Export Controls in the People's Republic of China 1998

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Introduction

In June 1998, President Clinton visited the People's Republic of China (PRC). The White House put progress in nonproliferation and export controls at the top of the list of achievements of the Clinton-Jiang summit during that trip.[1] These attainments included a long-sought mechanism for checking the end-use and end-users of US dual-use items in China.[2] The results built on the centerpiece of the first Clinton-Jiang summit in October 1997 --- certification that China had met the Congressional conditions attached to the 1985 US-China Agreement for Nuclear Cooperation.

No US president had proven willing to assure Congress that the PRC was a "reliable and responsible member of the international nuclear non-proliferation regime," until President Clinton signed the certifications on January 12, 1988.[3] Although China had become increasingly integrated into the international nonproliferation community since the early 1980s, few of its actions or declarations imposed serious costs on China.[4] Clinton administration officials, however, made clear that the development of a more compatible system of PRC controls on nuclear exports was a prerequisite for certification. Consequently, the recent developments in the PRC system of nuclear export controls served as the proximate cause for a shift in US policy toward implementation of the 1985 agreement. As implementing export controls imposes substantial administrative and economic burdens, this also indicates a new level of commitment in Chinese

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nonproliferation policy.

Despite the significant tangible changes in PRC nonproliferation export control policies, the elevation of these issues on the political agenda has also made transfers of sensitive technologies to and from the PRC even more contentious. Several reports by the United States government departments or agencies have identified some Chinese activities as inconsistent with nonproliferation norms.[5] At the same time, Chinese officials maintain that China "is always against the proliferation of weapons of mass destruction and their carrying vehicles," and that China exercises responsible controls.[6]

While the Chinese export control system has become more transparent in recent months, a substantive dialogue on export controls with other governments and non-governmental organizations has only begun to take shape. The massive re-organization of the Chinese government agencies and enterprises associated with the production, consumption, or transfer of many sensitive military and dual-use items that began in 1998 has made the task of understanding the dynamics of the Chinese export control system even more difficult. This holds true even for the relatively small (albeit growing) number of Chinese officials and enterprise managers with in-depth knowledge of export control issues, much less for those individuals less directly associated with the import or export of dual-use or military items.

This lack of mutual understanding contributes to the charges and counter-charges surrounding export controls. Several Clinton administration officials, for example, claim that the ring magnet case marked the real turning point in Sino-US cooperation on nuclear export controls. Chinese officials argued that Beijing had neither ordered nor approved the transfer of the ring magnets as a matter of policy. While accepting this contention, the logic of this argument helped make the US case that the PRC needed to adopt effective controls before the President Clinton could make the certifications required to implement the 1985 nuclear agreement. Apparently, Chinese officials also questioned the status of "ring magnets" as a controlled item since that term does not appear explicitly as a separate item or sub-item on international control lists.[7]

In most cases, the differences in interpretation or other disagreements sours the

overall relationship with China. The trade sanctions imposed by the United States merely represent the most visible facet of this repercussion.[8] The United States government, for example, treats applications for exports of dual-use items to China with greater scrutiny than most other countries, resulting in a relatively low rate of approval (386 out of the 510 license applications submitted January - June 1998).[9] Uncertainty and controversy regarding export controls, moreover, has a chilling effect on the trade and investment operations of Japanese and US companies in China, as they attempt to limit their liability.

To some extent, problems have arisen as the PRC has undertaken more comprehensive market reforms, which invalidated many aspects of the controls imposed under a command economy. The decision making process for technology transfer in China is complex, opaque, and in flux. Before the recent institutional reforms, Goldman and Pollack described a four-level, three-tier system of policy-making that mixed party leaders, the People's Liberation Army (PLA), the ministries, and the Commission on Science, Technology and Industry for National Defense (COSTIND), each with their associated conglomerates and enterprises, tossed with a helping of personal and familial connections.[10] Changing that ossified process requires considerable effort, as attested by the unusual central circular issued on July 1, 1998, urging acceleration of the reform program.[11] PRC officials, nonetheless, seem cognizant of the need to develop export controls better suited to the emerging pattern of more diffuse economic authority.

Assessment Methodology

This report marks the second assessment of the PRC nonproliferation export control system conducted by CITS/UGA.[12] Building on the interviews, informal discussions, and briefings with more than two dozen officials, business leaders and policy experts in the PRC done for the first report, the authors returned to Beijing and Shanghai to conduct further interviews in May 1998, complemented by discussions in a workshop at Waseda University in December 1997. One author also performed interviews, engaged in informal discussions or attended briefings with Chinese export control officials in Shanghai (along with Professor Takehiko Yamamoto) and Beijing during July-August 1997, served on the

U.S. delegation in the Asian Export Control Seminar in Tokyo in the early winter of 1998 attended by a Chinese delegation, and participated in discussions with Chinese officials and other experts in Washington organized by the Monterey Institute for International Studies in April 1998 and the Lawyers Alliance for World Security in May 1998.

The significant increase in access to institutions and enterprises reflects, in part, the new interest of the government in export controls and growing openness of both Chinese government and society. A list of institutions represented in these interviews and meetings appears in Appendix. The study supplements this information with data from formal presentations, official documents and other published sources.[13]

The elements and questions used in this assessment have their foundations in the "Common Standards for Effective Protection" advanced by the members of the Coordinating Committee for Multilateral Export Controls (COCOM) in the early 1980s, and the efforts to get nonmembers to develop export control systems more aligned with the Common Standards. With the end of the Cold War, COCOM members modified their interests in harmonization of export control policies to reflect their heightened concern with the proliferation of weapons of mass destruction (WMD). In addition, members of the Australia Group and the Nuclear Suppliers Group (NSG) also undertook surveys of their export control efforts using somewhat similar sets of questions.[14] For the most part, these surveys aimed at assessing the effectiveness of well-established national systems of export controls.

In contrast, CITS/UGA chose to design an instrument more amenable to assessing a broad range of systems, from the nascent to the mature. The CITS/UGA methodology also measures compatibility with emerging international standards instead of effectiveness. Evaluating effectiveness of a national system often requires access to classified information on exports, production and other data, whereas the CITS/UGA design relies on unclassified sources of information. In addition, the effectiveness of multilateral export control regimes depends on compatibility among the component national export control systems, which simply looking at the efficacy of national systems will miss.

The CITS/UGA assessment instrument includes seventy-two questions related to

Table 1

Elements to Assess in National Export Control Systems

Legal Framework and Licensing System	*Bureaucratic Process*
Adherence to Multilateral Export Control Arrangements	*Lists of Controlled Items*
Training	*Customs Authority and Operations*
Verification	*Criminal and Civil Penalties*
Catch-all Controls	*Information Gathering and Exchange*

ten elements common to most nonproliferation export control systems (see Table 1). The elements are not equally important in the export control system. To adjust for these differences, CITS/UGA staff asked experts in the field to rank the elements. Based on these rankings, CITS/UGA assigned weights to each element. Within each element, the survey questions address three broad categories of policy concerns : design, process, and implementation. This categorization holds special prominence for assessing systems in various stages of development, as implementation often lags behind design. Each category contains twenty-four questions with contributions from each element.

The questions generally referred to the presence or absence of some quality or condition, such as the existence of a law to govern nonproliferation exports. Answers to all these questions take three forms : yes ; yes, but ; and no. For each "no" answer, the authors assigned a score of zero (0), whereas a "yes" answer prompted a score of one (1). In instances where a national system met a quality or condition, but perhaps not in a form sufficient to warrant complete agreement as to its presence, the authors awarded a score of one-half (0.5). Adding these raw responses produces unweighted scores for each element and for the system overall.

To apply the weights, one divides the raw score for each element by the number of questions in that element, then multiplies that number by the assigned weight for each element. Adding the weighted scores for each element produces an overall weighted score. Generating scores both weighted and unweighted for each category has a few more

complications, but generally follows the same processes.

Again, the CITS/UGA methodology measures compatibility, not effectiveness. A high score does not necessarily equate to an effective system, nor does a low score necessarily reflect an ineffective system. The former Soviet Union, for example, exercised very strict controls on its exports, but it would receive a low compatibility score. Similarly, some countries may have a high score, but lack the commitment to control sensitive exports effectively. For systems characterized by market forces and independent enterprises, nonetheless, a positive correlation between compatibility scores and effectiveness seems apparent.

More import for relations between China, Japan, and the United States, the scores demonstrate how and where national systems diverge from each other and from emerging multilateral standards. This permits predictions as to the source of potential conflicts. It also indicates where governments might exploit opportunities for mutual benefit. By drawing a map to improved compatibility, these assessments may assist policy-makers in developing new strategies for cooperation.

Finally, this approach to assessment has implications about the effectiveness multilateral export control arrangements as a whole. If the export control systems of the major supplier states diverge significantly, then a determined proliferator can exploit these differences to undermine otherwise effective national systems. Assessing the compatibility of the national systems of the key supplier states, including the PRC, creates a foundation upon which states can build more effective global arrangements to delay or prevent proliferation of weapons of mass destruction.

Elements of PRC Export Controls

Formal Chinese commitment to nonproliferation of weapons of mass destruction rests foremost on its treaty accessions (see Table 2), which others treat in more detail.[15] In addition to its treaty commitments, the PRC takes several other positions that support nonproliferation. These include : a no-first-use pledge ; unconditional assurance that it will not use nuclear weapons against non-nuclear weapon states ; support for the indefinite

Table 2

PRC Status in Arms Control and Nonproliferation Treaties, 1998

Treaty or Convention	*Activity and Date*
Treaty of Tlatelolco	Ratified, June 1974
Antarctic Treaty	Acceded, June 1983
Outer Space Treaty	Acceded, December 1983
Biological Weapons Convention	Acceded, November 1984
Convention on the Physical Protection of Nuclear Material	Acceded, January 1989
Seabed Arms Control Treaty	Acceded, February 1991
Non-Proliferation Treaty	Acceded, March 1992
Chemical Weapons Convention	Signed, January 1993 (Ratified, April 1997)
Comprehensive Test Ban Treaty	Signed, September 1996

extension of the NPT; endorsing negotiations for a Fissile Material Cut-off Treaty (FMCT); and affirming the need for strengthened IAEA safeguards. According to US officials, China also made significant contributions toward moving North Korea to accept the Agreed Framework on freezing its nuclear program.

