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#### CHAPTER 1 NOTES

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## *Chapter 1 Summary*

**T**his chapter describes the methods by which the PRC attempts to acquire U.S. technology for military purposes. The types of technology and information that the PRC and individual PRC nationals have attempted to acquire, however, are far more broad. The PRC appears to try to acquire information and technology on just about anything of value. Not all of it, by any means, presents national security or law enforcement concerns.

**The PRC's appetite for information and technology appears to be insatiable, and the energy devoted to the task enormous.** While only a portion of the PRC's overall technology collection activities targeted at the United States is of national security concern, the impact on our national security could be huge.

**The Select Committee has discovered evidence of a number of their successes.** Given the size and variety of the PRC's overall effort, and the limited U.S. resources and attention devoted to understanding and countering its unlawful and threatening elements, there is clear cause for concern that other serious losses have occurred or could occur in the future.

**It is extremely difficult to meet the challenge of the PRC's technology acquisition efforts in the United States** with traditional counterintelligence techniques that were applied to the Soviet Union. Whereas Russians were severely restricted in their ability to enter the United States or to travel within it, visiting PRC nationals, most of whom come to pursue lawful objectives, are not so restricted. Yet the PRC employs all types of people, organizations, and collection operations to acquire sensitive technology: threats to national security can come from PRC scientists, students, business people, or bureaucrats, in addition to professional civilian and military intelligence operations.

**In light of the number of interactions taking place between PRC and U.S. citizens and organizations over the last decade as trade and other forms of cooperation have bloomed, the opportunities for the PRC to attempt to acquire information and technology, including sensitive national security secrets, are immense.** Moreover, the PRC often does not rely on centralized control or coordination in its technology acquisition efforts, rendering traditional law enforcement, intelligence, and counterintelligence approaches inadequate. While it is certainly true that not all of the PRC's technology acquisition efforts are a threat to U. S. national security, that very fact makes it quite a challenge to identify those that are.

**While this report, this Select Committee, and the nation's counterintelligence organizations are focused on national security issues, it is thus necessary to understand the full range of the PRC's technology acquisition effort to discern its threatening aspects.**

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## **Chapter 1 Text**

COMMERCIAL AND INTELLIGENCE OPERATIONS

# **PRC ACQUISITION OF U.S. TECHNOLOGY**

## **The Structure of the PRC Government**

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**T**he political, governmental, military, and commercial activities of the People's Republic of China are controlled by three directly overlapping bureaucracies: the Communist Party, the State, and the People's Liberation Army.

Foremost of these, and in ultimate control of all state, military, commercial, and political activities in the PRC, is the Chinese Communist Party (CCP).<sup>1</sup> The Communist Party Secretary, Jiang Zemin, chairs both the Politburo and its powerful executive group, the Politburo Standing Committee. The Politburo, in turn, is supported by the CCP Secretariat.

The State governmental apparatus is under the direct control of the Communist Party Secretary, Jiang Zemin, who in his role as President serves as the official head of the State as well. Subordinate to the CCP Secretary in state affairs is the State Council, presided over by Premier Zhu Rongji, also a high-ranking member of the Communist Party.

The People's Liberation Army (PLA) is also directly under the control of the Communist Party. The top level of PLA authority is the CCP's Central Military Commission (CMC), of which Jiang Zemin, the CCP Secretary, is also the Chairman. The CMC's routine work is directed by its two Vice-Chairmen, Generals Zhang Wannian and Chi Haotian.

The 24-member CCP Politburo,<sup>2</sup> which ultimately controls the PRC's political, military, governmental, and commercial activities, does not usually conduct its business as a whole. Rather, due to its unwieldy size and membership consisting of persons from outside Beijing, the Politburo acts through its powerful seven-member Standing Committee. Involvement by the entire Politburo in specific decisions normally occurs when there are major policy shifts, crises need to be addressed, or formal legitimization of a particular policy is necessary.

## Chinese Communist Party (CCP) Officials



**Zhu Rongji**  
*Premier, State  
Council*



**Jiang Zemin**  
*President;  
Communist Party  
Secretary*



**Hu Jintao**  
*Vice  
President*



**Li Peng**  
*Chairman, National  
People's Congress*



**Gen. Chi Haotian**  
*Vice Chairman,  
Central Military  
Commission*



**Xu Yongyu**  
*Minister of  
State Security*



**Deng Xiaoping**  
*Late Chief of  
Communist Party*



**Gen. Zhang Wannian**  
*Vice Chairman,  
Central Military  
Commission*

In the People's Republic of China, members of the Chinese Communist Party's ruling body control all state, military, commercial, and political activities.

In contrast, the seven most senior members of the Communist Party Politburo, comprising the Politburo Standing Committee, meet frequently. The CCP Politburo Standing Committee wields the real decision-making power in the PRC.

The Communist Party Secretariat officially serves as staff support to the Politburo and oversees the implementation of Politburo decisions by State bureaucracies. The Secretariat is composed of seven members of the Politburo and is an executive rather than a decision-making body. The current ranking member of the Secretariat is Vice-President and Standing Committee member Hu Jintao.

The State Council, the top level of the PRC State governmental apparatus, consists of the Premier, Vice Premiers, State Councilors, and Secretary and Deputy Secretaries General. It directs the activities of all State ministries, commissions, and offices.

**The Communist Party's eight-member Central Military Commission (CMC) heads the People's Liberation Army, which includes the PRC's army, navy, and air force, as well as espionage operations** conducted through the Second Department of the PLA. The CMC has a powerful bureaucratic status roughly comparable to that of the Politburo Standing Committee and the State Council. It meets regularly to address administrative matters and to formulate military policy and strategy.

In addition to their policy- and decision-making roles in the CMC, key members of that body - by virtue of their top posts in the Communist Party - also serve a bridging function between the CCP, the State, and the PLA.

The CMC, a Communist Party body, has no equivalent in the State sector. The State Central Military Commission, an organization within the State bureaucracy, is theoretically a separate decision-making body, but in reality it has no unique powers because its membership generally mirrors that of the Party's CMC. The PRC's Ministry of Defense, the principal State bureaucracy for dealing with military affairs, is likewise composed of Communist Party CMC members, and its role is primarily a ceremonial one. The domination and control of the PLA by the Communist Party is thus complete.

### **COSTIND: The CCP's Use of Corporations for Military Aims**

The State Council controls the PRC's military-industrial organizations through the State Commission of Science, Technology and Industry for National Defense (COSTIND). The State Council has a decisive role in Communist Party policy because of its function as interpreter, implementer, and overseer of broadly-worded and often ambiguous Politburo policy goals.

Created in 1982, COSTIND was originally intended to eliminate conflicts between the military research and development sector and the military production sector by combining them under one organization. But its role soon broadened to include the integration of civilian research, development, and production efforts into the military.

**COSTIND presides over a vast, interlocking network of institutions dedicated to the specification, appraisal, and application of advanced technologies to the PRC's military aims.** The largest of these institutions are styled as corporations, notwithstanding that they are directly in service of the CCP, the PLA, and the State. They are:

- **China Aerospace Corporation (CASC)**
- **China National Nuclear Corporation (CNNC)**
- **China North Industries Group (NORINCO)**
- **Aviation Industries Corporation of China (AVIC)**
- **China State Shipbuilding Corporation (CSSC)**

Until 1998, COSTIND was controlled directly by both the CMC and the State Council. In March 1998, COSTIND was "civilianized" and now reports solely to the State Council. A new entity, the General Armament Department (GAD), was simultaneously created under the CMC to assume responsibility for weapons system management and research and development.

## CCP Supremacy Over the State, the PLA, and the Economy

The PRC Constitution asserts the supremacy of the Communist Party over all other government, military, and civilian entities.<sup>3</sup> But the CCP also relies on other, more pragmatic methods to ensure its primacy. The most evident and effective of these is having senior CCP members in control of all State government bodies.<sup>4</sup>

The most obvious example of the Communist Party's practical control of both the State and the PLA is Communist Party Secretary Jiang Zemin's simultaneous service as State President and CCP Central Military Commission Chairman. Other examples include Zhu Rongji's simultaneous service as Politburo Standing Committee member and Premier of the State Council, and Li Lanqing's dual roles as Politburo member and Vice-Premier of the State Council.

In addition to the CCP Politburo's control of the PRC government and military, there are hundreds of similar connections between lower-level Communist Party officials and the State, military, and commercial bureaucracies in the PRC. For example, 25 of the 29 Ministers in charge of Ministries and Commissions under the State Council are members of the CCP Central Committee.

**Nowhere is the supremacy of the Communist Party more clearly enunciated than with the PLA.** This supremacy is explicitly set forth in the PRC Constitution.<sup>5</sup> In addition, as with the State government, it is not just law but common control that guarantees PLA compliance with the Communist Party's dictates. The most obvious practical example of direct Communist Party control of the PLA is Jiang Zemin's position as Chairman of the Central Military Commission, and the entire CMC's direct control of the PLA. Jiang is also the first Communist Party Secretary to enforce CCP control over the military completely by appointing no military officers to the powerful CCP Politburo Standing Committee, although two officers remain on the Politburo.

The slogan "the Party controls the gun" is often repeated in speeches by both CCP and PLA officials, serving as a constant reminder of CCP supremacy over the military. A 1997 article in the official PLA newspaper, published in celebration of Army Day, provided a typical example:

*The Western hostile forces . . . have never given up their plot to Westernize and disintegrate our country, and they always try to infiltrate and corrode us by advocating the fallacies of de-partyization of the army . . . in a vain attempt to make our army shake off the Party's absolute leadership and change its nature.<sup>6</sup>*

## Development of the CCP's Technology Policies

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The CCP Politburo addresses broad technology matters through the Science and Technology Leading Group.<sup>7</sup> This Communist Party group is headed by the Premier and includes the Chairman of the State Science and Technology Commission<sup>8</sup> and the Minister of COSTIND.

Broad technology policy directives originate in the upper levels of the Communist Party hierarchy. It is up to the State Council and its organs to fine-tune and implement those policies. In addition, the State government, like the CCP itself, has a number of Leading Groups, including a Science and Technology Leading Group, that provide expertise and recommendations to the State Council and its organs. A committee of approximately 50 R&D experts meets annually and provides policy planning and technical

advice to the Minister of COSTIND. COSTIND can also call upon the many academies and institutes under its direction.

The State Council and its sub-units are also consumers of military research conducted by the PRC's military research bureaucracy, composed of numerous think-tanks that provide analysis on a wide range of matters. This military research is channeled through a State Council unit known as the International Studies Research Center.

The Center acts as a conduit and central transmission point to channel intelligence, research reports, and policy documents to the top Communist Party leadership.<sup>9</sup>

### **The 863 and Super-863 Programs: Importing Technologies for Military Use**

In 1986, "Paramount Leader" Deng Xiaoping adopted a major initiative, the so-called 863 Program, to accelerate the acquisition and development of science and technology in the PRC.<sup>10</sup> Deng directed 200 scientists to develop science and technology goals. The PRC claims that the 863 Program produced nearly 1,500 research achievements by 1996 and was supported by nearly 30,000 scientific and technical personnel who worked to advance the PRC's "economy and . . . national defense construction."<sup>11</sup>

The most senior engineers behind the 863 Program were involved in strategic military programs such as space tracking, nuclear energy, and satellites.<sup>12</sup> Placed under COSTIND's management, the 863 Program aimed to narrow the gap between the PRC and the West by the year 2000 in key science and technology sectors, including the military technology areas of:

- **Astronautics**
  
- **Information technology**
  
- **Laser technology**
  
- **Automation technology**
  
- **Energy technology**
  
- **New materials**

The 863 Program was given a budget split between military and civilian projects, and focuses on both military and civilian science and technology. The following are key areas of military concern:

#### **Biological Warfare**

The 863 Program includes a recently unveiled plan for gene research that could have biological warfare applications.

#### **Space Technology**

Recent PRC planning has focused on the development of satellites with remote sensing capabilities, which could be used for military reconnaissance, as well as space launch vehicles.



### **Military Information Technology**

The 863 Program includes the development of intelligent computers, optoelectronics, and image processing for weather forecasting; and the production of submicron integrated circuits on 8-inch silicon wafers. These programs could lead to the development of military communications systems; command, control, communications, and intelligence systems; and advances in military software development.

### **Laser Weapons**

The 863 Program includes the development of pulse-power techniques, plasma technology, and laser spectroscopy, all of which are useful in the development of laser weapons.

