altitude electromagnetic pulse (HEMP) result from a high-altitude nuclear burst, which causes a substantial change in the ionization of the upper atmosphere, including the ionosphere and magnetosphere. These effects would be likely to significantly degrade warfighting capabilities, including communication links, radar transmissions, and the full spectrum of electro-optic sensors. Depending on the weapon and the altitude of the burst, these effects could persist from seconds to days and extend over thousands of square kilometers. Russian and U.S. experiences with high-altitude nuclear weapon effects have been well documented, and a number of papers are in the public domain and possibly would be known to physicists and engineers worldwide. Thus, PLA theorists who have become aware of these electromagnetic effects may have considered using a nuclear weapon as an unconventional attack option. China could use high-altitude nuclear bursts to disrupt enemy C^4ISR. Sophisticated military capabilities that exploit the full electromagnetic spectrum are more vulnerable to these effects than are less advanced capabilities. In contrast to HEMP, ionization effects would occur regardless of the weapon's design or sophistication. This phenomenon raises the possibility of an adversary employing an unsophisticated nuclear weapon as an asymmetric attack option.

Taiwan's Strengths in Countering PLA Courses of Action

Asymmetric capabilities that Taiwan possesses or is acquiring could deter a Chinese attack by making it unacceptably costly. Taiwan most likely will expand these capabilities either in tandem with or in lieu of improving its conventional forces.

Strike Capabilities Against the Mainland

Taipei political and military leaders have recently suggested acquiring weapon systems capable of standoff strikes against the Chinese mainland as a cost-effective means of

deterrence. Taiwan's Air Force already has a latent capability for airstrikes against China. Leaders have publicly cited the need for ballistic and land-attack cruise missiles. Since Taipei cannot match Beijing's ability to field offensive systems, proponents of strikes against the mainland apparently hope that merely presenting credible threats to China's urban population or high-value targets, such as the Three Gorges Dam, will deter Chinese military coercion.

Diplomatic Support

President Chen's administration has sought to elicit international sympathy for Taiwan's plight in the face of China's growing ballistic missile force, for which the island has no adequate countermeasures. A diplomatic initiative begun late in 2002 sought to draw international attention to the growing cross-Strait missile imbalance. A resolution demanding that China withdraw its missiles from the Taiwan Strait area was initially selected as the topic for the island's first popular referendum. Taipei probably hopes these efforts will deter such an attack by increasing the prospect for diplomatic consequences.

Computer Network Attack

Taiwan's limited ability to attack Chinese military bases has prompted some Taiwan authors to endorse attacking China's command and control systems to achieve information superiority. Specific targets would include Chinese airports, command and control centers, and communication nodes. Taiwan has significant potential in this area, thanks to the island's high information technology level and the military's ability to conscript personnel from a tech-savvy population.

Psychological Warfare

The Taiwan military's principal psychological warfare (PSYWAR) organization is the General Political Warfare Bureau of the Ministry of National Defense (MND). Subordinate units conducting strategic psychological operations include the 1st Psychological Operations (PSYOP) Group, three Army PSYOP companies responsible for publishing and propaganda, and the Political Warfare College, which trains PSYWAR cadre.

The Army PSYWAR Preparedness Center was set up in January 2002. This center will carry out future PSYOP missions with the armed forces' first wholly dedicated PSYWAR units, integrated with combat intelligence. If the PSYWAR Preparedness Center succeeds, a special command organization will be set up in the MND. Army, Navy, and Air Force PSYOP units probably will be organized in the future.

Electronic Warfare

EW is a top Taiwan military priority because of concerns about China's own developing EW capabilities. During the island's HANKUANG-19 exercise in 2003, tactical EW

units exercised jamming against command and control networks and intelligence collection systems supporting enemy amphibious landings. Taiwan's MND Communications Development Office also reportedly has a strategic EW capability. Taiwan has more than 30 other ground electronic reconnaissance stations and communications intelligence stations.

Information Operations

Taiwan's MND has identified information warfare as a key area for modernization. The military intends that information operations, along with command and control systems, will survive an initial PLA assault. Taiwan's ongoing "Posheng" C^4ISR modernization project includes electronic countermeasure and electronic counter-countermeasure enhancements. These efforts aim to ensure Taiwan's C^4ISR survives kinetic and nonkinetic attacks, such as cyberwarfare. In the past 2 years, training exercises worked to set a firm foundation for information operations capabilities.