Its civilian nuclear program works within the framework of the International Atomic Energy Agency (IAEA), which it joined in 1984. In 1986, China began to assert that three principles govern its nuclear exports :

- Its nuclear exports must serve peaceful purposes only ;
- All recipients must accept IAEA safeguards ; and
- Recipients must agree to no retransfers to third countries without Chinese consent.[16]

Even before the adoption of its new nuclear export control regulations, the PRC promised to report to the IAEA any trade in nuclear materials above one kilogram (in November 1991), and all trade in nuclear materials, non-nuclear related materials, and nuclear equipment (in July 1993). In May 1996, China also pledged to ban personnel and technology exchanges and cooperation with nuclear facilities not under IAEA safeguards.

China became a charter member of the Organization for the Prohibition of

Chemical Weapons (OPCW) under the CWC. With several million abandoned chemical weapons on its soil and at least 2,000 chemical companies (including perhaps 500 large companies), the PRC has an acute interest in facilitating implementation of the treaty. At the September 1997 session of the OPCW Executive Council, China was one of only seven countries to declare existing or former chemical weapons facilities (despite widespread belief that many countries have covert chemical weapons programs). Several Chinese companies already participate in a Chemical Monitoring Society and, allegedly, PRC enterprises made timely initial declarations. The OPCW has made several inspections in the PRC already, while the PRC and the Secretariat of the OPCW hosted one of the first regional seminars on the CWC/OPCW operations in Beijing in September 1998.

As to the export of conventional weapons, China applies three broad principles. Weapons exports should :

- Enhance the legitimate self-defense capability of the recipient ;
- Not damage regional or global peace, stability, or security ; and
- Not interfere in the internal affairs of the recipient.

In addition to its new regulations controlling the export of military items (see the following section), the PRC participates in the UN Register on Conventional Weapons, and has contributed data since 1993.

Several other bits of evidence point toward an increased PRC commitment to nonproliferation and export controls. In September 1997 the PRC created a new department in the Ministry of Foreign Affairs, the Arms Control and Disarmament Department, to serve as a focal point for nonproliferation affairs. Under Ambassador Sha Zukang, the thirty staff members in the four divisions of the department (i.e., nuclear, chemical/biological, missile and conventional arms, and a comprehensive or research division) constitute an unprecedented commitment and concentration of resources to the issue. In addition, several individuals in other units, both academic and technical, anticipated assignments or already had received tasks from Beijing to study nonproliferation export controls.

Going beyond declarations of intent and bureaucratic maneuvers, China has taken

several concrete steps toward nonproliferation. These include :

- Suspended plans to build two nuclear reactors in Iran (September 1995) ;
- Ceased nuclear testing (July 1996) ;
- Returned a Sun Microsystem high-performance computer diverted to a military research institute in Changsha (September 1997) ;
- Pledged to halt cooperation on nuclear projects with Iran, affirming that it had canceled plans to construct a uranium conversion plant and frozen other projects (October 1997).

Missile sales, however, stand as the most contentious nonproliferation issue for China. PRC officials continue to view the missile nonproliferation regime with deep suspicion. Nonetheless, China has made several bilateral commitments to the United States regarding missile proliferation. In November 1991, for example, PRC officials agreed to freeze the transfer of missiles to the Middle East in return for the lifting of US sanctions on missile technology transfers. In February 1992, in a letter to Secretary of State James Baker, the PRC agreed to abide by the 1987 MTCR Guidelines. It reaffirmed this commitment in 1994, and resolved to control sales of any ground-to-ground missile inherently capable of delivering a payload of 500 kilograms a distance of 300 kilometers. Most recently, in October 1997, Foreign Minister Qian Qichen allegedly informed Secretary of State Madeleine Albright that China would stop its sales of anti-ship cruise missiles to Iran. Although critics in the United States have questioned Chinese compliance to these commitments, Chinese officials claim to have kept their part of the bargain, holding "$140 million" worth of Silkworm missiles in a warehouse from export contracts that China suspended or canceled.[17]

Through many declarations and specific actions, the PRC has enhanced its commitment to several nonproliferation norms. Genuine support for nonproliferation objectives, requires close coordination of export control policies by the key supplier states, including China. Increased compatibility of Chinese export controls with those of the Japan, the members of the European Union, and the United States, among other suppliers, will go far in fulfilling this need.

Legal Framework and Licensing

Historically, the PRC depended more on unpublished regulations and administrative guidance than published rules to control the transfer of military and dual-use items. From December 1950 to the nationalization of all private trading companies in 1956, the PRC licensed imports and exports through its *Provisional Rules of Foreign Trade Administration.*[18] Starting in 1980 with the *Temporary Provisions of Export Licensing System*, the PRC began to reconstitute its general export control system with several pieces of regulation. A standard legal framework for the import and export of sensitive goods and technologies, however, began to emerge with the *Temporary Rules on the Management of Export Goods* issued by the then Ministry of Foreign Economic Relations and Trade in December 1992. Among four categories of controlled items covered by these regulations, several sensitive items fell in one category listing twenty-two goods. These included heavy water (viewed as a chemical product in China), several rare-earth metals, and ten dual-use chemicals.

The creation of a new legal framework for foreign trade became codified with the entry into force of the *Foreign Trade Law* (FTL) in 1994.[19] In particular, the FTL grants the government authority to restrict or prohibit the import and export of goods (Articles 16 and 17) for reasons "of national security and social benefits." It also allows Beijing to limit

Table 3

Key PRC Nonproliferation Export Control Regulations

Regulation	*Promulgated*
Administration of Chemicals Under Supervision and Control (State Council Decree 190)	December 27, 1995
Controlling Nuclear Exports (State Council Decree 230)	September 10, 1997
Managing Exports of Military Items (Joint State Council and Central Military Commission Decree 234)	October 22, 1997 (In force - January 1, 1998)
Export Controls on Dual-Use Nuclear Products and Related Technologies (State Council Decree 245)	June 10, 1998

trade based on its obligations under international treaties and conventions, which has considerable implications for export control policy.

Under the FTL, enterprises have to get licenses to import or export restricted commodities and technologies. In particular, items with "special requirements" (i. e., controls related to international treaties and conventions), require an export license. To clarify the procedures applicable to different sets of items, Beijing has promulgated several new regulations, including three major changes since the summer of 1997 (see Table 3).

Military Items, Including Missiles and Missile-related Items

The Regulations on Managing Exports of Military Items, issued by the State Council and the Central Military Commission (CMC), replaced the unpublished regulations described in the 1995 White Paper on arms control policy. [20] The new regulations reiterate the three existing policy principles governing PRC arms exports :

- the transfer must increase the "appropriate" defense capacity of the recipient ;
- the transfer must not impair global or regional stability ; and
- the transfer must not interfere in the internal affairs of a sovereign state.

The regulations apply to special production facilities, military equipment, materials, technologies, and services, and outline the general legal constraints on companies trading in military products. Under the regulations, units must obtain operational rights to engage in military trade (becoming a "State Military Articles Trading Company") from the State Military Articles Trade Management Committee.

The current reorganization of the defense industry will have a major impact on this aspect of the Chinese export control system. In March 1998, the PRC placed a revamped Commission for Science and Technology for National Defense (COSTIND) in charge of many formerly military-related industries, with a civilian, Lu Jibin, in charge. [21] In a meeting for the five key departments of the national defense industry (i. e., the China National Nuclear Corporation, the Aviation Industries Corporation of China, the China Aerospace Corporation, the China State Shipbuilding Corporation, and the China North Industries Group), Zhu Rongji outlined the new bureaucratic framework for the defense

industry. Apparently, the new COSTIND unites the work of the old COSTIND and the five ordnance industry corporations with the national defense departments of the State Planning Commission and the Ministry of Finance.

The following April then saw Beijing create the General Armaments and Equipment Department to focus on new arms purchases and military research and development. The unit formerly responsible for these tasks, the General Staff Department, will now concentrate on matters concerning existing military technologies, equipment and personnel. Some sales of military and military-related items may still fall under the mandate of the new COSTIND, including the activities of the China North Industries Group (NORINCO), although this remains unclear.

In July 1998, President Jiang took this a step further to call on the military remove itself from commercial operations altogether. As the military controls perhaps 15,000 small and medium size enterprises and as many as 1,000 large-scale enterprises, successful consolidation and transformation of this sector will contribute markedly to the overall success of Chinese economic reforms.[22] Although the final structure remains uncertain as of the summer of 1998, it appears that the five main military industry departments will spin-off five industrial bureaus in a new defense industrial committee under the State Council.[23]

The relationship between the revamped COSTIND, the General Armaments and Equipment Department, whatever may replace the State Military Articles Trade Management Committee (a body of the CMC and State Council before reorganization), and the larger defense industries owned by the PLA, such as the Poly Group, has only begun to evolve and will likely undergo several modifications before the end of the century. In addition to military items from NORINCO, these regulations should also apply to missile and missile-related exports by the China Great Wall Industrial Corporation (commercial), the China Precision Machinery Import & Export Corporation (military), and the other trading subsidiaries of the China Aerospace Corporation.[24] With millions of employees, the activities of COSTIND will have a profound influence on Chinese export control policies.

Chemicals of Proliferation Concern and Related Dual-Use Items

Reportedly, Beijing circulated an "internal reference document" as early as 1990 in order to control the transfer of sensitive chemical items, followed by a formal state document in 1994.[25] The Ministry of the Chemical Industry (MCI) also began drafting a new set of regulations in conformity with Chinese obligations under the CWC.