### **Automation Technology**

This area of the 863 Program, which includes the development of computer-integrated manufacturing systems and robotics for increased production capability, is focused in the areas of electronics, machinery, space, chemistry, and telecommunications, and could standardize and improve the PRC's military production.

### **Nuclear Weapons**

Qinghua University Nuclear Research Institute has claimed success in the development of high-temperature, gas-cooled reactors, projects that could aid in the development of nuclear weapons.

### **Exotic Materials**

The 863 Program areas include optoelectronic information materials, structural materials, special function materials, composites, rare-earth metals, new energy compound materials, and high-capacity engineering plastics. These projects could advance the PRC's development of materials, such as composites, for military aircraft and other weapons.

In 1996, the PRC announced the "Super 863 Program" as a follow-on to the 863 Program, planning technology development through 2010. The "Super 863 Program" continues the research agenda of the 863 Program, which apparently failed to meet the CCP's expectations.

**T**he Super 863 Program calls for continued acquisition and development of technology in a number of areas of military concern, including machine tools, electronics, petrochemicals, electronic information, bioengineering, exotic materials, nuclear research, aviation, space, and marine technology.

COSTIND and the Ministry of Science and Technology jointly manage the Super 863 Program. The Ministry of Science and Technology focuses on biotechnology, information technology, automation, nuclear research, and exotic materials, while COSTIND oversees the laser and space technology fields.<sup>13</sup>

COSTIND is attempting to monitor foreign technologies, including all those imported into the PRC through joint ventures with the United States and other Western countries. These efforts are evidence that the PRC engages in extensive oversight of imported dual-use technology. The PRC is also working to translate foreign technical data, analyze it, and assimilate it for PLA military programs. The Select Committee has concluded that these efforts have targeted the U.S. Government and other entities.

If successful, the 863 Programs will increase the PRC's ability to understand, assimilate, and transfer imported civil technologies to military programs. Moreover, Super 863 Program initiatives increasingly focus on the development of technologies for military applications. PRC program managers are now emphasizing projects that will attract U.S. researchers.

Since the early 1990s, the PRC has been increasingly focused on acquiring U.S. and foreign technology and

equipment, including particularly dual-use technologies that can be integrated into the PRC's military and industrial bases.

### The 16-Character Policy: 'Give Priority to Military Products'

In 1997, the CCP formally codified the 16-Character Policy. The "16-Character Policy" is the CCP's overall direction that underlies the blurring of the lines between State and commercial entities, and military and commercial interests. The sixteen characters literally mean:

- *Jun-min jiehe* (Combine the military and civil)
- *Ping-zhan jiehe* (Combine peace and war)
- *Jun-pin youxian* (Give priority to military products)
- *Yi min yan jun* (Let the civil support the military)<sup>14</sup>

### The PRC's 16-Character Policy

軍民結合  
平戰結合  
軍品優先  
以民養軍

In 1997, the PRC formally codified Deng Xiaoping's "16-Character Policy," which literally means: Combine the military and civil; combine peace and war; give priority to military products; let the civil support the military.

This policy, a reaffirmation and codification of Deng Xiaoping's 1978 pronouncement, holds that military

development is the object of general economic modernization, and that the CCP's main aim for the civilian economy is to support the building of modern military weapons and to support the aims of the PLA. The 16-Character Policy could be interpreted, in light of other policy pronouncements that subordinate military modernization to general economic modernization, to mean a short-term strategy to use defense conversion proceeds for immediate military modernization. Or it could mean a long-term strategy to build a civilian economy that will, in the future, support the building of modern military goods. In practice, however, the policy appears to have meant a little of both approaches.<sup>15</sup>

The CCP's official policy on military modernization, as publicly announced since the late 1970s by then-"Paramount Leader" Deng Xiaoping, states that the PRC is devoting its resources to economic development, and that military development is subordinate to and serves that goal.<sup>16</sup> But as Dr. Michael Pillsbury of the National Defense University has testified publicly, the doctrinal and strategic writings of many PLA leaders and scholars are inconsistent with a subordination of military modernization efforts. In fact, according to Pillsbury, these views are "surprising, and perhaps even alarming."<sup>17</sup>

**General Liu Huaqing, former Vice-Chairman of the CCP's Central Military Commission and a member** of both the Politburo and the Standing Committee, stated in 1992 that economic modernization was dependent not only on "advanced science and technology," but also "people armed with it." Anything else was "empty talk."<sup>18</sup>

The PRC has indeed used the profits from its burgeoning commercial economy to purchase a number of advanced weapons systems. The most notable of these include the purchase from Russia of 50 Sukhoi Su-27 jet fighters and the production rights for 200 more, two Kilo attack submarines, and two Sovremenniy missile destroyers.<sup>19</sup>

The PRC has also purchased weapons systems or their components from Israel, France, Britain, and the United States, including air-to-air missiles, air-refueling technology, Global Positioning System (GPS) technology, helicopter parts, and assorted avionics.<sup>20</sup>



James Defense Group

The PRC has purchased from Russia 50 Sukhoi Su-27 jet fighters, and the production rights for 200 more of the aircraft. It is able to afford such purchases as the result of profits derived from its burgeoning commercial economy.



James Defense Group

The PRC has used the profits from its commercial economy to purchase a number of advanced weapons systems, including Kilo attack submarines (*above*) and Sovremenniy missile destroyers (*below*).



James Defense Group

In addition to providing funds for the purchase of U.S. and foreign weapons systems, implementation of the 16-Character Policy serves the PLA in other ways. Among these are:

- **Funding military R&D efforts**
- **Providing civilian cover for military industrial companies to acquire dual-use technology through purchase or joint-venture business dealings**
- **Modernizing an industrial base that can, in time of hostility, be turned towards military production**

In this connection, since the 1980s significant portions of the PRC military industry have diversified into civilian production. The production of profit-producing civilian goods helps keep the PRC military-industrial companies financially stable. The majority of them have operated "in the red" for years, bolstered only by extremely generous and forgiving loan arrangements from the PRC's central banks.<sup>21</sup>

**T**he blurred lines between military and commercial technology that are the hallmarks of the 16-Character Policy have also created some problems for the PRC. An official in the State Planning

Commission criticized the 16-Character Policy for an insufficient focus on the most advanced military technologies, particularly in aerospace, aviation, nuclear power, and ship-building. At the same time, the official acknowledged, military industries have been reluctant to share economically valuable technologies with civilian enterprises.<sup>22</sup>

Pursuant to the 16-Character Policy, the PRC's emphasis on the acquisition and development of military technology is closely related to its interest in science and technology for economic development. At times this has been reflected in tension between modernizing the PLA and developing the economy. The PRC's approach to resolving this conflict has been to seek "comprehensive national power," in which high-technology industries, economic growth, and military modernization are all interrelated.<sup>23</sup>

Despite the PRC's public claims, it is estimated that their actual military spending is four to seven times greater than official figures. During the 1990s, no other part of the PRC's budget has increased at the rate of military spending. A large portion of this budget is devoted to military research.<sup>24</sup>

The success achieved by the United States through the use of high-technology weapons in the 1990 Gulf War led PLA leaders to call for a reemphasis on military development. PLA leaders began to call for military preparedness to fight "limited war under high-tech conditions."

The PLA's call for more attention to military aims appears to have had some impact. In a 1996 speech, Li Peng, second-ranking member of the CCP Politburo, then-Prime Minister, and currently Chairman of the National People's Congress,<sup>25</sup> said:

We should attach great importance to strengthening the army through technology, enhance research in defense-related science, . . . give priority to developing arms needed for defense under high-tech conditions, and lay stress on developing new types of weapons.<sup>26</sup>

Communist Party Secretary Jiang Zemin, in March 1997, publicly called for an "extensive, thoroughgoing and sustained upsurge" in the PLA's acquisition of high technology.<sup>27</sup> The PRC's 1998 Defense White Paper pointedly stated that "no effort will be spared to improve the modernization level of weaponry." <sup>28</sup>

The modernization of the PLA has placed priority on the development of:

- **Battlefield communications**
- **Reconnaissance**
- **Space-based weapons**
- **Mobile nuclear weapons**
- **Attack submarines**
- **Fighter aircraft**
- **Precision-guided weapons**
- **Training rapid-reaction ground forces**

These actions, supported by the PRC's overall economic growth, will improve the PLA's military capabilities in ways that enable the PRC to broaden its geographic focus. At the same time, the PRC has shifted its military strategy towards rapid-reaction mobility and regional, versus global, armed conflict. Under this framework, the PRC's avowed military strategy is one of "active defense," a capability for power projection to defend the PRC's territorial ambitions, which extend to not only Taiwan, but also the Senkaku Islands in the East China Sea, and the Spratly and Paracel Islands in the South China Sea.

## **The PRC's Use of Intelligence Services To Acquire U.S. Military Technology**

The primary professional PRC intelligence services involved in technology acquisition are the Ministry of State Security (MSS) and the PLA General Staff's Military Intelligence Department (MID).

In addition to and separate from these services, the PRC maintains a growing non-professional technology-collection effort by other PRC Government-controlled interests, such as research institutes and PRC military-industrial companies. Many of the most egregious losses of U.S. technology have resulted not from professional operations under the control or direction of the MSS or MID, but as part of commercial, scientific, and academic interactions between the United States and the PRC.

Professional intelligence agents from the MSS and MID account for a relatively small share of the PRC's foreign science and technology collection. The bulk of such information is gathered by various non-professionals, including PRC students, scientists, researchers, and other visitors to the West. These individuals sometimes are working at the behest of the MSS or MID, but often represent other PRC-controlled research organizations - scientific bureaus, commissions, research institutes, and enterprises.

Those unfamiliar with the PRC's intelligence practices often conclude that, because intelligence services conduct clandestine operations, all clandestine operations are directed by intelligence agencies. In the case of the PRC, this is not always the rule. Much of the PRC's intelligence collection is independent of MSS direction. For example, a government scientific institute may work on its own to acquire information.

**The MSS is headed by Minister Xu Yongyue, a member of the CCP Central Committee.** The MSS reports to Premier Zhu Rongji and the State Council, and its activities are ultimately overseen by the CCP Political Science and Law Commission. It is not unusual for senior members of the CCP's top leadership to be interested in the planning of PRC military acquisitions.

The MSS conducts science and technology collection as part of the PRC's overall efforts in this area. These MSS efforts most often support the goals of specific PRC technology acquisition programs, but the MSS will take advantage of any opportunity to acquire military technology that presents itself.

The MSS relies on a network of non-professional individuals and organizations acting outside the direct control of the intelligence services, including scientific delegations and PRC nationals working abroad, to collect the vast majority of the information it seeks.

The PLA's Military Intelligence Department (MID), also known as the Second Department of the PLA General Staff, is responsible for military intelligence. It is currently run by PLA General Ji Shengde, the son of a former PRC Foreign Minister. One of the MID's substantial roles is military-related science and technology collection.

## **Methods Used by the PRC To Acquire Advanced U.S. Military Technology**

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The PRC uses a variety of approaches to acquire military technology. These include:

- **Relying on "princelings" who exploit their military, commercial, and political connections with high-ranking CCP and PLA leaders to buy military technology from abroad**
- **Illegally transferring U.S. military technology from third countries**
- **Applying pressure on U.S. commercial companies to transfer licensable technology illegally in joint ventures**
- **Exploiting dual-use products and services for military advantage in unforeseen ways**
- **Illegally diverting licensable dual-use technology to military purposes**
- **Using front companies to illegally acquire technology**
- **Using commercial enterprises and other organizations as cover for technology acquisition**
- **Acquiring interests in U.S. technology companies**
- **Covertly conducting espionage by personnel from government ministries, commissions, institutes, and military industries independently of the PRC intelligence services**

The last is thought to be the major method of PRC intelligence activity in the United States.

The PRC also tries to identify ethnic Chinese in the United States who have access to sensitive information, and sometimes is able to enlist their cooperation in illegal technology or information transfers.

Finally, the PRC has been able to exploit weaknesses and lapses in the U.S. system for monitoring the sale and export of surplus military technology and industrial auctions.

The PRC is striving to acquire advanced technology of any sort, whether for military or civilian purposes, as part of its program to improve its entire economic infrastructure.<sup>29</sup> This broad targeting permits the effective use of a wide variety of means to access technology. In addition, the PRC's diffuse and multi-pronged technology-acquisition effort presents unique difficulties for U.S. intelligence and law enforcement agencies, because the same set of mechanisms and organizations used to collect technology in general can be used and are used to collect military technology.

