The Chinese military is in the process of a long-term modernization program. Uniformed and civilian leaders have studied recent conflicts, analyzed shortfalls, and identified improvements to be made in doctrine, force structure, and equipment. They are aware of the gap in capabilities between the People’s Liberation Army (PLA) and other militaries, notably the U.S. Armed Forces.

Most foreign analysis of the current and potential Chinese military threat emphasizes recent equipment purchases from Russia and what they portend. This article evaluates these acquisitions and compares them to a previous regional threat and arrives at conclusions about the modernization of the Chinese military which differ from those usually found in the media.

Some characterize the Chinese as buyers at a fire sale in their purchase of Russian military equipment. Russian arms merchants have introduced PLA leaders to hardware that could greatly improve Chinese capabilities. Elements of the defense industries in both countries have established relationships with their counterparts. Over the last five years reports on negotiations for advanced technologies have been common if vague and sometimes exaggerated. Many reported deals are never consummated. Purchases and technology transfers have been limited because of Chinese financial constraints and Russian strategic suspicions.

Notwithstanding a need for hard currency, Moscow has not sold Beijing complete weapons systems that could strike the Russian heartland. Kremlin planners keep a watchful eye on Chinese military modernization and tell civilian leaders to be cautious about arms sales to China. However, some transfer of strategic technology has
likely occurred whether it was sanc-
tioned by the Russian leadership or not.
Moreover, the danger persists for rogue traders not only from Russia but from other former Soviet states to traf-
ic in strategic systems and technology in pursuit of personal gain. Similarly, Russian scientists and technicians who are no longer gainfully employed may see China as a lucrative market for their expertise.

Even though Beijing has accumu-
lated vast foreign exchange reserves, the senior leadership has yet to divert sufficient resources from economic de-
velopment to large-scale military pur-
chases. For example, expenditures on the military budget. 4

Beijing has authorized the purchase of modest amounts of conventional Russian equipment
culture, health, education, and civilian science and technology have outpaced official figures for defense spending over the past decade. 5 It would take huge sums to buy the modern systems necessary to transform the Chinese military, which is primarily equipped with materiel based on the technology of the 1950s and 1960s, to a force based on that of the 1980s.

To gradually improve PLA technol-
ogical standards, Beijing has autho-
rized the purchase of modest amounts of conventional Russian equipment. Foreign observers generally agree that these buys have been made with funds provided by the central government or through barter agreements, and are not included in the official announced military budget. 6

Recent Acquisitions

The amount and type of Russian hardware known to have been trans-
ferred to China since the early 1990s are exhibited in figure 1 . 7 The Washington Times first reported on the transfer of two Sovremenny class destroyers with S-22 anti-ship cruise missiles. 8 A re-
cent report indicated that these ships which are under construction will be delivered within the next two years.

The same source reports that 12 Kamov K-28 anti-submarine warfare heli-
copters are part of this deal. 9

The total cost of such purchases is unclear. Prior to the deal for Sovremenny destroyers, one estimate put the figure for 1991-94 at $4.5–6 billion. 10 Another report cited Pentagon sources who said the ships and other systems would cost $8–10 billion over several years. 11 If either estimate is pro-
rated for a multyear period, the published Chinese defense budget might be augmented by $1–2 billion annually. By comparison the United States bought more than $43 billion worth of military hardware in 1995 alone, with Lockheed Martin account-
ing for over $10 billion of that total. 12

The actual deliveries and potential Sovremenny transfer yield insights into the state of both Chinese military modernization and defense industries. First, the classes of equipment pur-
chased indicate trends in force devel-
opment. Naval and air force capabil-
ties have priority and these new systems will provide some of the com-
bat power required to fight the sort of conflict which planners envision as most likely: short-duration limited wars using high-tech equipment on China’s periphery. To fight such con-
licts, China must develop the ability to project and sustain a joint, com-
bined arms force some distance from its borders. At present, China is best suited to fight a defensive war on its own land mass and coastal waters.

Despite a number of allegations, the transfer of strategic long-range bombers and intercontinental ballistic missiles has not been verified. While seeking to improve its strategic capa-

bility in cost-effective ways, Beijing ap-
ppears to believe its nuclear arsenal is an adequate strategic deterrent. 13

Though sales of ground force weapons systems have been reported (particularly main battle tanks), signifi-
can cases of ground force hardware transfers have yet to be confirmed or come to fruition except for Mi-17 heli-
copters. 14 This may be because China faces no significant land threat and calculates that the amount of equip-
ment necessary to outfit its ground forces would be cost-prohibitive as well as unnecessary. Such reasoning frees funds for weapons more likely to be needed in future conflicts.