Issued in December 1995, the regulations require any unit engaged in production or business related to chemical products with use as a chemical weapon, precursors for chemical weapons, raw materials for chemical weapons, or specific organic compounds besides dynamite or pure hydrocarbon to register with and provide information to the "department in charge of the chemical industry" (i.e., at the time the Ministry of the Chemical Industry).[26] Only those units with direct approval of the Ministry may engage in production of Category I items, while production of all Category II and III items (and some Category IV items) require special permits. The regulations describe the procedures for obtaining approval regarding production (including the construction of production facilities), use, and storage of these items.

The regulations most relevant to trade in these items appear in Articles 14-18. Among other restrictions, only unit(s) jointly designated by the "department in charge of foreign trade" (i.e., the Ministry of Foreign Trade and Economic Cooperation) and the department in charge of the chemical industry may engage in trade in controlled chemical items. In practice, this has limited the legal export of sensitive chemical items to only two trading companies, including the giant SINOCHEM.

Nuclear and Nuclear Dual-Use Items

The Chinese legal and regulatory framework on nuclear and nuclear dual-use items underwent profound change in recent months. From about 1986 until last year, controls on nuclear items fell to the ministerial corporations, especially the then Ministry of the Nuclear Industry (and its alter ego the China National Nuclear Corporation), the Bureau of Nuclear Safety, and COSTIND.[27] In effect, this kept regulatory control of nuclear items isolated from some of the foreign trade reforms noted earlier. Under the old system, the

China National Nuclear Corporation (CNNC) would approve nuclear exports through a ratification document (not a license), or in some cases a joint ratification document when consulting other units in the government.

The PRC had many incentives for adopting a new system of nuclear export controls. A Western-style system might improve bilateral relations with the United States, which had deteriorated after Tiananmen and again over Taiwan in 1996. It might also bring improved access to Western technologies. It would raise the profile of China as a "responsible" power. It could also reassert some control by the central government over an increasingly decentralized economic system.

For several years, Clinton administration officials had made clear their interest in China developing such an export control system. According to several US officials, however, Chinese officials became more responsive to US entreaties after the 1996 ring magnet case. With a well-documented chain of evidence, Washington demonstrated that ring magnets of a type that could contribute to a nuclear weapons program went from China to a facility of concern in Pakistan. This made US sanctions on the Chinese entities involved in the transfer a distinct possibility. Whether members of the central government in Beijing knew of and approved this transfer remains ambiguous, but PRC officials promised to stop any future transfers of sensitive nuclear items to unsafeguarded facilities in May 1996.[28] US officials believe this case convinced Beijing that the United States treated alterations in PRC nuclear export controls as a prerequisite for implementing the 1985 Sino-US nuclear cooperation agreement.[29]

In May 1997, the Chinese revealed a new State Council circular, *Notice on Issues Concerning Strict Implementation of China's Nuclear Export Policy*, to a US government delegation working on nuclear issues in Beijing, which included a preliminary nuclear control list on the basis of the Zangger Committee "trigger list.[30] China also attended the IAEA Nuclear Exporters (Zangger) Committee meeting that month as an observer.

Based on these preliminary steps, the PRC promulgated its new policy in State Council Decree No. 230 ("PRC Regulations on the Control of Nuclear Exports") and attended its first Zangger Committee meeting as a full member in October. These actions,

coupled with a promise to add new regulations on nuclear dual-use items by mid-1998, produced the highest profile achievement of the 1997 Clinton-Jiang summit meeting, a joint statement on nuclear cooperation.

Among other things, the twenty-two articles of the decree reiterates the nonproliferation commitment of the PRC and its three principles for nuclear exports. The regulations not only set out the process for licensing nuclear exports (discussed later), it also restricts the rights to export nuclear items to entities designated by the State Council. Allegedly on two enterprises, SINOCHEM and the China Atomic Energy Agency (CAEA) have authority to export nuclear materials, while perhaps a dozen enterprises have authority to export nuclear dual-use items. [31] While the regulations only permit exports to governments that accept IAEA safeguards, that have an IAEA safeguards agreement, and that the agreement covers items supplied by China (including special fissile material produced with those items), it does not require that the recipient country accept full-scope safeguards. The decree puts all violations of the regulations subject to penalties under relevant sections of the FTL and the Customs Law, with some violations subject to criminal prosecution.

As anticipated, the "Nuclear Export Control List" attached to the decree matches the Zangger Committee trigger list. Article 20, moreover, grants the China Atomic Energy Agency in conjunction with COSTIND, the Ministry of Foreign Trade and Economic Cooperation (MOFTEC), the Ministry of Foreign Affairs (MOFA), the General Administration of Customs, and other departments the authority to update the control list with State Council approval as needed. No source suggested that the nuclear industry or nuclear analytic units outside of CNNC/CAEA had much input into the decision to adopt new nuclear regulations. At least one source indicated that the CNNC "forced reforms" on the industry.[32]

With its circulation and promulgation of new regulations on nuclear and military items, the compatibility score for the PRC increased. At the same time, the reorganization has dismantled, changed the responsibilities, or shifted the line of command for several units involved in licensing, such that some procedures have begun less clear, even for

Chinese officials involved in the process. Consequently, the compatibility score for this element, 5.0, did not change from the earlier assessment.

Bureaucratic Process

In addition to the extensive reorganization of COSTIND and the creation of the Arms Control and Disarmament Department in the Ministry of Foreign Affairs already mentioned in this report, the many new regulations give the Ministry of Foreign Trade and Economic Cooperation (MOFTEC) clearer and more formal authority in the export licensing process. Both the nuclear and chemical export control regulations, for example, point to MOFTEC as the ultimate source of export licenses.

Within MOFTEC, the direct responsibility for approving licenses for sensitive exports rests with the Science and Technology Department.[33] Apparently, the ten person Export Control Division reviews applications to export items related to weapons of mass destruction on a case-by-case basis, with help from more than 200 technical experts from other ministries, universities, and elsewhere.[34] The officials at first looked to the United States for its licensing principles and practices, but they have begun to look more seriously at the Japanese system and others in order to refine their procedures. In practice, this unit does not spend much time on chemical licenses, which the National CWC Implementation Office reviews, and concentrates on other non-military items.

As with the rest of the Chinese central bureaucracy, the "earthquake" of recent reforms has meant cutting personnel from the division. The Department had about forty staff members at the start of the year, but reportedly suffered cuts of about 30%. Given the overall reductions in MOFTEC staff of about 45%, the division actually faired pretty well.

Military Items, Including Missiles and Missile-related Items

The regulations identify the State Commission for Administration of Arms Trade of the People's Republic of China (SCAT), under the State Council and the CMC, as the leading unit for military exports. Direct supervision and management goes to its executive body, the State Administration of Arms Trade (SAAT). Under the regulations, SAAT

examines and approves the items for export prior to the signing of contracts (sometimes in conjunction with appropriate departments of the CMC and State Council). After a military articles trading company signs a contract, it applies to SAAT for approval, which has no more than fifteen days to consider the contract. For major military exports, SCAT, the State Council, and the CMC must examine the items and contracts (and they face no time limits). With the relevant approvals, the trading company should then apply for an export permit, upon which SAAT has five days to act. When the item goes to port, Customs uses the permit to accept the shipping declaration. SAAT also issues notices in conjunction with key departments regarding the duties of different units to ensure the facilitation of the export process.

The reorganization of the defense industry, however, raises several questions about the regulations and the ultimate decision-making process. The Leading Group of the State Council and Central Military Commission for Trading of Military Goods, for example, was abolished, with its work transferred to COSTIND.[35] The SCAT no longer exists, although it seems that the General Armaments and Equipment Department still seeks interagency consensus on permitting exports. Whether a formal body will replace the SCAT still seems in doubt.[36]

It appears that the General Armaments and Equipment Department has control over missile production and at least some control over sales although production units may remain housed under COSTIND (in some cases through CASC). The role of COSTIND in approving missile sales is more murky.[37] At least one source, however, claimed that the General Armaments and Equipment Department works with other agencies in securing approval for exports.[38] MOFTEC appears to have some role in the missile export process. Many military companies feel great pressure to export to earn cash, and some MOFTEC officials shared a similar interest in promoting those exports. According to one source, however, MOFTEC denies more missile-related licenses than it approves.[39]

Chemicals of Proliferation Concern and Related Dual-Use Items

Prior to the recent spate of administration reforms, the Ministry of the Chemical

Industry, with MOFTEC, licensed the export of sensitive chemical items. Shortly after Vice Premier Qian Qichen signed the CWC in January 1993, the Ministry of the Chemical Industry (MCI) created an Office for the Convention on the Prohibition of Chemical Weapons, to implement its obligations under the CWC. Beijing also created a national "leading group" on CWC implementation. To clarify the regulations in State Council Decree 190, Beijing issued by-laws in June 1996 that reiterated the control of the central government.

As the CWC has come into force, Beijing created the National CWC Implementation Office to oversee license applications for chemical items, as well as undertake other responsibilities related to CWC implementation. The State Bureau of Chemicals and Petroleum, formerly under the Ministry of the Chemical Industry and now with the new Commission of Economics and Trade, apparently houses the CWC Implementation Office, but the unit reports directly to the State Council. The work of the national leading group on CWC implementation now falls to the office, although the leading group appears to retain some responsibilities for guiding policy.[40]

With allegedly only ten members, not counting a part-time Deputy Director from the PLA, the office has very few personnel to conduct several large tasks. Among other things, the office hosts CWC inspections. The OPCW has conducted nine routine inspections in China, including four for commercial enterprises.