The PRC's blending of intelligence and non-intelligence assets and reliance on different collection methods

presents challenges to U.S. agencies in meeting the threat. In short, as James Lilley, former U.S. Ambassador to the PRC says, U.S. agencies are "going nuts" trying to find MSS and MID links to the PRC's military science and technology collection, when such links are buried beneath layers of bureaucracy or do not exist at all.<sup>30</sup>

## The 'Princelings'

Unlike the Soviet Union, where nepotism in the Communist Party was rare, ruling in the PRC is a family business. Relatives of the founders of the Chinese Communist Party rise quickly through the ranks and assume powerful positions in the CCP, the State, the PLA, or the business sector. These leaders, who owe their positions more to family connections than to their own merit, are widely known as "princelings."<sup>31</sup>

Political, military, and business leaders in the PRC exercise considerable influence within their respective hierarchies. With the exception of those who make their way to the uppermost levels of the CCP or State bureaucracies, however, their authority, clout, and influence extend only to those below them within that hierarchy. They have little ability to influence either the leaders above them within their own hierarchy or the leaders in other hierarchies.<sup>32</sup>

Princelings operate outside these structures. Because of their family ties and personal connections to other CCP, PLA, and State officials, they are able to "cross the lines" and accomplish things that might not otherwise be possible.<sup>33</sup>

Two of the currently most notable princelings, Wang Jun and Liu Chaoying, have been directly involved in illegal activities in the United States.

**Wang Jun is the son of the late PRC President Wang Zhen.** Wang simultaneously holds two powerful positions in the PRC. He is Chairman of the China International Trade and Investment Company (CITIC), the most powerful and visible corporate conglomerate in the PRC. He is also the President of Polytechnologies Corporation, an arms-trading company and the largest and most profitable of the corporate structures owned by the PLA. Wang's position gives him considerable clout in the business, political, and military hierarchies in the PRC.<sup>34</sup>

Wang is publicly known in the United States for his role in the 1996 campaign finance scandal and for Polytechnologies' indictment stemming from its 1996 attempt to smuggle 2,000 Chinese AK-47 assault rifles into the United States. He attended a White House "coffee" with President Clinton in February 1996 and was given a meeting with Commerce Secretary Ronald Brown the following day. He was also connected to over \$600,000 in illegal campaign contributions made by Charlie Trie to the U.S. Democratic National Committee (DNC).<sup>35</sup>

**Liu Chaoying is the daughter of former CCP Central Military Commission Vice-Chairman and Politburo Standing Committee member General Liu Huaqing,** who has used numerous U.S. companies for sensitive technology acquisitions. General Liu has been described as the PLA's preeminent policymaker on military R&D, technology acquisition, and equipment modernization as well as the most powerful military leader in the PRC. His daughter is a Lieutenant Colonel in the PLA and has held several key and instrumental positions in the PRC's military industry, which is involved in numerous arms transactions and international smuggling operations.<sup>36</sup> On two occasions she has entered the United States illegally and under a false identity.

Col. Liu Chaoying is currently a Vice-President of China Aerospace International Holdings, a firm specializing in foreign technology and military sales.<sup>37</sup> It is the Hong Kong subsidiary of China Aerospace



Corporation, the organization that manages the PRC's missile and space industry. Both organizations benefit from the export of missile or satellite-related technologies and components from the United States, as does China Great Wall Industry Corporation, Col. Liu's former employer and a subsidiary of China Aerospace Corporation, which provides commercial space launch services to American satellite manufacturers.

China Aerospace Corporation is also a substantial shareholder in both the Apstar and APMT projects to import U.S. satellites to the PRC for launch by China Great Wall Industry Corporation.<sup>38</sup>



A Chinese-American, Johnny Chung, during the course of plea negotiations, disclosed that during a trip to Hong Kong in the summer of 1996, he met with Col. Liu and the head of the MID, Gen. Ji Shengde. According to Chung, he received \$300,000 from Col. Liu and Gen. Ji as a result of this meeting. The FBI confirmed the deposit into Chung's account from Hong Kong and that the PLA officials likely served as the conduit for the money.

Johnny Chung, a Chinese-American, met with PLA Col. Liu and the head of the PLA's Military Intelligence Division (MID), Gen. Ji, during a trip to Hong Kong in 1996. Chung says he received \$300,000 from Col. Liu and Gen. Ji as a result of this meeting.

The Select Committee determined that Col. Liu's payment to Johnny Chung was an attempt to better position her in the United States to acquire computer, missile, and satellite technologies. The purpose of Col. Liu's contacts was apparently to establish reputable ties and financing for her acquisition of technology such as telecommunications and aircraft parts.<sup>39</sup>

Within one month after meeting with Col. Liu in Hong Kong, Chung formed Marswell Investment, Inc., possibly capitalizing the new company with some of the \$300,000 he had received from Col. Liu and Gen. Ji.<sup>40</sup> Col. Liu was designated as president of the company, which was based in Torrance, California. The company is located in southern California, in the same city where China Great Wall Industry Corporation also maintains its U.S. subsidiary.

Col. Liu made two trips to the United States, one in July 1996 and one in August 1996, apparently seeking to expand her political and commercial contacts. During Col. Liu's July trip, Chung arranged for her to attend a DNC fundraiser where she met President Clinton and executives involved in the import-export business.<sup>41</sup>

Shortly afterwards, Chung also arranged for her to meet with the Executive Vice President of the Federal

Reserve Bank of New York.<sup>42</sup>

Liu's August 1996 trip to the United States came at the invitation of Chung, who had told her that he had contacted Boeing and McDonnell Douglas regarding her interest in purchasing aircraft parts.<sup>43</sup>

That same month, Col. Liu traveled to Washington, D.C., where Chung had contacts arrange for her to meet with representatives of the Securities and Exchange Commission to discuss listing a PRC company on U.S. stock exchanges.<sup>44</sup> Soon after the meeting, when Chung and Liu's alleged involvement in the campaign finance scandal became the subject of media reports, Col. Liu left the United States. Marswell remains dormant.<sup>45</sup>

Princelings such as Wang and Liu present a unique technology transfer threat because their multiple connections enable them to move freely around the world and among the different bureaucracies in the PRC. They are therefore in a position to pull together the many resources necessary to carry out sophisticated and coordinated technology acquisition efforts.<sup>46</sup>

## Acquisition of Military Technology from Other Governments

To fill its short-term technological needs military equipment, the PRC has made numerous purchases of foreign military systems. The chief source for these systems is Russia, but the PRC has acquired military technology from other countries as well. Specific details on these acquisitions appear in the Select Committee's classified report, but the Clinton administration has determined that they cannot be made public without affecting national security.



The PRC has made numerous purchases of foreign military systems. Israel has provided both weapons and technology to the PRC, most notably to assist the PRC in developing its F-10 fighter (above).

### Russia

After years of hostile relations between the PRC and the Soviet Union, Russia has again become the PRC's main source of advanced weapons and has sold numerous weapon systems to the PRC.<sup>47</sup> The technologically-advanced weapons systems and components the PRC either has purchased or plans to purchase from Russia include electronic warfare and electronic eavesdropping (SIGINT) equipment, air-to-air missiles, advanced jet fighters, attack helicopters, attack submarines, and guided missile destroyers.<sup>48</sup> These transfers have been used to improve the capabilities of the PLA ground, air, and naval forces.

### Israel

Recent years have been marked by increased Sino-Israeli cooperation on military and security matters.<sup>49</sup> Israel has offered significant technology cooperation to the PRC, especially in aircraft and missile development.<sup>50</sup> Israel has provided both weapons and technology to the PRC, most notably to assist the PRC in developing its F-10 fighter and airborne early-warning aircraft.<sup>51</sup>

### The United States

The PRC has stolen military technology from the United States, but until recently the United States has lawfully transferred little to the PLA. This has been due, in part, to the sanctions imposed by the United States in response to both the 1989 Tiananmen Square massacre and to the PRC's 1993 transfer of missile technology to Pakistan.

During the Cold War, the United States assisted the PRC in avionics modernization of its jet fighters under

the U.S. Peace Pearl program.<sup>52</sup>

After the relatively "cool" period in U.S.-PRC relations in the early 1990s, the trend since 1992 has been towards liberalization of dual-use technology transfers to the PRC.<sup>53</sup> Recent legal transfers include the sale of approximately 40 gas turbine jet engines, the sale of high performance computers, and licensed co-production of helicopters.<sup>54</sup>

Nonetheless, the list of military-related technologies legally transferred to the PRC directly from the United States remains relatively small.

Illegal transfers of U.S. technology from the U.S. to the PRC, however, have been significant.

Significant transfers of U.S. military technology have also taken place in the mid-1990s through the re-export by Israel of advanced technology transferred to it by the United States, including avionics and missile guidance useful for the PLA's F-10 fighter. Congress and several Executive agencies have also investigated allegations that Israel has provided U.S.-origin cruise, air-to-air, and ground-to-air missile technology to the PRC.<sup>55</sup>

### **Joint Ventures with U.S. Companies**

This section describes the pressures brought to bear on U.S. companies linked with militarily-sensitive technology attempting to do business with the PRC, and provides examples of U.S. companies conspiring to evade export control laws in pursuit of joint ventures.

The vast majority of commercial business activity between the United States and the PRC does not present a threat to national security, but additional scrutiny, discipline, and an awareness of risks are necessary with respect to joint ventures with the PRC where the potential exists for the transfer of militarily-sensitive U.S. technology.

The U.S. 1997 National Science and Technology Strategy stated that:

*Sales and contracts with foreign buyers imposing conditions leading to technology transfer, joint ventures with foreign partners involving technology sharing and next generation development, and foreign investments in U.S. industry create technology transfer opportunities that may raise either economic or national security concerns.<sup>56</sup>*

The behavior of the PRC Government and PRC-controlled businesses in dealing with U.S. companies involved with militarily sensitive technology confirms that these concerns are valid and growing. The growing number of joint ventures that call for technology transfers between the PRC and U.S. firms can be expected to provide the PRC with continued access to dual-use technologies for military and commercial advantage.

Technology transfer requirements in joint ventures often take the form of side agreements (sometimes referred to as offset agreements) requiring both that the U.S. firm transfer technology to the PRC partner, and that all transferred technology will eventually become the property of the PRC partner.<sup>57</sup>

**A**lthough many countries require technology transfers when they do business with U.S. firms, no country makes such demands across as wide a variety of industries as the PRC does.<sup>58</sup> Despite the PRC's rapid economic liberalization since 1978, it continues to implement its explicitly designed goals and policies to restrict and manage foreign investment so as to bolster the PRC's military and commercial

industries through acquisition of technology.<sup>59</sup>

The Communist Party has long believed that forcing technology from foreign firms is not only critical to the PRC, but also is a cost that foreign firms will bear in order to obtain PRC market entry.

In the past, the PRC has favored joint ventures with U.S. high-technology companies for several reasons:

- **The U.S. excels in many areas of technology that are of special interest to the PLA and to PRC-controlled firms**
- **Many PRC scientists were educated in the United States and retain valuable contacts in the U.S. research and business community who can be exploited for technology transfer**
- **Many other countries are more reluctant than the United States to give up technology<sup>60</sup>**

The PRC has dedicated increasing resources to identifying U.S. high-technology firms as likely targets for joint venture overtures. Science and technology representatives in PRC embassies abroad are used to assist in this targeting of technology, and to encourage collaboration with U.S. firms for this purpose.

Unless they are briefed by the FBI pursuant to its National Security Threat List program, U.S. companies are unaware of the extent of the PRC's espionage directed against U.S. technology, and thus - at least from the U.S. national security standpoint - are generally unprepared for the reality of doing business in the PRC. They lack knowledge of the interconnection between the CCP, the PLA, the State, and the PRC-controlled companies with which they deal directly in the negotiating process.<sup>61</sup>

The U.S. General Accounting Office (GAO) has found that U.S. businesses have significant concerns about arbitrary licensing requirements in the PRC that often call for increased technology transfer. The GAO has also found that transparency was the most frequent concern reported by U.S. companies.<sup>62</sup> Because of the lack of transparency in the PRC's laws, rules, and regulations that govern business alliances, and the dearth of accessible, understandable sources of regulatory information, U.S. businesses are often subjected to technology transfer requirements that are not in writing, or are not maintained in the field, or are contained in "secret" rules that only insiders know about.<sup>63</sup>

**The PRC's massive potential consumer market is the key factor behind the willingness of some U.S. businesses to risk and tolerate technology transfers.** Some of these transfers could impair U.S. national security, as in the cases of Loral and Hughes described later in this Report. The obvious potential of the PRC market has increasingly enabled the PRC to place technology-transfer demands on its U.S. trading partners.