The quantity of equipment pur-
chased from Russia indicates selective modernization of PLA forces. Equip-
ment has been acquired for only a few units. Selective modernization is evident in the decision to form a limited num-
ber of rapid reaction units rather than upgrading the entire force structure. The Chinese military is simply too big and too bogged down with matériel de-
signed decades ago to be fully equipped with modern hardware. Further reduc-
tions in personnel and force structure will be vital for PLA modernization.

Finally, in nearly all purchases of Russian equipment, Chinese industry currently produces a similar class of weaponry, albeit at a lower technologi-
cal level. Selecting Russian systems reflects lack of confidence in Chinese weapons and the ability of domestic industries to produce modern systems necessary to equip PLA forces to effec-
tively project their capabilities.

Yet most foreign analysts still point to overall numbers as the pri-
mary indicator of Chinese military ca-
pabilities. Such estimates often ignore many complexities of war such as com-
mmand and control, training, logistics,
and doctrine that must accompany the acquisition of modern equipment. The ensuing analysis focuses on military hardware in the Chinese inventory which can be considered modern and compares it with portions of the forces of the former Soviet Union. This approach may provide a more realistic perspective on Chinese modernization.

### Former Soviet Forces

Most would agree that even in its final years Soviet military power was a significant threat. Conventional forces were divided into Western, Southern, and Far Eastern theaters of operations. Only the Far Eastern Theater and strategic forces are considered herein. Moreover this comparison will address only the types of equipment recently transferred from Russia or those manufactured by Chinese defense industries that approach contemporary standards. The total amount of modern Russian equipment transferred to China in the 1990s is only a minuscule part of the PLA inventory. The vast majority of deployed equipment does not provide capabilities necessary for action outside Chinese borders. Though such weaponry may be effective to defend the mainland, the only a limited number of personnel have had routine experience operating modern hardware.

**Numerical Implications**

Perhaps the most significant implication of the relatively small scale introduction of modern military equipment to PLA forces is that only a limited number of officers and enlisted personnel have had routine experience operating and maintaining modern hardware. Often the use of this equipment in training is restricted to demonstration and experimentation. New systems must eventually be integrated into old operational methods as new tactics, techniques, and procedures are developed. Such changes do not occur overnight. Until enough soldiers, sailors, and airmen use modern equipment to become familiar with its capabilities and complexities, it is unlikely that such weapons will be employed to their designed potential. Fear of the loss or damage of expensive hardware probably will result in a very conservative approach to using it in training.

The task facing the Chinese is complicated by the reality that, except for internal security operations, almost a generation of PLA officers lacks any combat experience. In particular, they have none in planning for or employing modern weapons in combat. Nor have they experienced the effect of such weaponry.

The relatively low level of education and technical sophistication in the force hampers rapid modernization. Though PLA forces are engaged in a major educational campaign about high-tech capabilities, until such equipment is readily available throughout the force most personnel will have only academic exposure to this weaponry and its application on the modern battlefield. Thus it will be difficult to develop and disseminate doctrine, tactics, techniques, and procedures for employing modern weapons that may enter the force. These software challenges may take longer to overcome than the more readily visible hardware shortfalls.

### Defense Industries

Even though China is credited with having a defense base that can produce the entire range of weaponry, with a few exceptions its defense industries do not meet late 20th century standards. Except for pockets of excellence there are tremendous production shortfalls. Success includes limited numbers of indigenously designed, produced, and fielded nuclear weapons, ballistic and cruise missiles.
some world class electronics, and a few frigates and destroyers. However, most military production is focused on upgrading foreign systems based on pre-1970s technology and manufacturing techniques. For example, the J–7 aircraft, a modified Soviet MiG–21 originally designed in the 1950s, is still the most widely produced fighter. In the 1990s this plane is replacing older J–6 fighters, a Chinese version of the MiG–19. In the Soviet Union the MiG–21 was replaced in the 1980s by a generation of aircraft represented by the Su–27.

For more than a decade there has been talk of Chinese efforts to make an F–16 equivalent. When and if it will be produced, and in what quantity, remains open to speculation. For ten years they have also attempted to design a main battle tank equal to the Soviet T–72. Cooperative efforts with Pakistan have proven less than satisfactory, and no new tank can be expected any time soon from China’s industrial base.