The office does not oversee the few remaining chemical labs run by the General Armaments and Equipment Department for research purposes, mainly medical. Reportedly, China has destroyed all other chemical facilities for the military. If an enterprise owned by the PLA wished to trade in a controlled chemical, however, the enterprise would still have to seek a license (and do so only through one of two designated trading companies). In any case, they would have to go through one of the two companies authorized to conduct trade in sensitive chemicals.

A letter from the importing government (or a government approved entity) guaranteeing that the end-use of the items will only involve scientific, medicinal, pharmacological or "defense" purposes must accompany the application. In addition, the

importer must pledge they will not ship the items to third countries. Under the regulations, the State Council must examine and approve the sale before MOFTEC issues the license, which may reflect the role of the Commission of Economics and Trade, although this remains uncertain.

For Category II and III items (including their production technologies and equipment), a letter from the recipient government (or entity entrusted by the government) assuring that the items will not go toward the production of chemical weapons nor go to a third country suffices. Under Chinese regulations, a fourth category of specific organic chemicals exists to cover those items that include phosphorous, sulfur, and fluorine that might contribute to a chemical weapon. This category of items faces the same treatment at Category II and III items.

After review and approval from the CWC Office, the exporter may apply to MOFTEC for a license. According to one source, the office has approved about 130 licenses in a little more than a year of operation.[41] Apparently, the office has returned several licenses without action, usually because of a lack of information about the end-user. In addition, MOFA may examine the licenses, apparently when the licenses involve foreign affairs issues.

Nuclear and Nuclear Dual-use Items

To obtain a nuclear export license, the designated entity first applies to the China Atomic Energy Agency (CAEA).[42] Within fifteen days, the CAEA should report on its initial review of the Nuclear Export Application with several additional documents, including a notification for the applicant. The additional documents required include the certificate of monopoly in nuclear exports, the legal representatives, key executives and administrators of the applicant, a duplicate of the order contract, an end-user certificate, certificates of guarantee from the recipient (see below), and any other requested document.

If the application involves nuclear material, it then goes to COSTIND. If the license application concerns nuclear equipment or non-nuclear materials, it goes to MOFTEC (or in some cases to both COSTIND and MOFTEC). Under Article 10 of the September

regulations, COSTIND, MOFTEC, or other units have fifteen days to make their review. They can extend their review for another fifteen days, in which case the regulations call on them to notify the applicant. If the license seems to address national security, diplomatic or similar issues, the application goes to MOFA and the State Council.[43] These units, however, are exempt from the time limits imposed in the regulations.

The standards for the license reviews require that the recipient government provide several assurances regarding peaceful end-use, physical protection, placing all items under IAEA safeguards, prior consent by the CAEA for retransfers. Based on its old policy, the PRC does not permit transfers from safeguarded to unsafeguarded facilities, nor do they allow technical exchanges, exchanges of personnel with such facilities. This now has the force of law (starting with the "red banner" notice of May 1997), which allows explicit punishments for violations.[44]

If approved, then MOFTEC shall issue a Nuclear Export Permit. When it does so, MOFTEC also must notify the CAEA in writing. The holder of the permit then takes it to Customs. If MOFTEC discovers violations of the assurances, it can direct Customs to halt any licensed shipments. According to Chinese officials, by mid-1998, they had only processed two export licenses for nuclear materials (one for heavy water to Japan and one for yellow cake), and only a few other nuclear licenses.[45]

Control Lists

The PRC apparently maintains published and unpublished control lists for all sensitive items controlled under the CWC, the NSG, and the MTCR (see Table 4). Article 18 of the FTL requires the appropriate agencies of the State Council to create lists or "catalogues" of items for control, based on data supplied by various ministries. Agencies can also restrict or prohibit trade in items not on the list as needed.

The first relevant list of chemicals subject to control appeared in June 1996 in the bylaws for implementation of the December 1995 regulations on chemical items.
Under PRC regulations, Beijing controls four categories of chemical items :

- Category I - Any chemical product that can be used as a chemical weapon ;

- Category II - Any chemical product that can be used as a precursor for the production of a chemical weapon ;
- Category III - Any chemical product that can be used as the principal raw material for the production of a chemical weapon ; and
- Category IV - Any specific organic chemical product with the exception of dynamite and pure hydrocarbon.[46]

The first three categories generally correspond with the items in the CWC Annex on Chemicals, while the fourth concerns synthesized organic chemicals also defined in the Convention.[47] According to one source, China also controls the technologies associated with sensitive chemical items.

The Ministry of the Chemical Industry put forward the initial catalogue of items, which the State Council then approved. In June 1998, ten additional chemical items controlled by the Australia Group went on the list. Although the FTL provides the general authority for list maintenance, the regulations remain unclear on the process for adding or deleting items from the list. According to one source, the addition of ten chemical items in June 1998 stemmed from a joint decision, possibly by the small leading group but certainly involving the National CWC Implementation Office, subject to approval by the State Council. The Office apparently also organized an interagency group about implementing the list changes.

Table 4

PRC Control Lists

List	*Date Issued*
Catalogue of Various Chemicals Under Supervision and Control	June 1996 (amended in June 1998)
Nuclear Exports Control List	September 1997
Export Control Inventory of Dual-Purpose Nuclear Goods and Correlated Technologies	June 1998
Unpublished list of missile and missile-related items	Unknown

As noted earlier, the PRC began to integrate standard multilateral lists of sensitive nuclear items into their export control program, as early as May 1997. In addition to adopting internal controls using the "trigger list" of the Nuclear Suppliers (Zangger) Committee of the IAEA mentioned earlier, at least one report indicates that the circular also had an annex of dual-use items identical to INFCIRC 254 Part II (the dual-use list used by the Nuclear Suppliers Group).[48] In any case, as expected, the Nuclear Exports Control List issued in September 1997 only covered items on the trigger list (i.e., IAEA INFCIRC 254, Part I). As PRC officials promised, however, Beijing also promulgated its dual-use list before the end of the following summer. This list parallels the NSG dual-use list.

Precisely how the Nuclear Exports Control List and the Export Control Inventory of Nuclear Dual-Use items emerged remains murky. Under the regulations ("in light of the practical situation"), the CAEA, COSTIND, the Ministry of Foreign Affairs, the General Administration of Customs and other units can adjust the Nuclear Control List, with State Council approval.[49] In contrast the more recent regulations on dual-use nuclear exports puts MOFTEC, the national nuclear agency, and "relevant State Council departments" in charge of modifying the inventory of dual-use items. [50] Under Article 17 of the dual-use regulations, MOFTEC can also exercise control over on items not on the inventory of dual-use items, in consultation with other State Council departments.

It practice, it appears that officials with the Chinese Atomic Energy Agency (CAEA)/CNNC may have drawn the lists simply to concord with the Zangger/NSG lists. The authors uncovered little evidence that representatives of the CAEA/CNNC consulted with a wide range of relevant government units in creating the lists. Several sources claimed that the CNNC/CAEA promulgated the nuclear lists and regulations without much direct input from the nuclear industry.[51]

According to several sources, the PRC maintains an unpublished list of missile and missile-related items subject to controls. As Chinese official put it, constructing the list and imposing controls on such items was "not technically difficult."[52] Allegedly, the decision to promulgate the list remains under discussion by the Ministry of Foreign Affairs and the State Council. This would fit with the Chinese promise to "actively study joining the

MTCR" and to conduct bilaterals with the United States on the subject later made during the Clinton-Jiang summit meeting in June.[53] Several officials in units that produce or trade in missile, space or missile-related items also demonstrated a practical knowledge of key constraints the MTCR Guidelines impose. The authors, however, could not determine whether this knowledge comes more from their interaction with Western companies than with their own export control system.

Regime Adherence

With near unanimity, Chinese officials and scholars expressed a preference for export control standards grounded in international treaties to those developed in a less formal multilateral setting. As one scholar asserted, joining the export control regimes is ""not a priority" for China. [54] China already sits as a state party to the major nonproliferation treaties and conventions, including the NPT, Tlatelolco, the CWC, and the Biological and Toxic Weapons Convention (BWC), and supports the timely completion of several others (i.e., CTBT, fissile-material cut-off). From a Chinese perspective, export controls based on the more universal principles found in treaty arrangements have less of a discriminatory impact on China than the informal suppliers groups.

The decision to join the Zangger Committee but not the NSG seems emblematic of this perceived distinction. Although the PRC adopted the NSG lists, NSG members require that recipients of their nuclear items accept full-scope safeguards.[55] This places special constraints on nuclear transfers to states that have not signed the NPT and have nuclear facilities not under an international safeguards agreement (which includes such states as Israel, India, and Pakistan among others). China demands recipients of its nuclear exports to place all Chinese nuclear items under safeguards, but does not supplement this prerequisite with a requirement that the recipient put all its nuclear facilities under safeguards. To do so would clearly strain its relations with Pakistan.

In the context of its bilateral relationship with the United States, the PRC has addressed several important export control issues as well. Although Australia, Japan and other countries have engaged the PRC on nonproliferation export control issues, official

and unofficial discussions between Chinese and US officials seem to have the most telling impact on Chinese policy. In addition to joining the Zangger Committee and adopting new regulations on nuclear exports, Chinese officials delivered on their promises to limit nuclear cooperation with Iran. According to Robert Einhorn, Deputy Assistant Secretary of State for Nonproliferation :

> China has suspended the sale of two nuclear power reactors to Iran, canceled the transfer of a uranium conversion facility that could have provided an essential element of Iran's nuclear weapons program, and turned down Iranian requests for other sensitive equipment and technology. It has also provided a clear assurance that it is not going to engage in new nuclear cooperation with Iran and that it will complete its few existing projects -- which are not of proliferation concern -- within a relatively short period of time.[56]

PRC officials have also made several commitments to the United States regarding the nonproliferation of ballistic missiles, starting with its March 1989 commitment to end the sale of Silkworm missiles to Iran. Evidence regarding the transfer of Chinese missile items, especially to Pakistan, continues to trouble Sino-US relations. As early as March 1991, US officials claimed that the PRC would abide by the parameters of the MTCR, yet in that April US intelligence sources revealed that Chinese authorities had prepared to export M-11 (or DF-11 using the Chinese designation) missiles to Pakistan. US officials believed that the M-11, which could send a payload of 800 kilograms at least 250 kilometers, capable of exceeding MTCR guidelines of 500 kg and 300 km. As a result, in May 1991 President Bush decided to deny export licenses for high-performance computers and for participation in satellite launches. In addition, the United States restricted trade with the China Precision Machinery Import-Export Corporation and China Great Wall.