U.S. businesses believe that they must be in the PRC, lest a competitor get a foothold first.<sup>64</sup> In fact, many U.S. high-technology firms believe it is more important to establish this foothold than to make profits immediately or gain any more than limited access to the PRC market.<sup>65</sup> Some of the PRC's trading partners have focused on increased technology transfers to raise the attractiveness of their bids.

In addition to traditional types of technology transfer, many U.S. high-technology investments in the PRC include agreements establishing joint research and development centers or projects. This type of agreement represents a new trend in U.S. investment in the PRC and is a potentially significant development.<sup>66</sup>

U.S. companies involved in joint ventures may be willing to transfer technology because they believe that the only risk is a business one - that is, that the transfers may eventually hurt them in terms of market share or competition.<sup>67</sup> These businesses may be unaware that technologies transferred to a PRC partner will likely be shared within the PRC's industrial networks and with the PLA, or that joint ventures may be used in some instances as cover to acquire critical technology for the military.

COSTIND, which controls the PRC's military-industrial organizations, likely attempts to monitor technologies through joint ventures. In addition, U.S. businesses may be unaware that joint-venture operations are also vulnerable to penetration by official PRC intelligence agencies, such as the MSS.

In one 1990s case reviewed by the Select Committee, a U.S. high-technology company and its PRC partner used a joint venture to avoid U.S. export control laws and make a lucrative sale of controlled equipment to the PRC. Following the denial of an export license, the U.S. company attempted to form a joint venture to which the technology would be transferred. The joint venture was controlled by a PRC entity included on the U.S. Commerce Department's Entity List, which means it presents an unacceptable risk of diversion to the development of weapons of mass destruction.

## Acquisition and Exploitation of Dual-Use Technologies

The acquisition of advanced dual-use technology represents yet another method by which the PRC obtains advanced technology for military modernization from the United States. The PRC's military modernization drive includes a policy to acquire dual-use technologies. The PRC seeks civil technology in part in the hope of being able to adapt the technology to military applications. This is referred to by some analysts as "spinning on."<sup>68</sup>

A strategy developed by the PRC in 1995 called for the acquisition of dual-use technologies with civil and military applications, and the transfer of R&D achievements in civil technology to the research and production of weapons.

The PRC collects military-related science and technology information from openly available U.S. and Western sources and military researchers. This accelerates the PLA's military technology development by permitting it to follow proven development options already undertaken by U.S. and Western scientists.

**PRC procurement agents have approached U.S. firms to gain an understanding of the uses of available technology**, and to evaluate the PRC's ability to purchase dual-use technology under the guise of civil programs and within the constraints of U.S. export controls. Additionally, the PRC has attempted to acquire information from the U.S. and other countries about the design and manufacturing of military helicopters.<sup>69</sup> The PRC could use this approach to acquire chemical and biological weapons technology.

The key organizations in the PRC's drive to acquire dual-use technology include:

- **COSTIND**, which acquires dual-use technology for PRC institutes and manufacturers by assuring foreign suppliers that the technology will be used for civil production. COSTIND uses overseas companies to target U.S. firms for acquisition of dual-use technology for the military.
- **The Ministry of Electronics Industry (MEI),<sup>70</sup>** which is responsible for developing the PRC's military electronics industry. Among other things, the Ministry approves and prioritizes research and development and the importation of electronics technologies that can be used

to speed up the PRC's indigenous production capabilities.

- **The Ministry of Post and Telecommunications (MPT)**, which is acquiring asynchronous transfer mode switches that could be used for military purposes by the PLA.<sup>71</sup>
- **PLA-operated import-export companies**, which also import dual-use technologies for military modernization. Polytechnologies, a company attached to the General Staff Department of the PLA, plays a major role in this effort, especially in negotiating foreign weapons purchases.<sup>72</sup>
- **The Aviation Industries Corporation of China (AVIC), and its subsidiary, China National Aero-Technology Import-Export Corporation (CATIC)**, which have sent visitors to U.S. firms to discuss manufacturing agreements for commercial systems that could be used to produce military aircraft for the PLA.<sup>73</sup> AVIC is one of five PRC state-owned conglomerates that operate as "commercial businesses" under the direct control of the State Council and COSTIND.

Several incidents highlight CATIC's direct role in the acquisition of controlled U.S. technology. One clear example was CATIC's role as the lead PRC representative in the 1994 purchase of advanced machine tools from McDonnell Douglas, discussed more fully later in this Report.

**Another possible example of the PRC's exploitation of civilian end-use as a means of obtaining controlled technology** was CATIC's 1983 purchase of two U.S.-origin CFM-56 jet engines on the pretext that they would be used to re-engine commercial aircraft. Although the CFM-56 is a commercial engine, its core section is the same as the core of the General Electric F-101 engine that is used in the U.S. B-1 bomber. Because of this, restrictions were placed on the export license. However, the PRC may have exploited the technology of the CFM-56. When the U.S. Government subsequently requested access to the engines, the PRC claimed they had been destroyed in a fire.



China National Aero-Technology Import-Export Corporation (CATIC) is a PRC-owned business under the control of the PRC's State Commission of Science, Technology and Industry for National Defense (COSTIND). CATIC's office in California (left) has played a direct role in obtaining controlled technology from U.S. companies.

CATIC has, on several occasions reviewed by the Select Committee, misrepresented the proposed uses of militarily useful U.S. technology. The Clinton administration has determined that the specific facts in these cases may not be publicly disclosed without affecting national security.

In 1996, AVIC, CATIC's parent company, attempted to use a Canadian intermediary to hire former Pratt & Whitney engineers in the United States to assist in the development of an indigenous PRC jet engine.

AVIC's initial approach was under the guise of a civilian project, and the U.S. engineers were not told they would be working on a military engine for the PRC's newest fighter jet until negotiations had progressed substantially. The U.S. engineers pulled out when they were told what they would be asked to do.<sup>74</sup>

The degree of diversion to military programs by the PRC of commercially-acquired technologies is unclear, since the PRC's parallel civil-military industrial complex<sup>75</sup> often blurs the true end-use of technology that is acquired. As a result, there may be more use of U.S. dual-use technology for military production than these examples suggest.

## Front Companies

Another method by which the PRC acquires technology is through the use of front companies. The term "front company" has been used in a variety of ways in public reports and academic studies in different contexts, and can include:

- **U.S. subsidiaries of PRC military-industrial corporations in the PRC**
- **U.S. subsidiaries of PLA-owned-and-operated corporations**
- **Corporations set up by PRC nationals overseas to conduct technology acquisition and transfer**
- **Corporations set up outside the PRC to acquire technology for a PRC intelligence service, corporation, or institute covertly**
- **Corporations set up outside the PRC by a PRC intelligence service, corporation, or institute solely to give cover to professional or non-professional agents who enter the United States to gather technology or for other purposes**
- **Corporations set up outside the PRC by a PRC intelligence service to launder money**
- **Corporations set up outside the PRC by a PRC intelligence service to raise capital to fund intelligence operations**
- **Corporations set up outside the PRC by a PRC individual to hide, accumulate, or raise money for personal use**
- **Corporations set up outside the PRC by organs of the PRC Government to funnel money to key U.S. leaders** for the purpose of garnering favor and influencing the U.S. political process and U.S. Government decision-making

The differing meanings attached to the term "front companies" by different U.S. agencies has led to confusion, particularly because many PRC companies fall into several different categories, at the outset or at different times during their existence. In addition, U.S. agencies responsible for different aspects of national security, law enforcement, and Sino-U.S. relations often do not share even basic data concerning PRC espionage in the United States.

This may partly explain why, for example, in Senate testimony on the same day in 1997, the State

Department said it could identify only two PLA companies that were doing business in the United States, while the AFL-CIO identified at least 12, and a Washington-based think-tank identified 20 to 30 such companies.<sup>76</sup> The Select Committee has determined that all three figures are far below the true figure.

**The Select Committee has concluded that there are more than 3,000 PRC corporations in the United States**, some with links to the PLA, a State intelligence service, or with technology targeting and acquisition roles. The PRC's blurring of "commercial" and "intelligence" operations presents challenges to U.S. efforts to monitor technology transfers for national security purposes.

General Liu Huaqing, who recently retired as a member of the Communist Party Politburo, the CCP Standing Committee, and the Central Military Commission, was involved with dozens of companies in Hong Kong and in Western countries engaged in illegally acquiring advanced U.S. technology.

Yet another complicating factor is the evolution of the names used by PRC-controlled corporations. Some corporations such as NORINCO and Polytechnologies were easily recognizable as subsidiaries of PRC corporations. The boards of directors of PRC companies were also easily recognizable as PLA officers in the past.<sup>77</sup> Recent changes, however, have made it more difficult to recognize PRC corporations.

Some analysts note that U.S.-based subsidiaries of PLA-owned companies in particular have stopped naming themselves after their parent corporation, a move prompted at least in part by criminal indictments and negative media reports that have been generated in connection with their activities in the United States. Many PLA-owned companies in the United States have simply ceased to exist in the past year or so, a phenomenon that reflects these factors as well as the fact that PRC-controlled companies often do not make money.<sup>78</sup>

The PRC intelligence services use front companies for espionage. These front companies may include branches of the large ministerial corporations in the PRC, as well as small one- and two-person establishments. Front companies, whatever the size, may have positions for PRC intelligence service officers. PRC front companies are often in money-making businesses that can provide cover for intelligence personnel in the United States.

PRC front companies may be used to sponsor visits to the U.S. by delegations that include PRC intelligence operatives.

There has been increasing PRC espionage through front companies during the 1990s. As of the late 1990s, a significant number of front companies with ties to PRC intelligence services were in operation in the United States.

The PRC also uses its state-controlled "news" media organizations to gain political influence and gather political intelligence.

**In June 1993, after a highly-publicized trial, a former Chinese philosophy professor, Bin Wu, and two other PRC nationals were convicted in a U.S. court of smuggling third-generation night-vision equipment** to the PRC. Wu worked at the direction of the MSS, which he says directed him to acquire numerous high-technology items from U.S. companies. To accomplish these tasks, Wu and the others created several small front companies in Norfolk, Virginia. From that base, they solicited technology from a number of U.S. companies, purchasing the equipment in the names of the front companies and forwarding it to the MSS through intermediaries in Hong Kong.<sup>79</sup>



Wu was a good example of the non-traditional PRC approach to acquiring technology in that Wu himself was not a professional intelligence agent. Identified as a pro-Western dissident by the MSS just after the Tiananmen Square massacre, he was given a choice: he could stay in the PRC and face prison, or he could accept the MSS's offer to help him and his family by supporting the PRC in its quest for high technology. Wu was also a "sleeper" agent, who was initially told to go to the United States and establish himself in the political and business community. The MSS told Wu he would be called upon and given taskings later.<sup>80</sup>

Wu appears to have been part of a significant PRC intelligence structure in the United States. This structure includes "sleeper" agents, who can be used at any time but may not be tasked for a decade or more.<sup>81</sup>

In the 1990s, the PRC has also attempted to use front companies to acquire sensitive information on restricted military technologies, including the Aegis combat system. The Aegis combat system uses the AN/SPY-1 phased array radar to detect and track over 100 targets simultaneously, and a computer-based command and decision system allowing for simultaneous operations against air, surface, and submarine threats.<sup>82</sup>

### **Direct Collection of Technology by Non-Intelligence Agencies and Individuals**

PRC intelligence agencies often operate in the U.S. commercial environment through entities set up by other PRC Government and commercial organizations instead of creating their own fronts. PLA military intelligence officers do, however, operate directly in the United States, posing as military attaches at the PRC Embassy in Washington, D.C., and at the United Nations in New York.

Most PRC covert collection of restricted technology in the United States is accomplished by individuals attached to PRC Government and commercial organizations which are unaffiliated with official PRC intelligence services. These organizations collect their own technology from the United States, rather than rely on the PRC intelligence agencies to do it for them.

**The Select Committee judges that the MSS may be allowing other PRC Government entities to use MSS assets to fulfill their intelligence needs.** These findings further illustrate that PRC "intelligence" operations are not necessarily conducted by what are traditionally thought of as "intelligence" agencies.

The main PLA intelligence activity in the United States is not represented by PLA intelligence organizations, but by PRC military industries and regular components of the PLA. Although military-industrial corporations are not PLA-owned, they are deeply involved in arms production and acquisition of military technology.