The decision to buy Sovremenny destroyers from Russia indicates the problem confronting the Chinese defense industry. The Luhu destroyer is one of the few systems even approaching modern standards, yet Beijing has decided to acquire ships of the same class from Moscow to accomplish the same functions. Similar thinking was reflected in the acquisition of Su–27s after China had attempted for years to develop an aircraft with equivalent technology to perform similar functions. Such decisions demonstrate a lack of confidence on the part of military planners in their own industrial capabilities.

It is unlikely that the Chinese industrial base can surmount these problems without massive resources from the central government and the expense of acquiring considerably more technology and production assistance from foreign sources. Manufacturing equipment and techniques on most lines are inadequate to meet modern standards. Production is too low even at current technological levels to allow for a rapid buildup of modern equipment. It would not be an overstatement to say that even to produce a portion of the range of modern arms, Chinese industry with few exceptions would need a nearly total recapitalization of its production lines.

When production estimates for selected Chinese weapons systems are compared with those for the Soviet defense industrial base in the late 1980s, rates for less sophisticated Chinese equipment are much lower than the Soviet rates (figure 3). These low rates are compounded by the effort to convert defense production and technology to civilian use. For several years official reports stated that 80 percent of the production value of defense industries was civilian goods or services. The majority of the other 20 percent resulted in systems that do not meet modern standards. Nor does the defense industrial base appear to have a workable plan to speed up modernization. The result of this decision would quickly become evident to the world and would not by itself guarantee a modern military. If Beijing tries to surmount its shortcomings too quickly, it could lack of sophistication. Many recent purchasers were made more for political purposes than for military effectiveness. In the end, most foreign buyers have been dissatisfied with Chinese weapons.

<table>
<thead>
<tr>
<th>Weapons System</th>
<th>Soviet</th>
<th>Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td>principal surface combatants</td>
<td>9</td>
<td>3–4</td>
</tr>
<tr>
<td>attack submarines</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>fighter aircraft</td>
<td>633</td>
<td>80(b)</td>
</tr>
</tbody>
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Figure 3. Yearly Production Rates (late 1980s)

Internal Constraints

Chinese leaders are aware of the shortcomings in their system. They have refrained from making the investments required to significantly alter resource distribution. Beijing analysts justify this decision by pointing to the disproportionate amount Moscow spent on the military as a prime cause of the fall of the Soviet Union.

The Central Intelligence Agency estimates that the Soviet Union dedicated 15 to 17 percent of its gross domestic product (GDP) to defense for much of the 1980s. This is far above most appraisals of present levels of Chinese defense spending even after adjustments for extrabudgetary sources of income. Official Beijing statements place it at about 1.5 percent of GDP. Even if that number is tripled to account for extrabudgetary sources, it would amount to only about 5 percent of GDP. The Soviet figure suggests the magnitude of resources the Chinese might have to divert if it decided to speed up modernization. The result of such a decision would quickly become evident to the world and would not by itself guarantee a modern military.

Modernization thus faces severe constraints. If Beijing tries to surmount its shortcomings too quickly, it could
bankrupt the nation and cause severe reactions from governments throughout the region and the world. However, if PLA forces do not take significant steps, China cannot be confident of protecting its sovereignty against what it considers real threats. Without a credible military, China will not achieve its goal of eventually becoming a global power.

After analyzing the problem in the context of international and domestic environments, the civilian and military leadership agree that the long-term program for gradual defense modernization is appropriate and will not jeopardize the Chinese economy. However, unlike most other nations, China appears committed to increasing defense spending. Yet increases in magnitude (three to five times more than adjusted estimates), which would put Beijing on a spending level equivalent to that of Moscow in the mid-1980s, do not appear likely.

At the same time, the military will take advantage of a relatively peaceful regional security atmosphere to continue modernizing doctrine, education, and training levels as the sophistication of its equipment gradually improves. The Chinese military will avoid extended combat, preferring posturing and threats of deadly force. As seen from exercises held near Taiwan in 1995 and 1996, PLA forces will also stress limited high-tech weapons, ballistic and cruise missiles in particular, to portray themselves in a modern light.

If force is used there will be rapid efforts to maximize surprise. For the foreseeable future, because of its relative weakness, technological and equipment factors indicate that Beijing is more likely to rely on stratagem and bluff than brute force to counter more modern opponents.