In July, the permanent members of the UN Security Council, including China, agreed to restrict arms sales, including missiles, to the Middle East. By the end of the summer, US officials allegedly believed that Beijing would exert more control over the

activities of its military producers and that Chinese officials were considering joining the MTCR. This led to three days of negotiations in November and the announcement by Secretary of State James Baker that Chinese officials had promised to adhere to MTCR guidelines and parameters, including canceling M-9 missile sales to Syria, statements confirmed by Chinese Foreign Ministry spokesman Wu Jianmin, in return for the lifting of the June sanctions. In a December letter to Senator Jesse Helms (Republican - North Carolina), the Bush administration revealed it intended to lift the sanctions upon receipt of Chinese diplomatic confirmation. According to Secretary Baker, the Chinese issued a formal letter promising to abide by the MTCR in February 1992, which induced the administration to lift sanctions.[57]

The PRC confirmed it would abide by the MTCR and "responded favorably" to US entreaties on missile proliferation by restricting sales of M-9, M-11 and CSS-2 to the Middle East.[58] Still, reports persisted throughout 1992 that Chinese missile technology, including guidance systems, made its way to Syria and Iran. Despite these reports, President Bush vetoed a bill that linked most-favored-nation status to Chinese proliferation activities, referencing the Chinese pledge to join the NPT in March, and decided to lift the restrictions on exporting satellites in September.

Chinese officials apparently did not view the transfer of M-11 missile systems to Pakistan as a violation of its pledge. This produced new accusations of noncompliance by October 1992, which resulted in the Bush administration postponing decisions on whether to permit the export of Cray supercomputers.

By May, US intelligence sources indicated they had strong evidence that Chinese entities were shipping missile components to Pakistan for later assembly. The United States prohibited new contracts with the Ministry of Defense and the Ministry of the Aerospace Industry in August 1993 in response to these reports, which prompted threats from Chinese officials that the PRC would abandon its pledge to abide by the MTCR.[59] In turn, US officials threatened to remove China from the list of states eligible to receive most-favored-nation status. By October 1994, China agreed to limit missile transfers based on the "inherent capability" of the missile systems, and the United States lifted its sanctions.

Since then, the Clinton administration has avoided making a determination that China has transferred M-11 missiles and missile production facilities, despite widely accepted evidence to the contrary. Nonetheless, several Chinese experts contend that China only committed to the 1987 MTCR guidelines, not the subsequent revisions in 1993.

More important, Chinese officials maintain their opposition to the MTCR as discriminatory and as inequitably ignoring other means of delivery. In the Spring of 1998, a visiting Chinese government delegation reportedly called for the inclusion of advanced strike aircraft in the MTCR.[60] PRC officials also question whether any potential transfers of missiles or missile technology associated with the development of a Theater Missile Defense by the United States and its allies will not also contravene the "inherent capability" issues associated with the MTCR.[61]

"Catch-All" Controls

Chinese officials continue to view "catch-all" controls with suspicion. For the most part, they see "catch-all" controls as a means by which the United States hypocritically attempts to appeal to universal principals for US foreign policy objectives. Under US regulations, exporters that know or have reason to suspect that an end-user has connections to nuclear, chemical, biological weapons or missile programs of concern, then the exporter generally needs to obtain an export license, even for items that otherwise would not require licensing. Australia, Japan, Germany, the United Kingdom, even the Russian Federation have adopted variations of "catch-all" controls in their own regulations.[62]

In practice, these policies presume that governments and businesses will share, and accept, US intelligence information on questionable end-users.[63] Clearly, some Chinese officials simply do not trust US judgments on end-users or intermediates of concern, especially if US officials provide little evidence to substantiate their claims. At the same time, MOFTEC officials indicated that "catch-all" controls remained under consideration, and that current regulations might allow their implementation.

Training

Information on export control training in the PRC remains sketchy. Until the United States suspended the program in 1989, several delegations of Chinese officials received export control training in the United States. Given their resource constraints, MOFTEC has discussed assistance for a new program with Germany and Japan, as well as with the United States. Several officials attended Update '98 the annual conference on export controls hosted by the US Bureau of Export Administration. MOFTEC, Customs, and other government agencies allegedly train their officers on export controls, but mainly through "on the job" activities. In addition, company licensing officials supposedly get a small book of regulations. Customs agents reportedly train company officials on general export procedures and documentation, including information on nonproliferation export controls.

Apparently, the National CWC Implementation Office began by "training the trainers" at the provincial level.[64] These individuals and the National Office then began to train local authorities and local enterprises managers. The Association of the Chemical Industry provided technical help in this endeavor. At least one municipal government has organized local chemical experts to help enterprises make their declarations, prepare for inspections, and so forth. Convincing managers of chemical enterprises to adapt to the regulations proved difficult, as many did not see how activities of their enterprises could contribute to proliferation. Allegedly, COSTIND also sent officials to chemical enterprises under its control to prepare them for CWC implementation. The PRC also hosted a regional OPCW meeting in Beijing to help in the implementation process, and produced a booklet on the Notice on the Importer Statement on End-User and End-Use, however, the authors can not confirm these claims with physical evidence. More and more Chinese officials, however, have had direct exposure to presentations on US and multilateral export control systems, which constitutes another form of training.

Customs Authority

The Customs General Administration (CGA) serves as a regulatory agency for

items going in and out of the more than three hundred open ports of entry to China. As of July 1998, these branches went on an internal electronic data information network with the Beijing headquarters of the CGA. [65] The CGA reports directly to the State Council, independent of other administrative districts. The CGA coordinates its activities with MOFTEC and other agencies.

As with most countries, China has a law on customs (the Customs Law of the People's Republic of China, No. 414, promulgated on January 22, 1987 and in force on July 1, 1987), supplemented by more detailed regulations issued by the CGA. China also issued the "Rules of Implementation" for the trial versions of the import and export management system developed in the 1980s. CGA agents have a full range of responsibilities from collecting statistics, applying tariffs, to catching smugglers. Article 18 of the Customs Law, however, specifically grants the CGA authority related to export controls.

Customs agents supposedly inspect all outbound cargoes. If they can not define an item or suspect a violation, they send the item to a government laboratory or back to the company. If the infraction does not seem serious, the rules on smuggling (Article 47 of the Customs Law) apply, and agents reportedly enforce these on the spot. In more serious instances, agents take the case to the judiciary.

Customs agents use licenses and shipping declarations together as evidence for inspecting sensitive exports. Article 18 of the Customs Law Apparently customs keeps one copy of the export application, returning another to the exporter (MOFTEC has the third copy). According to one source, Customs agents halted several shipments of machines over proliferation concerns. Specifically, Customs asked MOFTEC whether the NSG list controlled certain machine tools (it did not).

Verification

Verification encompasses both Chinese cooperation with foreign authorities interested in assurances about the end-uses and end-users of items they export to China and the means Chinese officials use to track the end-uses and end-users of their own exports. In no small part, the historical context of foreign intervention in Chinese internal affairs

furnishes a context antagonistic to intrusive verification systems, especially those not based in multilateral treaties and universal principles. The PRC, however, cooperates closely with both the IAEA and OPCW on inspections.

The United States and other members of the Coordinating Committee on Multilateral Export Controls (COCOM) promised to reduce restrictions on technology transfers to China in the early 1980s. Consequently, US delegations began describing export control policies and the need for import certificates and other means of verification related to imports from the United States. The Department of Science and Technology of what has become MOFTEC began issuing its Importer Statement on End-User and End-Use in 1985, starting with about 1,000 International Import Certificates (IICs) per annum, a number that reached about 8,000 per annum in the mid-1990s.[66] During roughly the same time, the number of Written Assurances dropped from about 8,000 per year to about 500 per year in the late 1990s.[67]

In China, standard US practices regarding pre-license checks (PLCs) and especially post-shipment verifications (PSVs) run contrary to cultural norms regarding sovereignty and foreign intervention, as well as a reservoir of distrust on security issues. For PLCs, US embassy staff conduct inquiries regarding the bona fides of end-users, including site visits at times, with permission of Chinese authorities. In practice, PLCs require relatively non-intrusive forms of action by US officials. In contrast, PSVs usually require on-site inspection of the items in question and, in some cases, means of monitoring their use. Before 1998, the United States conducted about 300 PSVs each year around the world.

The PRC, as have India and several other countries, proved reluctant to agree to PSV requests. In 1991, nonetheless, Secretary of Commerce Barbara Franklin negotiated and signed a Memorandum of Understanding with PRC officials on post-shipment verification. This bore no fruit, however, as negotiations on conducting the PSVs reached an impasse and the MOU never saw implementation. In some instances,Chinese enterprises could and did create private accords that satisfied foreign governments, including the United States, regarding end-use. One Japanese company, for example, reached an understanding with its Chinese joint venture partner by indicating that export control issues

related to company policy, rather than reference Japanese government policy.[68]

In the late 1990s, the US Congress became more concerned about the potential diversion of high-performance computers in "Tier 3" countries, including China. [69] Consequently, Congress added a provision to the National Defense Authorization Act demanding PSVs for every high-performance computer exported to Tier 3 countries. Not only did this promise to strain the resources of Department of Commerce officials designated to conduct the PSVs, it was sure to increase tensions between the United States and China.