The activities of CATIC and its U.S. subsidiaries exemplify the activities carried out by PRC military-industrial companies. Other PRC companies, such as China Great Wall Industry Corporation, collect technology for their own use and may be used as cover by PRC intelligence personnel.

PRC technology acquisition in the United States also is carried out by various science and technology commissions and organizations. COSTIND, for example, has no official U.S. subsidiary but is the primary coordinating authority over the military-industrial corporations that collect technology in the United States. COSTIND also uses the "front company" device to procure high-technology products.

The PRC State Science and Technology Commission largely oversees civilian science and technology collection. The State Science and Technology Commission also uses diplomats in the U.S. as a key collection tool. It has provided funding to a PRC scientist to establish various commercial enterprises in the U.S. as a means of collecting technology information for distribution in the PRC.

**The State Science and Technology Commission was involved in efforts to elicit nuclear weapons information from a Chinese-American scientist.** Science and Technology offices in the PRC's seven diplomatic agencies in the United States carry out a substantial portion of technology acquisition taskings. The primary role of these offices is to arrange contacts between PRC scientists and their American counterparts.

Various "liaison groups" constitute another PRC technology collection vehicle in the United States. The PRC's primary official liaison organization is the China Association for International Exchange of Personnel (CAIEP). CAIEP operates seven "liaison organization" offices in the United States, including one in Washington, D.C., and one in San Francisco. It is one of several organizations set up by the PRC to illegally acquire technology through contacts with Western scientists and engineers. Others include a purported technology company and a PRC State agency.

Another significant source of the PRC's technology collection efforts outside of its formal intelligence agencies comes from Chinese business representatives loyal to the CCP who emigrate to the United States. These individuals pursue commercial interests independent of direct PRC Government control. Their primary motive is personal financial gain, and they will sell their efforts and opportunities to any willing consumer. When asked to do so, they pass U.S. technology back to the PRC. The Select Committee believes that the use of this technique is proliferating in recent years.

The PRC also acquires advanced technology through the outright theft of information. A few cases exemplify this method of technology acquisition.

**Peter Lee, a Taiwanese-born, naturalized U.S. citizen who formerly worked at the Los Alamos and Lawrence Livermore National Laboratories, passed classified information to the PRC in 1997 and in 1985.** In 1997, Lee passed to the PRC classified U.S. developmental research on very sensitive detection techniques that, if successfully concluded, could be used to threaten previously invulnerable U.S. nuclear submarines. In 1985, Lee stole for the PRC classified information about the use of lasers to create nuclear explosions on a miniature scale. The Lee case represents a classic non-intelligence service operation.<sup>83</sup> For a detailed discussion, see Chapter 2, PRC Theft of U.S. Thermonuclear Warhead Design Information.

The Select Committee also received evidence of PRC theft of technology data from U.S. industry during the 1990s valued at millions of dollars. The PRC used Chinese nationals hired by U.S. firms for that purpose. The Clinton administration has determined that no details of this evidence may be made public without affecting national security.

In 1993, PRC national Yen Men Kao, a North Carolina restaurant owner, was arrested by the FBI and charged with conspiring to steal and export classified and export-controlled high-technology items to the PRC.<sup>84</sup> Among the items about which Kao and several other PRC nationals were seeking information were:

- **The U.S. Navy's Mark 48 Advanced Capability Torpedo**
- **The F-404 jet engine used on the U.S. F-18 Hornet fighter**
- **The fire-control radar for the U.S. F-16 fighter<sup>85</sup>**

The case of Kao and his co-conspirators is one of several involving PRC commercial entities attempting to illegally acquire U.S. technology.

The PRC also relies heavily on the use of professional scientific visits, delegations, and exchanges to gather sensitive technology.

As the PRC Government has increasingly participated in the world commercial and capital markets, the number of PRC representatives entering the United States has increased dramatically. One estimate is that in 1996 alone, more than 80,000 PRC nationals visited the United States as part of 23,000 delegations.

Almost every PRC citizen allowed to go to the United States as part of these delegations likely receives some type of collection requirement, according to official sources.

Scientific delegations from the PRC are a typical method used by the PRC to begin the process of finding U.S. joint venture partners. These delegations have been known to go through the motions of establishing a joint venture to garner as much information as possible from the U.S. partner, only to pull out at the last minute.

Scientific visits and exchanges by PRC scientists and engineers and their U.S. counterparts create several risks to U.S. national security. This has been a particular concern in recent years regarding foreign visitors to the Department of Energy's national weapons laboratories.<sup>86</sup>

The first of these risks is that visitors to U.S. scientific and technology sites may exploit their initial, authorized access to information to gain access to protected information.<sup>87</sup> The Select Committee has reviewed evidence of PRC scientists who have circumvented U.S. restrictions on their access to sensitive manufacturing facilities.

Another risk is that U.S. scientists may inadvertently reveal sensitive information during professional discussions.

**T**he PRC subjects visiting scientists to a variety of techniques designed to elicit information from them. One technique may involve inviting scientists to make a presentation in an academic setting, where repeated and increasingly sensitive questions are asked.<sup>88</sup> Another is to provide the visitor with sightseeing opportunities while PRC intelligence agents burglarize the visitor's hotel room for information. Still another technique involves subjecting the visitor to a grueling itinerary and providing copious alcoholic beverages so as to wear the visitor down and lower resistance to questions.<sup>89</sup>

In one instance, a U.S. scientist traveled to the PRC where very specific technical questions were asked. The scientist, hesitant to answer one question directly because it called for the revelation of sensitive information, instead provided a metaphorical example. The scientist immediately realized that the PRC scientists grasped what was behind the example, and knew that too much had been said.

Another common PRC tactic is to tell U.S. visitors about the PRC's plan for further research, the hope being that the U.S. scientist will release information in commenting on the PRC's plans.

The Select Committee has reviewed evidence of this technique being applied to acquire information to assist the PRC in creating its next generation of nuclear weapons.

Another risk inherent in scientific exchanges is that U.S. scientists who are overseas in the PRC are prime targets for approaches by professional and non-professional PRC organizations that would like to co-opt them into providing assistance to the PRC. In many cases, they are able to identify scientists whose views might support the PRC, and whose knowledge would be of value to PRC programs.

The Select Committee has received information about Chinese-American scientists from U.S. nuclear weapons design laboratories being identified in this manner.

Typically, the PRC will invite such a scientist to lecture and, once in the PRC, question him closely about his work. Once the scientist has returned to the U.S., answers to follow-up questions may be delivered through a visiting intermediary. Such efforts to co-opt scientists may be conducted by PRC ministries, and may involve COSTIND.



PRC nationals stole a videocassette on the U.S. Theater High Altitude Air Defense system from a display at a recent international arms exhibit that was left unattended by a Defense Department contractor. A frame-by-frame analysis of this video footage could yield valuable intelligence information.

The number of PRC nationals attending educational institutions in the United States presents another opportunity for the PRC to collect sensitive technology.<sup>90</sup> It is estimated that at any given time there are over 100,000 PRC nationals who are either attending U.S. universities or have remained in the United States after graduating from a U.S. university. These PRC nationals provide a ready target for PRC intelligence officers and PRC Government-controlled organizations, both while they are in the United States and when they return to the PRC.<sup>91</sup>

The Select Committee judges that the PRC is increasingly looking to PRC scholars who remain in the United States as assets who have developed a network of personal contacts that can be helpful to the PRC's search for science and technology information.

The PRC has also acquired technological information through open forums such as arms exhibits and computer shows. During a recent international arms exhibit, for example, PRC nationals were observed collecting all possible forms of technical information. This included videotaping every static display and designating individuals to take notes. The group also stole a videocassette from a display that was continuously playing information on the U.S. Theater High Altitude Air Defense system, when the Defense Department contractor left it unattended. Converting the stolen cassette to a frame-by-frame sequence could yield valuable intelligence information to the PRC.<sup>92</sup>

### **Illegal Export of Military Technology Purchased in the United States**

The PRC is also taking advantage of the ongoing U.S. military downsizing. In particular, PRC

representatives and companies in the United States pursue the purchase of high-technology U.S. military surplus goods.

In a single 1996-1997 operation, the Los Angeles office of the U.S. Customs Service seized over \$36 million in excess military property that was being shipped overseas illegally. Among the seized U.S. military surplus equipment on its way to the PRC and Hong Kong were:

- **37 inertial navigation systems for the U.S. F-117 and FB-111 aircraft**
- **Thousands of computers and computer disks containing classified Top Secret and higher information**
- **Patriot missile parts**
- **500 electron tubes used in the U.S. F-14 fighter**
- **Tank and howitzer parts**
- **26,000 encryption devices<sup>93</sup>**



Patriot missile parts were among more than \$36 million in U.S. military property seized by the Customs Service during one 16-month period in 1996-97. The surplus equipment was in the process of being illegally shipped to the PRC and Hong Kong.

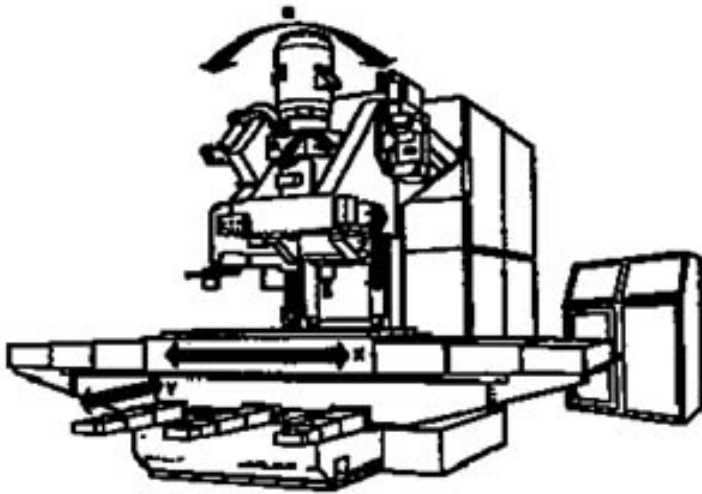
PRC representatives have been the biggest buyers of sensitive electronic surplus material. Defense Department investigators have noted a trend among the PRC buyers of this equipment: many had worked for high-technology companies in the PRC or for PRC Government science and technology organizations.<sup>94</sup>

The PRC has been able to purchase these goods because, in its rush to dispose of excess property, the Defense Department failed to code properly or to disable large amounts of advanced military equipment, allowing PRC buyers to pay for and take immediate possession of functional high-technology equipment. Often this equipment was purchased as "scrap," for which the buyers paid pennies on the dollar.<sup>95</sup>

According to the U.S. Customs Service, many PRC companies that bid on military surplus technology intentionally used "American-sounding" names to mask their PRC affiliation.<sup>96</sup>

The PRC also has been able to exploit U.S. military downsizing by purchasing advanced technology, in the form of machine tools and production equipment from decommissioned U.S. defense factories, through industrial auctions.

For example, a multi-axis machine tool profiler, designed to build wing spans for the U.S. F-14 fighter, originally cost over \$3 million but was purchased by the PRC for under \$25,000.<sup>97</sup>



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According to one industrial auctioneer, the PRC frequents industrial auctions because they offer accurate, well-maintained equipment at bargain prices and with quick delivery.<sup>98</sup> Moreover, once the PRC obtains this equipment, there are ample resources available in the United States to upgrade the equipment to modern standards.

A California company specializing in refurbishing machine tools, for example, was approached in recent years by representatives of CATIC's El Monte, California office. The CATIC representatives reportedly inquired about the scope of the company's refurbishment capability, including whether it could train CATIC people to rebuild and maintain the machines and whether the company would be willing to assemble the machines in the PRC. The CATIC personnel also reportedly asked if the company could convert a three-axis machine tool to a five-axis machine tool. They were told this was possible for some machines, and very often only requires replacing one computer controller with another.<sup>99</sup>

The U.S. company noted, however, that such a converted machine would require an export license. In response, the CATIC personnel reportedly said, rather emphatically, that they would have "no problem" with the export. The CATIC inquiries came at about the same time CATIC was negotiating the purchase of machine tools from the McDonnell Douglas Columbus, Ohio plant.<sup>100</sup>

CATIC's discussions with this particular U.S. company did not result in either the training of CATIC personnel or the conversion of any machine tools. It is unknown, however, what other U.S. companies were approached with similar inquiries or whether any such inquiries resulted in technological assistance to CATIC or the PRC.