In terms of conventional military hardware, PLA forces have about a tenth the capability of Soviet formations deployed in the Far Eastern Theater in the late 1980s. Although there are a few pockets of excellence, China has only begun the long process of equipment modernization. It still must develop doctrine and educate and train its personnel in modern techniques. The integration of high-tech weapons systems on the training field, to include modern communications, intelligence, and logistics systems, is a major endeavor that has been underway for only a brief time and only by a portion of the force.

Without massive foreign assistance, China’s industrial base can at best produce equipment which is technologically equivalent to that which Moscow replaced in the 1980s. Most defense industries will have to be retooled and their workers taught new techniques to produce greater amounts of state-of-the-art equipment. Therefore, despite a desire for self-sufficiency, it is probable that most modern hardware introduced into Chinese units in the near and mid-term will be foreign in origin.

The cost of modernization and revamping industry would be enormous. The international environment does not require China to reallocate resources between the civilian and military sectors at this time. In any case, over the next few years PLA forces are likely to be reduced in size while their budget is modestly increased. Such a trend will advance the modernization of selected units and improve overall
levels of education and training throughout the military.

While the pace of Chinese military modernization will not pose a significant threat to major powers for some time, Beijing’s neighbors are wary of its intentions. No matter what the foreign perception, however, for reasons of prestige and pursuit of national objectives, China will seek a visible standing force able to deter war and intimidate potential opponents. China recognizes its military weaknesses and thus will seek to avoid a prolonged conflict instead of initiating one. Beijing is more likely to benefit from both economic development and international integration by exchanging the use of force than by arbitrary and risky displays of power. Because no imminent threat exists Beijing need not surmount deficiencies in its conventional capabilities in the near or mid term. Rather, PLA forces are likely to focus on enhancing proven pockets of excellence: ballistic and cruise missiles and nuclear weapons. Although improvements in systems can be expected gradually, great advances are unlikely in the short run.

China will also attempt to exploit the work of its best scientists using advanced research as well as dual-use industrial R&D will focus mainly on consumer products. A Russian Ministry of Defense announcement in mid-1997 stated that the latest weapons systems (such as night vision devices) may have been acquired for test purposes. China has expressed interest in both Smersch multiple rocket launcher and ground air defense systems, but transfer of these weapons cannot be confirmed. Even if verified, the transfers probably are on such a small scale that they must be considered experimental rather than a serious effort to equip a significant portion of the ground force.

Ground force officers last saw combat against Vietnam in 1979. Small naval forces engaged in limited combat in the Paracels in 1974 and the Spratlys in 1988. PLA air force pilots have not seen combat since the Taiwan Strait Crisis of 1958.

1 To a lesser degree, China is also looking toward other foreign sources such as Israel and Pakistan for specific hardware and technology.


3 See Paul Godwin’s paper entitled “PLA Incorporated: Estimating China’s Military Expenditures,” prepared for a conference on “China’s Economic Reform: The Impact on Security Policy” held on July 8–10, 1994 at the Pacific Place Conference Center, Hong Kong, pp. 18–19, for figures on 1978 to 1994. According to Agatha Nias and Daniel Owan in “Defense Spending to Rise 12.7%,” South China Morning Post, March 1, 1997, this trend continues. For example, education was reported to receive over 58 billion yuan more than defense in 1997. Some funds used in civilian development of science and technology goes to the military.


8 Gill and Kim, Arms Acquisitions, pp. 55–67. Estimates put actual defense spending between $30 and $40 billion; the lower figure seems the more reasonable.

9 Gill and Kim, Arms Acquisitions, p. 55. This included the KILO purchase.

10 Gertz, “China Buying.” It is unclear whether these figures include all Russian weapons to be transferred to China.


12 China’s nuclear forces provide a minimal deterrent capability.

13 A small sample of modern ground weapons systems (such as night vision devices) may have been acquired for test purposes. China has expressed interest in both Smersch multiple rocket launcher and ground air defense systems, but transfer of these weapons cannot be confirmed. Even if verified, the transfers probably are on such a small scale that they must be considered experimental rather than a serious effort to equip a significant portion of the ground force.

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18 Estimates of actual expenditures vary from official budget figures (just under $10 billion in 1997, and about $11 billion in 1999) of 1 percent of GDP to over $100 billion. Estimates put actual defense spending between $30 and $40 billion; the lower figure seems the more reasonable.


20 Conversation with Mark Stokes, former assistant air attaché in Beijing, April 2, 1997.

NOTES