The June 1998 summit saw US and Chinese officials reach an agreement allowing US government agents to conduct several PSVs under the auspices of the PRC. Apparently, the PSV recognizes Chinese sovereignty, such that the staff of the Export Control Division of MOFTEC conducts the inspections, inviting US officials to participate. To initiate a PSV, the Chinese accept a "suggestion" from the United States. The two governments have carried out at least two PSVs, including one with a computer company that allegedly furnished nonproliferation compliance letters to US authorities that Chinese authorities had not signed. The Chinese representatives of the company reportedly sold their wares on the domestic market without appropriate concern for the end-user. In any case, Chinese officials anticipate more inspection requests, which will press the limits of MOFTEC resources. The authors anticipate that PSVs will continue to prove difficult to implement in practice even though China and the United States appear to agree on principals and procedures.

This issue has its parallel in terms of the Chinese approach to verification of the end-use and end-user of its sensitive items. As the regulations on chemical, nuclear, and nuclear dual-use items require government-to-government assurances from the recipient regarding end-use and retransfer agreements, the PRC has demonstrated a recognition of the diversion and retransfer problems. Chinese officials do not verify such assurances by direct checks. As one official put it regarding nuclear exports, China relies on "trust" more than verification to govern its transactions.[70] Apparently, China looks to the IAEA to handle of illicit diversion or retransfer of nuclear items, rather than attempting to respond

to it bilaterally. Similarly, recipients of Chinese dual-use chemical exports must furnish government assurances that such items will not go toward the manufacture of chemical weapons and will not be transferred to a third country without prior consent of the PRC.

Penalties

Beijing can institute criminal and other penalties for violations of the regulations on the transfer of sensitive items under Article 40 or the FTL. While the government may resort to several kinds of punishments, the regulations set out several penalties in detail.

For violations of the regulations on chemical items, the local department in charge of the chemical industry may confiscate any income from illegal trade, impose a fine between 100 and 200 percent of the volume of the business, as well as mete out a 50,000 Yuan fine on those that attempt to hide their activities.[71] The central government may also prosecute individuals for criminal liability through the Security Administration Punishment regulations.[72]

Under Article 24 of the current regulations on managing the export of military items, the State Military Articles Trade Bureau could order (and warn) companies to take "corrective measures" if they suspect a violation of Article 11 regarding provision of documents and information to support transactions. If the company did not comply, the Bureau could notify the old State Military Articles Trade Management Committee of the need to suspend the export privileges of the alleged violator. Where the entity does not have the right to trade in military articles, the Bureau could simply suspend export activities of the company in question and impose further punishments. How this process will work after the reorganization remains uncertain.

Violators of the regulations subject to criminal prosecution. Members of the military articles trade management institutions, moreover, may also fall pray to criminal penalties if they abuse or neglect their duties (see Article 29). In a show of legal sophistication, Article 28 sets out a dispute procedure, where companies within fifteen days of a suspension order could protest to the Committee. In those cases, the SMATMC had fifteen days to reconsider the order. This suggests that Chinese officials may have

experienced these problems before promulgating the regulations.

Transfers in violation of the nuclear or nuclear dual-use regulations face several similar punishments. If acts constitute a crime, then criminal penalties apply; in other instances punishments under the Customs or Foreign Trade laws may apply.[73] Separate articles in sets of regulations expressly make forging, altering, or trading Nuclear Export Permits or export licenses a crime, which responds to allegations that exporters have tried to use counterfeit documents to circumvent government controls. Neglect or abuse of duties by export control officials can result in criminal prosecution or administrative penalties.[74] In addition, Article 16 of the regulations on dual-use nuclear items grants MOFTEC the authority to revoke export licenses and terminate transactions when a recipient violates its guarantees.

Several Chinese officials indicated that in the first months of operations, no violations of nuclear export control regulations have occurred.[75] MOFTEC appears to have issued administrative punishments to companies and individuals that violate trade procedures, although this may not include cases involving the export of proliferation sensitive items. MOFTEC allegedly may issue warnings, terminate import rights for three to six months, revoke trading certificates, confiscate imports, have personnel fired, or close enterprise operations entirely. One former MOFTEC official claimed that MOFTEC punished at least ten companies for violation of import regulations, possibly including the import of sensitive technologies.[76]

The authors saw no evidence of sanctions for export violations related to proliferation items. Several officials contended they had detected no violations of nonproliferation regulations so far. This may reflect a low volume of sensitive exports and tight management on the few enterprises with the right to trade in such items. As customs agents may impose fines and other penalties for "smuggling" violations on the spot, these may not appear in Chinese calculations of violations. At the same time, US officials continue to point to the PRC has a major supplier of sensitive items, which may suggest serious concerns regarding enforcement of PRC regulations.

Information Sharing

By 1998, Chinese export controls have become far more transparent through several measures. As noted earlier, published regulations, rather than unpublished notices, now cover the majority of sensitive goods and technologies. Printing the regulations in the People's Daily sets them on a different communicative as well as legal plain than the State Council sending notices to provincial, local governments, or enterprises. MOFTEC also publishes export control regulations in their circular. According to one source, relevant information on the regulations and the trading companies also appear on the MOFTEC website (although not on the MOFTEC website available outside of China).[77] MOFTEC officials have begun efforts to translate and publish the regulations in English and Chinese in brochure format.[78]

Delegations of Chinese officials, moreover, have attended export control meetings and seminars in unprecedented numbers. These efforts went beyond the government-to-government discussions to include interaction with nongovernmental organizations (NGOs, see Table 6).

Most important, Chinese officials at these meetings did more than serve as passive

Table 6

Selected Chinese Export Control Presentations Overseas, 1996-98

Activity	*Location*	*Date*
Asian Export Control Seminars	Tokyo	Winter 1996, 1997, 1998
Jiang-Clinton Summit	Washington	September 1997
Zangger Committee Meeting	Vienna	October 1997
CITS/UGA Workshop	Waseda University, Tokyo	December 1997
Government Bilateral	Washington	April 1998
LAWS Seminar	Washington	May 1998
Asia Foundation, BXA Update '98	Washington	July 1998

receptacles of information. Delegates from MOFTEC, the Ministry of Foreign Affairs, CAEA, Customs, the State Planning Commission and other units of the Chinese government made frequent, sometimes public, presentations on the Chinese export control system and on Chinese perspectives on export controls. Units in the Ministry of Foreign Affairs and elsewhere have commissioned studies on export controls among other countries in Asia and the Pacific, as well as study that of the United States. Most important, China now takes regular part in the Zangger Committee, the OPCW, and other organizations that depend on significant information exchanges. The PRC, for example, hosted the first regional OPCW seminar in September 1998 in Beijing. In contrast to only a few years earlier, it appears that many more Chinese scholars, officials, enterprise managers have familiarity with, as well as an interest in, nonproliferation export controls.

Findings and Conclusions : A More Compatible System,But Lingering Uncertainties

Using the CITS/UGA assessment methodology, the PRC garnered a raw score of 41 out of a possible 72 and a total weighted score of 27.1 out of a possible 41.82 (see Table 7). In percent, the measures indicate that the PRC system of export controls now stands as 57% and 65% compatible with emerging multilateral standards, using raw and weighted scores respectively. In terms of the weighted score, this represents a remarkable 29% increase in compatibility from the previous assessment. In raw terms, the increase equals an even more notable 49%. Again, these scores only chart the differences between Chinese nonproliferation export controls and current multilateral standards, not the effectiveness of the Chinese system.

The gap between Chinese policy and multilateral norms in several elements offers real opportunities for building cooperation. Several government agencies, quasi-government organizations, NGOs, and businesses in the United States, Japan, Hong Kong, Australia and elsewhere have extensive programs or experience in training government officials about export controls. This form of technical assistance could benefit both China and the international community. Similarly, although Chinese officials have become notably more interested in exchanging information on export controls, several

Table 7
Elements of the PRC System of Nonproliferation Export Controls
Fall 1996 and Fall 1998
(Raw Score/Weighted Score)

Control Element	*1998*	*1996*
Licensing (6/7.47)	5/6.2	5/6.2
Bureaucratic Process (6/3.47)	4.5/2.6	4.5/2.6
Lists (3/6.34)	2.5/5.3	2/4.2
Regime Adherence (12/3.2)	5/1.3	2/0.5
Catch-All Controls (3/1.2)	0/0.0	0/0.0
Training (9/3.87)	3/1.3	1/0.4
Customs Authority (6/6.6)	4/4.4	3/3.3
Verification (9/3.67)	5/2.0	3/1.2
Penalties (6/1.8)	4/1.2	4/1.2
Information Sharing (12/4.2)	8/2.8	3.5/1.2
Totals (72/41.82)	***41/27.1***	***27.5/20.9***
Percent of Total (100/100)	***56.9/64.8***	***38.2/50.1***

governments, groups, and businesses have considerable experience engaging exporters and other suppliers of sensitive items on export control topics. Improved cooperation in these two elements would also generate more trust between officials in the two countries, which could spin-off into cooperation in areas where more axiomatic differences persist.

As one might expect, the PRC system diverges most in areas related to implementation (see Table 8). Nonetheless, significant differences remain in the areas of policy design and policy process. Fundamental issues over multilateral export control arrangements and the use of catch-all controls account for much of this difference.

In the context of international treaty obligations, such as with the CWC and the NPT, Chinese officials seem willing to establish a relatively compatible system of export controls. In the case of nuclear items, they extended controls to a broader range of items more in conformity with the NSG when the PRC could gain from striking a bilateral bargain. To a lessor extent, the role of bargaining applies to Chinese controls on missile items, although this does not have an international treaty framework and has proven more

Table 8

The PRC Nonproliferation Export Control System and Questions of Policy Design, Process, and Implementation, CITS/UGA Assessment Method November 1998 (Possible Score)

Design (24)	Process (24)	Implementation (24)
15.5	14.0	11.5

difficult to manage.