The Select Committee reviewed evidence from the mid-1990s of a PRC company that obtained U.S. defense manufacturing technology for jet aircraft, knowingly failed to obtain a required export license, and misrepresented the contents of its shipping containers in order to get the technology out of the country. The Clinton administration has determined that further information on this case cannot be made public without affecting national security.

### **PRC Purchase of Interests in U.S. Companies**

A more recent method used by the PRC to obtain advanced technology from the United States is through the purchase of an interest in U.S. high-technology companies or U.S. export facilities. While this method does not yet appear to be prevalent, it has been identified in at least three instances.

**I**n 1990, CATIC acquired an interest in MAMCO Manufacturing, a Seattle, Washington, aircraft parts

manufacturer. In a highly-publicized decision that year, President George Bush exercised his authority under section 721 of the Defense Production Act of 1950 (also known as the Exon-Florio provision) to order CATIC to divest itself of the MAMCO interest based on the recommendations of the Committee on Foreign Investment in the United States (CFIUS), an inter-agency committee chaired by the Secretary of Treasury and tasked to conduct reviews of foreign acquisitions that might threaten national security.<sup>101</sup>

CFIUS concluded that:

- **Some technology used by MAMCO, although not state-of-the-art, was export-controlled**
- **CATIC had close ties to the PLA through the PRC Ministry of Aviation (now known as Aviation Industries Corporation, or AVIC)**
- **The acquisition would give CATIC unique access to U.S. aerospace companies**

It is likely that the PRC's strategy in acquiring MAMCO was to give CATIC a venue from which to solicit business with U.S. aerospace firms, both to yield revenue and to gain access to aerospace technologies, inasmuch as CATIC has conspired to illegally acquire U.S. sensitive technology in the past. In addition, according to public reports, CATIC has been used for PRC arms sales to countries such as Iran.

The PRC's efforts to acquire MAMCO did not end with President Bush's divestiture order. CATIC requested CFIUS approval to satisfy the concerns expressed in President Bush's divestiture order by selling its MAMCO interest to the China International Trust & Investment Corporation (CITIC).

CFIUS noted that CITIC reported directly to the highest level of the PRC Government, the PRC State Council, and that CITIC did not have any colorable business rationale for wanting to acquire MAMCO. When CFIUS began questioning CITIC's business purposes and its ties to the State Council, CATIC withdrew its request.

CATIC then filed another request, this time proposing that it meet President Bush's divestiture order by selling its MAMCO interest to Huan-Yu Enterprises, a PRC company that was owned by a PRC provincial government and reported to the PRC Ministry of Electronics Industry (now known as the Ministry of Information Industry), which in turn reported directly to the PRC State Council.

A CFIUS investigation concluded that Huan-Yu was a consumer, not a producer, of aerospace parts and had no legitimate reason to acquire MAMCO. The proposed divestiture looked to CFIUS like a "sham acquisition." Faced with intense CFIUS interest, CATIC again withdrew its filing.

In 1996, Sunbase Asia, Incorporated purchased Southwest Products Corporation, a California producer of ball bearings for U.S. military aircraft. Sunbase is incorporated in the United States, but is owned by an investment group comprised of some of the PRC's largest state-owned conglomerates as well as a Hong Kong company. According to a Southwest executive, the purchase will "take [Sunbase] to the next level" of technology.<sup>102</sup> The Clinton administration has determined that additional information on this transaction cannot be made public without affecting national security.

**China Ocean Shipping Company (COSCO), the PRC's state-owned shipping company** which operates under the direction of the Ministry of Foreign Trade and Economic Cooperation and answers to the PRC State Council,<sup>103</sup> attempted to lease port space that was being vacated by the U.S. Navy in Long Beach,

California. The lease proposal led to a heated debate between Congress, which wanted to prevent the lease based on national security concerns, and President Clinton, who supported the lease. Legislation passed by both houses of Congress in 1997 barred the lease and voided the President's authority to grant a waiver.<sup>104</sup>

Other information indicates COSCO is far from benign. In 1996, U.S. Customs agents confiscated over 2,000 assault rifles that were being smuggled into the United States aboard COSCO ships.<sup>105</sup> "Although presented as a commercial entity," according to the House Task Force on Terrorism and Unconventional Warfare, "COSCO is actually an arm of the Chinese military establishment." The Clinton administration has determined that additional information concerning COSCO that appears in the Select Committee's classified Final Report cannot be made public without affecting national security.

## **Methods Used by the PRC to Export Military Technology from the United States**

Once the PRC acquires advanced technology in the United States, it requires secure means to export the information or hardware out of the country. Weaknesses in U.S. customs can be exploited to smuggle classified or restricted U.S. technology.

Diplomatic pouches and traveling PRC diplomats offer another avenue for illegal technology exports. Almost every PRC Government commercial and diplomatic institution in the United States has personnel who facilitate science and technology acquisitions.

The Select Committee believes that these means of communicating with the PRC could have been exploited to smuggle nuclear weapons secrets from the United States.

These are some of the further means that have been used to illegally ship sensitive technology to the PRC:

- **In 1993, Bin Wu, a PRC national, was convicted of transferring night-vision technology to the PRC.** Wu used the U.S. postal system to get technology back to the PRC. He mailed the technology he collected directly to the PRC, mostly through an intermediary in Hong Kong.<sup>106</sup>
- **The PRC uses false exportation documentation and has falsified end-user certificates.** In one case reviewed by the Select Committee, the Department of Commerce reported that a U.S. subsidiary of a PRC company used a common illegal export tactic when it falsely identified the machine tools it was exporting. The U.S. Customs Service also indicates that the PRC's use of false bills of sale and false end-use statements are common illegal export tactics.
- **The PRC has used at least one commercial air carrier to assist in its technology transfer efforts.** In 1996, Hong Kong Customs officials intercepted air-to-air missile parts being shipped by CATIC aboard a commercial air carrier, Dragonair. Dragonair is owned by China International Trade and Investment Company (CITIC), the most powerful and visible PRC-controlled conglomerate, and the Civil Aviation Administration of China (CAAC).<sup>107</sup>
- **A common PRC method for transferring U.S. technology to the PRC uses Hong Kong as the shipment point.** This method takes advantage of the fact that U.S. export controls on Hong Kong are significantly less restrictive than those applied to the rest of the PRC, allowing Hong Kong far easier access to militarily-sensitive technology.



**The more relaxed controls on the export of militarily-sensitive technology to Hong Kong have been allowed to remain in place even though Hong Kong** was absorbed by the PRC and PLA garrisons took control of the region on July 1, 1997. U.S. trade officials report that no inspections by the Hong Kong regional government nor by any other government, including the United States, are permitted when PLA vehicles cross the Hong Kong border.

Various U.S. Government analyses have raised concerns about the risk of the diversion of sensitive U.S. technologies not only to the PRC, but to third countries as well through Hong Kong because of the PRC's known use of Hong Kong to obtain sensitive technology.<sup>108</sup> Some controlled dual-use technologies can be exported from the United States to Hong Kong license-free, even though they have military applications that the PRC would find attractive for its military modernization efforts.

The Select Committee has seen indications that a sizeable number of Hong Kong enterprises serve as cover for PRC intelligence services, including the MSS. Therefore, it is likely that over time, these could provide the PRC with a much greater capability to target U.S. interests in Hong Kong.

U.S. Customs officials also concur that transshipment through Hong Kong is a common PRC tactic for the illegal transfer of technology.<sup>109</sup>

### **PRC Incentives for U.S. Companies to Advocate Relaxation of Export Controls**

U.S. companies in the high-technology sector are eager to access the PRC market. The PRC often requires these U.S. firms to transfer technologies to the PRC as a precondition to market access. U.S. export regulations can be seen as an impediment to commercial opportunities.<sup>110</sup>

Executives wishing to do business in the PRC share a mutual commercial interest with the PRC in minimizing export controls on dual-use and military-related commodities. The PRC has displayed a willingness to exploit this mutuality of interest in several notoriously public cases by inducing VIPs from large U.S. companies to lobby on behalf of initiatives, such as export liberalization, on which they are aligned with the PRC.

**The PRC is determined to reduce restrictions on the export of U.S. communications satellites for launch in the PRC.** From the perspective of the PRC, provision of such launch services creates a unique opportunity to consult with U.S. satellite manufacturers, access information regarding U.S. satellite technology, and obtain resources to modernize their rockets.<sup>111</sup> U.S. satellite manufacturers are, in turn, anxious to access the potentially lucrative PRC market, and realize that launching in the PRC is a potential condition to market access.<sup>112</sup>

By agreeing to procure numerous satellites from Hughes Electronics Co. (Hughes) and Space Systems/Loral (Loral) in the early 1990s, the PRC created a mutuality of interest with two companies well-positioned to advocate the liberalization of export controls on these platforms.

For example, Bernard L. Schwartz, Chairman and CEO of Loral Space & Communications, Ltd., the parent company of Loral, met directly on at least four occasions with Secretary of Commerce Ron Brown after 1993, and accompanied him on a 1994 trade mission to the PRC.<sup>113</sup>



Bernard Schwartz, Chairman of Loral Space & Communications, Ltd., and his fellow officers claim to have been distracted by other business matters in 1996 while Loral was illegally transferring export-controlled technology applicable to the PRC's rocket and missile programs. Even while under criminal investigation for these transfers, Loral obtained Presidential waivers for another launch in the PRC.

C. Michael Armstrong, the former Chairman and Chief Executive Officer of GM Hughes Electronics, the parent company of Hughes, has served as Chairman of President Clinton's Export Council since 1993, working with the Secretary of State, the Secretary of Commerce, and others to "provide insight and counsel" to the President on a variety of trade matters.<sup>114</sup> Armstrong also serves or has served as a member of the Defense Preparedness Advisory Council, the Telecommunications Advisory Council, and the Secretary of State's Advisory Council.<sup>115</sup>

Both Armstrong and Schwartz, as well as other executives from high-technology firms, advocated the transfer of export licensing authority from the "more stringent control" of the State Department to the Commerce Department. Armstrong met with the Secretary of Defense, the National Security Advisor, and the Secretary of State on the matter, and both Schwartz and Armstrong co-signed a letter with Daniel Tellep of Lockheed-Martin Corporation to the President urging this change.<sup>116</sup> The changes they advocated were ultimately adopted.

Between 1993 and January 3, 1999, Loral and Hughes succeeded in obtaining waivers or export licenses for an aggregate of five satellite projects.<sup>117</sup>

**A**nother example of the incentive to advocate the relaxation of export controls involves the Charoen Pokphand Group (CP Group), Thailand's largest multinational company and one of the largest investors in the PRC. CP Group executives have served as economic advisors to the PRC Government and were chosen to sit on the committees dealing with the absorption of Hong Kong.<sup>118</sup>

The CP Group was a founding member of Asia Pacific Telecommunications Satellite Holdings, Ltd. (APT), a consortium run by PRC-controlled investment companies, including China Aerospace Corporation. APT imports satellites manufactured by Hughes and Loral as part of the Apstar program for launch in the PRC by China Great Wall Industry Corporation.<sup>119</sup>

On June 18, 1996, several CP Group executives attended a coffee with President Clinton at the White House. These executives included Dhanin Chearavanont (CP Chairman and Chief Executive Officer), Sumet Chearavanont (Vice Chairman and President), and Sarasin Virapol (employee and translator). The CP executives were invited to the coffee by their Washington, D.C., lobbyist, Pauline Kanchanalak.<sup>120</sup>

According to one participant, Karl Jackson of the U.S.-Thailand Business Council, the CP executives

"dominated the conversation at the coffee." The discussion included U.S.-PRC relations, Most-Favored-Nation trade status for the PRC, and U.S. technology. Jackson's characterization of the role that CP executives played at the event is corroborated by other participants.<sup>121</sup>

## **The PRC's Efforts to Assimilate Advanced U.S. Military Technology**

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The PRC's approach to U.S. technology firms proceeds from the premise that foreign firms should be allowed access to the PRC market only because such access will enable the PRC to assimilate technology, and eventually to compete with or even overtake U.S. technology. The PRC thus views foreign firms as a short-term means to acquire technology.

In theory, as the PRC is increasingly able to develop its own technology, it will need less and less foreign help. In practice, however, the PRC faces numerous challenges in integrating foreign technology into both its civilian and military industrial bases.

Among the areas in which the PRC is particularly dependent upon U.S. technology are computer hardware and microelectronics, telecommunications, commercial aircraft, and machine tools. The PRC, therefore, will most likely continue to rely heavily on joint ventures with foreign firms to provide advanced technology in these areas.

There are several reasons that the PRC has absorbed and assimilated only some, and not other, U.S. military and civilian technologies:

- **The PRC's funding of technology development, especially in applied sciences, conflicts with other priorities**, including supporting PRC state-owned enterprises as they restructure.
- **While the PRC has targeted very sophisticated U.S. military technology, including aerospace and electronics technology, it has not achieved the levels of training and maintenance** necessary to absorb it. But the emphasis on acquiring the most sophisticated technologies continues, even as some senior PRC officials call for a greater focus on "building block" technologies.
- **The PRC has a reputation for violating intellectual property rights**, making some foreign investors hesitant to transfer their most advanced technology.
- **There is a tendency of CCP and PLA officials to look toward their personal gain** and aggrandizement first, and only second to use State assets for the benefit of the PRC.

**T**he PRC has benefitted from advanced U.S. and Western military technology in several areas, including ground force weapons, communications, remote sensing, and tactical and strategic systems. A 1995 study by the Office of Technology Assessment found that the PRC's joint ventures with the United States in commercial aircraft production appear to have enabled the PLA to machine smoother skins on its fighter aircraft.<sup>122</sup> Other PRC military products, such as air-to-air and surface-to-air missiles, submarines, and short-range ballistic missiles, also appear to have benefitted from foreign technical help.<sup>123</sup>

The PRC has also succeeded in reverse-engineering military hardware acquired from the United States and other countries, thereby defraying the high cost of weapons development. For example:

- **During the 1980s and 1990s, the PRC is presumed to have diverted U.S. military technology through civilian programs.** In 1983, the PRC is presumed to have exploited the CFM-56 jet engine technology from a civilian program. The CFM-56 contains the same core section as the engine used in the B-1B bomber.
- **The PRC developed its Z-11 helicopter** by reverse-engineering the French Aerospatiale AS-350 Ecureuil helicopter.<sup>124</sup>
- **The PRC's C-801 anti-ship cruise missile** is believed to be a copy of the French Exocet anti-ship cruise missile.<sup>125</sup>

PRC scientists have been pressured to reverse-engineer U.S. high technology rather than purchase it, even though this means that it may be difficult to maintain because of the lack of service, training, and documentation.

For example, the PRC was able to reverse-engineer a high-performance computer and produce a copy for far less than the U.S. equipment would have cost. By the time they achieved this success, however, a commercially-available desktop computer with the same power could have been purchased for a small fraction of their costs in time, money, and effort. The PRC seems willing to pay this cost in order to avoid long-term dependence on U.S. technology.

The Select Committee judges that at least some of the PRC's statements about its technical progress are distorted so as to increase the PRC's ability to gain access to foreign technology. By claiming substantial indigenous progress in areas ranging from supercomputers to stealth technology, the PRC can allay foreign fears that providing it with advanced technology will improve the PRC's capabilities. This tactic was used, the Select Committee believes, to overcome U.S. and Western objections to transfers of high performance computers to the PRC.

The Select Committee's classified report includes further material details and examples of PRC acquisition of advanced U.S. military technology, which the Clinton administration has determined cannot be made public without affecting national security.

## **U.S. Government Monitoring Of PRC Technology Acquisition Efforts In the United States**

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Because of the historical counterintelligence focus on the Soviet Union throughout the decades of the Cold War, the U.S. Government has never made the PRC's technology acquisition activities in the United States a priority. Moreover, because of the breadth of the PRC's decentralized collection efforts, the U.S. Government cannot completely monitor PRC activities in the United States.

Neither the Department of Commerce, the Department of the Treasury, the Federal Bureau of Investigation, the Central Intelligence Agency, nor, apparently, the Department of

Defense126 has in place a program, system, or effort specifically tasked with the ongoing collection of information concerning the following:

- **Efforts by the PRC, or by commercial entities owned or controlled by the PRC, to merge with, acquire a controlling interest in, or form a commercial partnership or joint venture with, commercial entities in the United States**
- **Efforts by the PRC, or by commercial entities owned or controlled by the PRC, to establish commercial entities in the United States**
- **Efforts by the PRC, by commercial entities owned or controlled by the PRC, or by agents thereof, directly or indirectly, to identify, locate, or acquire advanced technologies from U.S. sources**
- **Commercial connections or interactions between U.S. companies and commercial entities owned or controlled by the PRC, specifically including connection or interaction involving advanced technologies**
- **Commercial affiliations (for example, as officer, director, employee) between PRC nationals and either U.S. or foreign owned or controlled commercial entities**

Each of the U.S. Government's departments and agencies with responsibilities in this area has reported to the Select Committee that it is monitoring some aspects of PRC commercial activity in the United States, but that such monitoring is usually narrow in focus or reactive in nature. There is little or no initiative taken; rather, attention is paid to PRC commercial activity only when an allegation, problem, or issue arises that demands attention.

Because the CIA is not authorized to conduct broad collection activities within the United States, it defers to the FBI on the matter of PRC interaction with U.S. companies domestically. But there is little or no coordination within the U.S. Government of counterintelligence that is conducted against the PRC-directed efforts to acquire sensitive U.S. technology.

**T**he Department of Commerce has contracted with private entities to produce an assessment of the PRC's technology acquisition efforts. In addition, three Commerce Department bureaus have duties that relate to PRC commercial activities in the United States. Specific activities in this regard include: 127

- **Commerce contracted with DFI International to do research and write a report on the issue of technology transfers to the PRC through commercial joint ventures.**
- **Commerce also contracted with DFI International to establish a database of information on technology transfers from U.S. and foreign firms in the aerospace and telecommunications industries.** This project will produce periodic reports summarizing trends and analyzing implications of technology transfer on national security and international trade policy.
- **The Bureau of Economic Analysis collects and publishes significant data for statistical purposes regarding foreign direct investment in the United States.** More specifically, BEA collects data needed to prepare the U.S. balance of payments and international investment position, financial and operating data regarding foreign-owned U.S. companies, and data on U.S. businesses that have been newly-acquired or established by

foreign investors. BEA does not have any direct information on the acquisition of advanced technologies by the PRC.

- **The Bureau of Export Administration controls the licensing of exports of dual-use goods and technologies pursuant to the Export Administration Act and the Export Administration Regulations.** The Bureau develops export control policies, issues export licenses, and prosecutes violators. The Bureau's controls include the regulation of the export of specified goods and technology to the PRC, including the transfer of controlled technology to PRC nationals in the United States.
- **The Bureau of Export Administration, along with the Customs Service, is also responsible for investigating possible violations of the Export Administration Act and the Export Administration Regulations, including possible improper transfers of technology to PRC nationals in the United States.** While the Bureau may obtain information during an investigation concerning commercial activities of PRC nationals, that information is not the focus of the investigation and is not collected in a manner that permits aggregation of data.<sup>128</sup>

**T**he Treasury Department has an indirect role in monitoring PRC commercial activities in the United States. Through the Customs Service, Treasury investigates violations of U.S. export laws. These investigations are not part of a PRC-specific monitoring process, but are carried out based on specific facts indicating a violation of U.S. laws.<sup>129</sup>

In addition, any commercial entity, whether from the PRC or any other country, that wants to acquire control of a savings-and-loan or a national bank must file an application with Treasury's Office of Thrift Supervision or the Office of the Comptroller of the Currency.<sup>130</sup>

Treasury also chairs the Committee on Foreign Investment in the United States (CFIUS), an inter-agency committee to which the President has delegated the authority to review and investigate foreign investment transactions and conduct investigations pursuant to the Exon-Florio provision of the Omnibus Trade and Competitiveness Act of 1988. CFIUS membership includes the Secretaries of the Treasury, Commerce, Defense, and State, as well as the Attorney General, the United States Trade Representative, the Chairman of the Council of Economic Advisors, the Director of the Office of Management and Budget, the Director of the Office of Science and Technology Policy, the Assistant to the President for National Security Affairs, and the Assistant to the President for Economic Policy. Other agencies are asked to participate when a transaction falls within their areas of expertise.<sup>131</sup>

Notification to CFIUS of a proposed transaction is voluntary. The statute does not provide for the targeting of specific countries. If the transaction involves a foreign entity that is controlled by or is acting on behalf of a foreign government and the transaction could affect national security, a formal 45-day investigation is required. At the conclusion of an investigation, CFIUS submits a report and recommendations to the President.

**T**he Securities and Exchange Commission collects little information helpful in monitoring PRC commercial activities in the United States. This lack of information is due only in part to the fact that many PRC front companies are privately-held and ultimately - if indirectly - wholly-owned by the PRC and the CCP itself. Increasingly, the PRC is using U.S. capital markets both as a source of central government funding for military and commercial development and as a means of cloaking U.S. technology acquisition efforts by its front companies with a patina of regularity and respectability.<sup>132</sup>

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## **Chapter 1 Notes**

- 1** In practice, it is just as accurate to say the PRC Government is made up of just two bureaucracies (since the PLA is actually the "fist" of the CCP), or even one bureaucracy (since both the PLA and the State are subservient to the CCP). The distinctions between are them largely artificial. For general information on this topic. See CRS Report, "Chinese Government Structure and Function, Policies on Military and Industrial Modernization, and Technology Acquisition," November 10, 1998; Kenneth Lieberthal, *Governing China*, W. W. Norton & Company, Inc., 1995.
- 2** The Politburo currently has 22 members and two alternates.
- 3** See Constitution of the People's Republic of China, Articles 2, 3.
- 4** Lieberthal, *Governing China*, refers to this technique as "interlocking directorates."
- 5** PRC Constitution, Article 29.
- 6** Jiefangjun Bao, Beijing, July 30, 1997, as cited in the BBC Summary of World Broadcasts, August 8, 1997.
- 7** Leading Groups are a key mechanism for policy coordination and decision-making in the PRC. They are comprised of senior Communist Party, State, and PLA officials with relevant expertise and authority for specified areas. See generally, CRS Chinese Government Structure.
- 8** The State Science and Technology Commission was recently dissolved and replaced by the newly-formed Ministry of Science and Technology.
- 9** Deba R. Mohanty, "Hidden Players in Policy Processes: Examining China's National Security Research Bureaucracy," Institute for Defense Studies and Analysis, July 1998.
- 10** For the official report on this program, see "Decade-Long Hi-Tech Program Bears Fruit," Xinhua News Agency, September 27, 1996.
- 11** Su Kuoshan, "Road of Hope-Reviewing the Accomplishment of the '863' Project on the 10th Anniversary of its Implementation," Jiefangjun Bao, April 5, 1996, reproduced in Foreign Broadcast Information Service, Daily Report, May 8, 1996, FBIS-CHI-96-089.
- 12** Major Mark Stokes, "China's Strategic Modernization: Implications for U.S. National Security," USAF Institute for National Security Studies, July, 1998.
- 13** Cui Ning, "Hi-Tech Projects Highlight Five Areas," China Daily, April 3, 1996; in FBIS. See also Ding Henngao, COSTIND Director, speech delivered on March 28, 1996, "Review of the 863 Plan over the Past Ten Years"; Stokes.
- 14** John Frankenstein and Bates Gill, "Current and Future Challenges Facing Chinese Defense Industries," China Quarterly, June 1996.
- 15** See Frankenstein and Gill, *ibid*; "Future Military Capabilities and Strategy of the People's Republic of China," Department of Defense Report to Congress, 1998 Report; Letter from RADM Mike Ratliff, USN to JCS (J2), 9 November 1998, transmitted to the Select Committee November, 24, 1998.
- 16** Frankenstein and Gill.
- 17** Testimony of Dr. Michael Pillsbury before the Senate Select Committee on Intelligence, September 18, 1997.
- 18** BBC Summary of World Broadcasts, Far East, 11 November 1992.
- 19** For open source discussion, see Richard Fisher, "Foreign Arms Acquisition and PLA Modernization," Heritage Foundation, June 1, 1998.
- 20** *Ibid*.
- 21** James Mulvenon, "Chinese Military Commerce and U.S. National Security," RAND, July, 1997; Greg Mastel, "A China the World Could Bank On," Washington Post, December 29, 1997.
- 22** Wei Ke, "Army Re-Tools Commercial Production," China Daily August 17-23, 1997; in FBIS.
- 23** John Frankenstein and Bates Gill, "Current and Future Challenges Facing Chinese Defense Industries," China Quarterly, June 1996. See also Zalmay Khalizad, Abram Shulsky, Daniel Byman, Roger Cliff, David Orletsky, David Shlapak, Michael Swaine, and Ashley Tellis, "Chinese Military Modernization and Its Implications for the U.S. Air Force (draft)," RAND, October, 1998.
- 24** See Frankenstein and Gill.