Many Chinese asserted that the government places considerable importance conducting itself with the probity expected of a responsible power in world affairs. Trying to disentangle national self-interest from inculcation of international norms as competing explanations, however, goes beyond the scope of this study. Clearly, external rewards and punishments have played some role in the development of Chinese policy. At times, for example, US warnings have met with a conciliatory response, such as threats to deny most-favored-nation status and sanctioning enterprises in 1991 or putting all Ex-Im Bank loans on hold for three months in 1996. The prospect of concrete benefits, such as improved access to nuclear technology or increased use of Chinese launchers for commercial satellites, has also had a positive impact on Chinese initiatives to build more comparable export controls or restrict exports of sensitive items. In several instances, the bargain goes outside the boundaries of the issue in question, such as a quid pro quo for limiting arms sales to Taiwan or support for Chinese membership in the World Trade Organization.

This suggests that Chinese officials generally do not share the same values on nonproliferation issues as their US or Japanese counter-parts. It also implies that Chinese membership in the supplier arrangements (other than Zangger) may prove disruptive to the point of incapacitation. This difference in views does not preclude cooperation on export controls, and the development of a more effective multilateral system. The South Asian nuclear tests and the North Korean missile test in 1998 certainly enhanced Chinese interest in nonproliferation, so much common ground does exist. The differences in perspectives, however, suggest that complementary strategies, such as creating a treaty framework for

missile proliferation, meshing the Australia Group more directly within the CWC and OPCW network, or demonstrating the link between nonproliferation and regional stability and economic prosperity, may bring China closer to multilateral export control norms faster than the current focus on the inherent security values of nonproliferation.

The United States licenses several billion dollars worth of high-technology items to the PRC each year. Issues related to nonproliferation export controls, however, can have a chilling effect well beyond the amount of trade they directly impact. One large Japanese high-technology company, for example, sends its products from its factories in China to its subsidiaries or customers in countries with strong export control systems in order avoid any proliferation problems, a strategy that significantly limits sales in China and elsewhere.[79] More recently, Congressional critics of China and the Clinton administration have used transfers of sensitive items to or from China to invigorate their campaign to impose a wider range of sanctions on the PRC. To these critics and others, more complete integration of the PRC into the multilateral network of export controls remains a litmus test for future cooperation with the United States, its friends, and allies.

Despite a continuing gap between the Chinese export control systems and those of other major supplier states, Chinese officials have made vast strides in reconstructing their export control system. Many of these officials ask for patience, and point to this record of change as evidence of their intentions. In a broader sense, whatever the ultimate structure of Chinese export controls, failure to integrate China into the emerging multilateral export control system would fail another kind litmus test. Without a strong multilateral export control system that includes China, the world will have to find alternatives to current supply-side policies --- alternatives that so far have proven either more risky, less effective, or both.

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Notes

1 Office of the Press Secretary, The White House, *Fact Sheet: Achievements of the U.S.-China Summit*, June 27, 1998.

2 Dual use items equal those goods, technologies, and services that have both commercial and military applications.

3 Joshua Michael Boehm and Zachary S. Davis, *The 1985 U.S.-China Agreement for Nuclear Cooperation : Moving Toward Implementation?"* CRS Report for Congress, 97-440 ENR, Washington, DC: Library of Congress, April 10, 1997.

4 For discussion of Chinese nonproliferation policy in recent decades, see Wendy Freiman, "New Members of the Club : Chinese Participation in Arms Control Regimes, 1980-1995," *The Nonproliferation Review*, 3, 3 (Spring-Summer, 1996), pp. 15-30 or Zhu Mingquan "The Evolution of China's Nuclear Nonproliferation Policy," *The Nonproliferation Review*, 4, 2 (Winter 1997), pp. 40-48.

5 These include Director of Central Intelligence, *The Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions: July - December 1996* (June 1997); Office of the Secretary of Defense, *Proliferation: Threat and Response*, November 1997; Committee on Governmental Affairs, US Senate, *The Proliferation Primer: A Majority Report of the Subcommittee on International Security, Proliferation, and Federal Services January*, 1988 ; and Shirley A. Kan, *China's Compliance with International Arms Control Agreements*, 97-850 F, Washington, DC: Congressional Research Service (January 16, 1998).

6 Wang Xiaodang and Pan Xiaoying, "China: Spokesman Comments on Nuclear Tests, Missile Exports," FBIS-CHI-98-153, Beijing Xinhua Hong Kong Service in Chinese on 2 June 1998. See also "China: 'Text' of Defense White Paper," FBIS-CHI-98-208, Beijing Xinhua in English at 0339 GMT 27 July 1998.

7 Part 1, Annex B, 5.1.2.a. of the IAEA Zangger Committee Trigger List describes the tolerances for magnets that "may be ring-shaped" that fall under the controls for magnetic suspension

bearings. The $70,000 worth of ring magnets may have fit these tolerances and certainly seemed destined for an unsafeguarded facility in Pakistan.

8 For a good discussion of these sanctions, see Robert S. Ross, "China," pp. 10-34 in Richard N. Haass, ed., *Economic Sanctions and American Diplomacy*, Washington, DC: Council on Foreign Relations Books, Brookings Institution Press, 1998.

9 Correspondence with U.S. Department of Commerce, July 1998.

10 Charles A. Goldman and Jonathan D. Pollack, Engaging China in the International Export Control Process: Options for U.S. Policy, Washington, DC: RAND, 1997, p. 17.

11 Tseng Hai-tao, "Jiang Zemin Pushes Forward Restructuring of Military Industry - Developments of State Commission of Science, Technology, and Industry for National Defense and Five Major Ordnance Corporations," *Hong Kong Kuang Chiao Ching* (in Chinese), 310, 16 July 1998, pp. 18-20, translated in "China: Journal on PRC Military-Industrial Reform Document Number," FBIS-CHI-98-209, 28 July 1998, World News Connection.

12 See Richard T. Cupitt and Yuzo Murayama, *Export Controls in the People's Republic of China: Status Report 1997*. Athens, GA: CITS/UGA, 1997.

13 Where the authors have but a single source, they use either allegedly, reportedly, or similar wording.

14 For a more complete description of the methodology, see Suzette Grillot, "Explaining the Development of nonproliferation Export Controls: Framework, Theory, and Method," pp. 1-29 in Gary K. Bertsch and Suzette R. Grillot, eds., *Arms on the Market: Reducing the Risk of Proliferation in the Former Soviet Union*, New York: Routledge, 1998. Tracking developments in export control systems remains an important task for the members of the multilateral export control arrangements, as the recent decision by Australia Group members to conduct a survey of laws on terrorism involving chemical and biological terrorism.

15 Wendy Frieman, ""New Members of the Club: Chinese Participation in Arms Control Regimes, 1980-1995;" Zhu Mingquan "The Evolution of China's Nuclear Nonproliferation Policy;" Kan, *China's Compliance with International Arms Control Agreements.*

16 "China: 'Text' of Defense White Paper," FBIS.

17 Interview, Beijing, May 1998.

18 For a brief historical account, see Richard W.X. Hu, "Nonproliferation Export Controls in China: Policy Evolution and Statutory Development," paper delivered at the Nonproliferation Export Control Regimes in Asia workshop, Waseda University, Tokyo, Japan, December 11-12, 1997.

19 China passed its Foreign Trade Law on May 12, 1994. For a discussion of the law and its provisions, see Wang Chaoyin, editor, *Duiwai Mao Yi Fa Jiang Hua* [Explanations for the Foreign Trade Law], Beijing: People's Court Press, July 1994.

20 For a discussion of the main points of the regulations, see Fu Cong, "An Introduction to China's Export Control System," *The Monitor: Nonproliferation, Demilitarization and Arms Control*, 3/4, 4/1 (Fall/Winter 1998), pp. 17-19. For a translation of the regulations from the Chinese, see "Regulations of the People's Republic of China on Managing Exports of Military Articles," FBIS-CHI-97-305, Beijing Xinhua Domestic Service, 0659 GMT October 1997. For an outline of earlier regulations, see State Council of the People's Republic of China, *China: Arms Control and Disarmament*, Beijing: Information Office of the State Council, November 1995.

21 A former Minister of Finance and Vice-Minister of Aviation, Mr. Lu symbolizes the emphasis on putting the PLA enterprises under civilian control. Until December 1996, General Ding Henggao

chaired COSTIND, when Lieutenant General Cao Gangchuan replaced him. This also followed the retirement of Nie Li, wife of General Ding, from the leadership of COSTIND in 1994 and the retirement of General Liu Huaqing from the Central Military Commission. From his position in the CMC, General Liu reportedly oversaw and had a stake in many of the PLA 15,000 enterprises. As the daughter of Marshal Nie Rongzhen, Nie Li exercised considerable influence over the commission, but fell in the campaign to reduce nepotism in the defense industry. See Seth Faison, "China Moves to Untie Military Industry Knot," *The New York Times*, July 28, 1998, pp. A1 and A6.

22 Seth Faison, "China Moves to Untie Military Industry Knot," pp. A1 and A6.

23 Liu Xiaohua, "Zhu Rongji Discusses Matters of Vital Importance With Military - Inside Story of Reorganization of China's Five Major Military Industry Departments," FBIS-CHI-98-065, Hong Kong *Kuang Chiao Ching* (in Chinese), 305, 16 February 1998, pp. 20-23.

24 For more detailed if somewhat dated analyses of the evolving Chinese defense industry, see John W. Lewis, Hua Di, and Xue Litai, "Beijing's Defense Establishment: Solving the Arms-Export Enigma," *International Security*, 15, 4 (Spring 1991), pp. 87-109); Yan Kong and William C. Potter, "Comments on "Beijing's Defense Establishment," Eye on Supply, 4 (Spring 1991), pp. 74-77; and *China's Defense-Industrial Trading Organization*, Defense Intelligence Reference Document PC-1921-57-95.