- 25** The National People's Congress is a putative legislature, and officially China's supreme body of State power. It officially elects the State Council. Recent evidence suggests the National People's Congress has an increasing role in policy deliberation. Kenneth Lieberthal, *Governing China*, W.W. Norton & Company, Inc., 1995.
- 26** Li Peng, "Report on the Outline of the Ninth Five-Year Plan for National Economic and Social Development and Long-Range Objectives to the Year 2010," delivered to the Fourth Session of the Eighth National People's Congress on March 5, 1996.
- 27** BBS Summary of World Broadcasts, April 7, 1997.
- 28** "China's National Defense," Information Office, PRC State Council, July 27, 1998.
- 29** Testimony of Nicholas Eftimiades, October 15, 1998.
- 30** Interview of James Lilley, November 17, 1998.
- 31** These individuals often jump many bureaucratic levels to take their positions. Tai Ming Cheung, See, e. g., "China's Princelings," *Kim Eng Securities*, January 1995; Murray Scot Tanner and Michael Feder, "Family Politics, Elite Recruitment, and Succession in Post-Mao China," *Australian Journal of Chinese Affairs*, July 1993.
- 32** Interview of James Mulvenon, October 16, 1998.
- 33** See Murray Scot Tanner and Michael Feder, "Family Politics, Elite Recruitment, and Succession in Post-Mao China," *Australian Journal of Chinese Affairs*, July 1993. Frankenstein and Gill.
- 34** James Mulvenon, "Chinese Military Commerce and U.S. National Security," RAND, July 1997; David Jackson, "U.S. Probes Whether Beijing Gave Money to Influence Policy," *Chicago Tribune*, February 14, 1997.
- 35** Ibid.
- 36** Tracy Connor, "New Asiagate Figure Has Military History," *New York Post*, November 7, 1998.
- 37** Interim Report of the House Government Reform and Oversight Committee ("HGROC Report") Chapter IV C.
- 38** Deposition of Shen Jun before the Select Committee (Dec. 8, 1998); Japanese Firms Buy Into Satellite Telephone Co., *Information Access Newsbytes* (July 9, 1996).
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**56** "The National Security Science and Technology Strategy," U.S. Office of Science and Technology Policy, 1996.

**57** Kathleen Walsh, "U.S. Technology Transfers to the People's Republic of China," DFI International, December, 1997.

**58** Paul Blustein, "China Plays Rough: Invest and Transfer Technology, or No Market Access," Washington Post, October 25, 1997.

**59** Kathleen Walsh, December, 1997.

**60** Walsh, December, 1997, (stating the United States is "somewhere in the middle" among countries in its willingness to transfer technology).

**61** Testimony of Nicholas Eftimiades, October 15, 1998.

**62** See "Challenges and Opportunities for U.S. Businesses in China," testimony of JayEtta Hecker, GAO, before the Committee on Banking and Financial Services, U.S. House of Representatives, July 29, 1996.

**63** Interview of John Foarde, September 23, 1998.

**64** See, e.g., Walsh, December, 1997; Letter to the Select Committee from Sandra Taylor, Vice-President, Eastman Kodak Company, November 18, 1998.

**65** Walsh, December 1997. See also Joseph Kahn, "McDonnell's Hopes in China Never Got Off the Ground," The Wall Street Journal, May 22, 1996 (quoting McDonnell's President as saying it should do "whatever it takes" to "carve out a place" in China).

**66** Walsh Testimony and Letter to the Select Committee from Sandra Taylor, Vice-President, Eastman Kodak Company, November 18, 1998.

**67** Letter to the Select Committee from Sandra Taylor, Vice-President, Eastman Kodak Company, November 18, 1998.

**68** See John Frankenstein, "China's Defense Industries: A New Course?" The Chinese concept of a "spin-on" is in marked contrast to the "spin-off" approach of the U.S. at the end of the Cold War, where the goal was to convert military technology to commercial uses.

**69** "News Digest," Helicopter News, March 28, 1997. "The Z-11 is a reverse-engineered copy of Eurocopter's single-engined Ecureuil."

**70** This Ministry is now known as the Ministry of Information Industry.

**71** "Sale of Telecommunications Equipment to China," Karen Zuckerstein, David Trimble, and John Neumann, General Accounting Office, November 1996.

**72** Testimony of James Mulvenon, October 15, 1998.

**73** See the Manufacturing processes chapter for examples of CATIC's involvement in this process.

**74** Interview of Tom Nangle, October 8, 1998.

**75** Almost all Chinese military production lines are co-located with civil/commercial production lines.

**76** "Commercial Activities of China's People's Liberation Army (PLA)," Hearing Before the Committee on Foreign Relations, United States Senate, November 6, 1997.

**77** Testimony of James Mulvenon, October 15, 1998.

**78** Ibid.

**79** Interview of Bin Wu, October 20, 1998. See also John Fialka, "War by Other Means," W.W. Norton and Co., New York (1997).

**80** Ibid.

**81** Ibid.

**82** "Aegis Combat System," United States Navy Fact File.

**83** See Chapter 2, "PRC Theft of U.S. Thermonuclear Weapons Design Information," for a more detailed

discussion of the Peter Lee and other espionage cases.

**84** Ronald Ostrow, "FBI Arrests Chinese National in Spy Ring Investigation," Los Angeles Times, December 5, 1993; Bill Gertz, "Spy Sting Gets Chinese Man Deported," The Washington Times, December 22, 1993.

**85** Ibid.

**86** "DOE Needs to Improve Controls Over Foreign Visitors to Weapons Laboratories," Gary L. Jones et. al., General Accounting Office, September 1997.

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**88** "Chinese Spies Just as Active as Soviets Ever Were, FBI Says," Ruth Sinai, Associated Press, March 9, 1992. Statements in article are attributed to Patrick Watson, the FBI's Deputy Assistant Director for Intelligence.

**89** Testimony of Nicholas Eftimiades, October 15, 1998.

**90** "Chinese Intelligence Operations," Nicholas Eftimiades, Naval Institute Press, 1994.

**91** Ibid.

**92** "Chinese spy openly at weapons fair," Kenneth R. Timmerman, The Washington Times, March 24, 1997.

**93** "Department of Defense Disposition of Government Surplus Items," hearing before the Senate Judiciary Subcommittee on Administrative Oversight and the Courts, July 8, 1997; "Defense Inventory: Action Needed to Avoid Inappropriate Sales of Surplus Parts," General Accounting Office, August, 1998; "On the Introduction of The Arms Surplus Reform Act of 1997," statement by Rep. Pete Stark in the U.S. House of Representatives, October 1, 1997.

**94** Ibid.

**95** Ibid.

**96** U.S. Customs briefing to Select Committee Staff, October 28, 1998. In response to this situation, in October 1997, Representative Pete Stark introduced H.R. 2602, the Arms Surplus Reform Act of 1997, to place a moratorium on all surplus arms sales until DOD certified to Congress that steps had been taken to correct weaknesses in the surplus sales program. The Act did not pass, but a section was added to the Defense Authorization Act for Fiscal Year 1998, Pub. L. 105-85, Sec. 1067, requiring similar steps. The DOD submitted its report to Congress in June, 1998, identifying problem areas and steps taken to address them.

**97** Robert Greenberger, "Let's Make a Deal: Chinese Find Bargains in Defense Equipment as Firms Unload Assets," Wall Street Journal, October 21, 1998; Dr. Stephen Bryen and Michael Ledeen, "China-Related Challenges," Heterodoxy, April/May 1997 (Submission for the record by Rep. Tillie Fowler in the U.S. House of Representatives, June 26, 1997).

**98** Robert Levy, President, Norman Levy Associates, as quoted in Robert Greenberger, "Let's Make a Deal: Chinese Find Bargains in Defense Equipment as Firms Unload Assets," Wall Street Journal, October 21, 1998.

**99** Interview of Jerry Remick, October 8, 1998; Interview of David Duquette, October 14, 1998. In a response to written interrogatories, officials of CATIC, USA denied it was aware of the existence of the U.S. company. Letter to Daniel Silver from Barbara Van Gelder, October 22, 1998.

**100** A more detailed summary of the CATIC purchase of McDonnell Douglas machine tools appears at Chapter 10.

**101** "Message to the Congress on the China National Aero-Technology Import and Export Corporation Divestiture of MAMCO Manufacturing, Incorporated," The White House, February 1, 1990.

**102** Bruce Einhorn, "The China Connection," Business Week, August 5, 1996; "Sunbase Asia Acquires Specialty Bearing Company," PR Newswire, January 17, 1996.

**103** Briefing by U.S. Treasury Department to Select Committee staff, October 29, 1998.

**104** See, e.g., Stan Crock, "China and the U.S.: The Sparks May Start Flying," Business Week, November 16, 1998; Robert Little, "Controversial Carrier," The Baltimore Sun, November 8, 1998.

**105** See, e.g., Timothy Maier, "Long March Reaches Long Beach," Insight, September 8, 1997.

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**107** Bruce Smith, "Dragonair Misstep," Aviation Week and Space Technology, September 16, 1996; "Michael Mecham, "China Expands Stake in Cathay, Dragonair," Aviation Week and Space Technology, May 6, 1996.

**108** See, e.g., "Hong Kong's Reversion to China: Effective Monitoring Critical to Assess U.S. Nonproliferation Risks," GAO, May, 1997.

- 109** U.S. Customs briefing to Select Committee Staff, October 28, 1998.
- 110** Kathleen A. Walsh, "U.S. Technology Transfers to the People's Republic of China," 1997.
- 111** Testimony of Loren Thompson, Clayton Mowry and Ray Williamson, November 13, 1998; deposition of C. Michael Armstrong, November 17, 1998.
- 112** Deposition of Bernard L. Schwartz, November 21, 1998; testimony of Clayton Mowry, November 13, 1998.
- 113** Deposition of Bernard L. Schwartz, November 21, 1998.
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- 115** Ibid.
- 116** Deposition of C. Michael Armstrong, December 17, 1998; letter from C. Michael Armstrong, Bernard L. Schwartz, and Daniel Tellep to the President, October 6, 1995.
- 117** Aerospace Industries Association, "Presidential Satellite Waivers and Other Related Launch Information" ([http://www.aia-aerospace.org/homepage/china\\_table1](http://www.aia-aerospace.org/homepage/china_table1)), October 26, 1998.
- 118** Far Eastern Economic Review, January 23, 1997.
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- 121** Testimony of Karl Jackson before the SCGA, September 16, 1997; testimony of Clark Southall Wallace before the SCGA, September 16, 1997; testimony of Beth Dozoretz before the SCGA, September 16, 1997.
- 122** "Other Approaches to Civil-Military Integration: the Chinese and Japanese Arms Industries," Office of Technology Assessment, Congress of the United States, March, 1995.
- 123** Richard Fisher, "Foreign Arms Acquisition and PLA Modernization," Heritage Foundation, June 1, 1998.
- 124** "News Digest," Helicopter News, March 28, 1997. "The Z-11 is a reverse-engineered copy of Eurocopter's single-engined Ecureuil."
- 125** "Briefing- Air-to-Ground Missile Programs," Jane's Defense Weekly, September 8, 1998.
- 126** The Department of Defense failed to respond to the Select Committee's inquiry of September 22, 1998 in this regard.
- 127** Letter to Chairman Christopher Cox from William Reinsch, Department of Commerce, October 22, 1998; Letter to Chairman Christopher Cox from General Counsel, Department of Commerce, October 21, 1998.
- 128** BEA collects information concerning investment in U.S. businesses in which a foreign person holds an ownership interest of ten percent or more. Pursuant to federal law, the FDIUS data that BEA collects is confidential, and individual company data, including the names of survey respondents, cannot be released or disclosed in such a manner that the person or firm that furnished the information can be specifically identified. Use of an individual company's data for investigative purposes is prohibited, as the data can only be used for statistical and analytical purposes.
- 129** Letter to Chairman Christopher Cox from Linda Robertson, Department of the Treasury, October 29, 1998.
- 130** Ibid.
- 131** Briefing by U.S. Treasury Department to Select Committee Staff, October 29, 1998. See also Letter to Chairman Christopher Cox from Linda Robertson, Department of the Treasury, October 29, 1998.
- 132** Letter to Chairman Christopher Cox from Susan Ochs, SEC, September 18, 1998; Briefing by SEC to Select Committee Staff, October 16, 1998.



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