25 Li Zhengyan interview with Tan Zhuzhou, vice minister of Chemical Industry and director of the Office for the Convention on the Prohibition of Chemical Weapons under the Ministry of Chemical Industry, "PRC: Official Reviews Dangerous Chemicals Catalogue," FBIS-CHI-96-123, Beijing Xinhua Domestic Service in Chinese, 2225 GMT, 9 June 1996.

26 "PRC: Regulations on Monitoring Chemical Products," FBIS-CHI-96-082, "Regulations of the People's Republic of China on Managing Controlled Chemical Products" Beijing *Renmin Ribao* in Chinese, 4 January 1996, p5.

27 For the seminal works on this history, see Weixing Hu, "China's Nuclear Export Controls: Policy and Regulations," *The Nonproliferation Review*, 1, 2 (Winter, 1994), pp. 3-9; and Richard W.X. Hu, "Nonproliferation Export Controls in China." Especially see the June 15, 1987 State Council regulations on control of nuclear materials.

28 Testimony of Robert J. Einhorn, Deputy Assistant Secretary of State for Nonproliferation, House Committee on International Relations, "Hearing on U. S. - China Nuclear Cooperation Agreement," February 4, 1998,
http://www.house.gov/international_relations/full/ws2498.htm.

29 At least one Chinese source, however, indicated that work on nuclear export control regulations started as early as late 1993, in part based on unpublished internal regulations developed by the Ministry of the Nuclear Industry in 1989.

30 Allegedly, this was in the form of a *hong tou* or red banner document that gives authoritative administrative guidance (Briefing, MOFA official, Washington, May 1998). The trigger list covers items that require safeguards under Article III (2) of the NPT found in Annex A to the Guidelines for Nuclear Transfers (see IAEA Information Circular 254, Part I), with clarifications in Annex B.

31 Interviews with CAEA and MOFTEC officials, Beijing and Washington, May 1998. Officials indicated they hope to keep the number of enterprises with authority to trade in nuclear dual-use items small. SINOCHEM apparently trades in heavy water, which China originally listed as a

chemical item.

32 Interview, Shanghai, August 1997.

33 The License Bureau, which also handles textiles, formally handles the paperwork of issuing the licenses. The License Bureau also informs Customs when it issues a license.

34 Interviews, MOFTEC officials, Beijing and Washington, May 1998.

35 Peng Kai-lei, "Establishment of State Council Organs Determined," *Hong Kong Wen Wei Po* in Chinese, 15 April 1998, p. A3, FBIS-CHI-98-106, April, 16, 1998.

36 The old military export committee allegedly included representatives from the Ministry of Foreign Affairs, the Headquarters of the General Staff Department, COSTIND, MOFTEC, and other units. See the State Council of the People's Republic of China, *China: Arms Control and Disarmament*, p. 22.

37 Telephone interview with MOFTEC official in Beijing, September 1998.

38 Interview, General Armaments and Equipment Department official, Shanghai, November 1998.

39 Interview, MOFTEC official, Beijing, September 1998.

40 Peng Kai-lei, "Establishment of State Council Organs Determined."

41 Interview, Beijing, September, 1998.

42 Briefing by CAEA official, Washington, May, 1998. In the Spring of 1998, Beijing abolished the CNNC, the bureaucratic home of the CAEA. The CAEA continued to function, although reportedly with a much reduced staff (50 versus 500). The CAEA now reports to COSTIND. It seems likely that the General Staff Department or the Armaments Department under the CMC will command the military nuclear complex rather than the civilian led COSTIND, but this remains unclear..

43 Article 11, State Council Decree 230 and interview, MOFTEC official, Washington, May 1998.

44 Interview, MOFA official, Washington, May 1998.

45 Interviews, MOFTEC officials, Beijing and Washington, May 1998.

46 Li Zhengyan, "PRC: Official Reviews Dangerous Chemicals Catalogue."

47 These items contain phosphorous, sulfur, and fluorine that might go toward the production of chemical weapons.

48 The Permanent Mission of the People's Republic of China to the United Nations and Other International Organizations in Vienna , "Statement by Ambassador Li Changhe of the Chinese Permanent Mission in Vienna at the Meeting of the Zangger Committee," English translation, mimeo, October 16, 1997, p. 3.

49 Article 20 of the Nuclear Exports Control regulations.

50 Article 21, Regulations for Controlling the Export of Dual-Purpose Nuclear Goods and Relevant Technologies.

51 Interview, Beijing, May 1998.

52 Interview, MOFTEC official, Washington, May 1998.

53 The White House, "Achievements of the U.S.-China Summit," Fact Sheet, Beijing: Office of the Press Secretary, June 27, 1998, p. 1.

54 Discussion, Chinese proliferation scholars, Washington, April 1998.

55 For non-nuclear weapons states, the key is placing all their nuclear facilities under international safeguards.

56 Including demarches. Testimony of Robert J. Einhorn, Deputy Assistant Secretary of State for Nonproliferation, House Committee on International Relations, "Hearing on U.S. - China Nuclear

Cooperation Agreement," February 4, 1998, http://www.house.gov/international_relations/full/ws2498.htm.

57 The letter reportedly included a promise to join the NPT by April. At least one source suggested that the United States also committed to getting China into the WTO, but the contents of the letter remains unavailable to the public. According to another report, at least one of the principals specifically denies this charge.

58 Charles A. Goldman and Jonathan D. Pollack, *Engaging China in the International Export Control Process: Options for U.S. Policy*, p. 7.

59 The sanctions did not affect existing contracts, which would permit Loral to work with China Great Wall Industry Corporation to launch satellites scheduled for 1996 and 1997.

60 Interviews with several US State and Commerce Department officials, Washington, DC, May and June 1998.

61 MTCR Guidelines has a strong presumption of denial for the transfer of whole missile systems that exceed MTCR parameters, but may permit such transfers given assurances by the recipient government against modification, replication, transfer or change in designated end-use (i.e., not for a WMD delivery system) without the prior consent of the supplier state.

62 In Japan, for example, "catch-all" controls apply to controlled items and to "spec down" (less technologically advanced) versions of those items. This approach has its parallel in the regulations of the European Union.

63 Although the intelligence services of several countries can and have made contributions to end-user assessments, the resources and interests of the US intelligence services generally serve as the primary, if not sole, source of evidence on proliferation issues.

64 Interview, Beijing, September 1998.

65 Interviews, Chinese officials, Washington, May 1998 and Beijing, September 1998.

66 Interview, former MOFTEC official, Beijing, November 1996.

67 Interview, MOFTEC official, Washington, May 1998.

68 Interview, Japanese company export control director, Tokyo, November 1996.

69 High-performance computers are computers that can process more than 2,000 million theoretical operations per second (MTOPs).

70 Interview, Washington, May 1998.

71 Articles 23 and 24. Articles 21 and 22 spell out punishments for those who illegally produce or use controlled items.

72 Article 25.

73 Article 17 of the Regulations of the People's Republic of China on Control of Nuclear Exports and Article 18 of the Regulations of the People's Republic of China on the Export of Dual-Purpose Nuclear Goods and Relevant Technologies.

74 Article 19, Nuclear Export Regulations.

75 Interviews in Beijing and Washington, May 1998.

76 Interview, former MOFTEC official, Beijing, November 1996.

77 Interview, MOFTEC official, September 1998.

78 The first brochure, *The Regulations of the People's Republic of China on the Administration of Arms Export*, appeared in 1998. In a sign of the changing times, the publishing unit, the State Administration of Arms Trade of the People's Republic of China, did not survive the reforms.

79 Interview, Japanese company officials, Beijing, November 1996.

Appendix

Institutional Affiliations of Chinese Interviewed, 1996-1998

Institutions

Chinese Academy of Engineering Physics (CAEP)

Department of International Relations and Cooperation

Institute of Fluid Physics

Chinese Academy of Social Sciences

Institute of American Studies

Institute of World Economics and Politics

China Aerospace Corporation

Systems Engineering Research Center

Chinese Academy of Launch Vehicle Technology

China Atomic Energy Authority

Bureau of International Cooperation

China Commission of Science, Technology & Industry for National Defense (COSTIND)

Foreign Affairs Department

China Defense Science and Technology Information Center

Program on Arms Control and Disarmament

Weapons System Development and Arms Control Studies Department

China Institute for International Strategic Studies

China Institute of International Studies

China Institute of Nuclear Industry Economics

China Kang Fu International Leasing Corporation

China Ordnance Industry

Institute of System Engineering

Chinese Chemical Monitoring Society

Chinese Institute of Contemporary International Relations

Center for China's Foreign Policy Studies

Division of Comprehensive Studies

Customs General Administration

Department of Supervision & Control

Foundation for International & Strategic Studies

Fudan University

Center for Analysis and Measurement Studies

Program on Arms Control & Regional Security

Guanghua & Krohne (Group)

Institute of Applied Physics and Computational Mathematics (IAPCM)

Program for Science & National Security

Ministry of Foreign Affairs

Department of Arms Control and Disarmament

Department of North American and Ocianian Affairs

Ministry of Foreign Trade and Economic Cooperation

Department of Science and Technology

National CWC Implementation Office

National Space Administration

North Industry Corporation (NORINCO)

National Defense University (PLA)

Institute for Strategic Studies

Peking University

Institute of International Relations

Institute of Afro-Asian Studies

People's Liberation Army (PLA)

General Armaments and Equipment Department

Shanghai Foreign Trade Institute

Shanghai Huang Pu District Committee

Shanghai Shen Hang Import & Export Corporation

Shanghai Zhong Yuan Chemical Co., Ltd.

Sinopec Jinling Petrochemical Corporation (interviews by Morgan Flo)

State Planning Commission

Office of Nuclear Power

Tsinghua University

Institute of International Studies