

Report

Recent Developments in China's Export Controls: New Regulations and New Challenges

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In August and October 2002, China issued comprehensive new export control regulations that cover missile technology, chemical weapons precursors and technology, and biological agents. The government also amended the regulations controlling exports of military products. These new and amended regulations and their corresponding control lists have largely brought Chinese export controls in line with existing multilateral weapons of mass destruction (WMD) export control regimes such as the Missile Technology Control Regime (MTCR) and the Australia Group (AG). After years of resisting U.S. pressure, Beijing finally has openly published export controls that cover all the major classes of WMD (nuclear, chemical, and biological weapons) and their delivery systems (ballistic missiles). This policy shift can be attributed both to China's increased recognition of the dangers that WMD proliferation pose to its own security and to a concerted Chinese effort to improve relations with the United States. Chinese government officials have spoken of a desire to end persistent conflicts with the United States over such irritants and to "move non-proliferation to the positive side of the ledger" in bilateral relations.¹

The new export control regulations fill most of the gaps in China's previous export control regime that had been identified by U.S. policymakers. For example, dual-use chemicals and chemical weapons- (CW-) related equipment whose transfers had recently caused the United States to impose sanctions on Chinese companies are covered by the new control lists.² Even more significantly, China has included "catch-all" articles in all three of its new export control regulations. Catch-all clauses, which are recommended in both the MTCR and AG guidelines, cover any items exported to entities involved in WMD programs, regardless of whether the items are specifically included in export control lists. In the case of the new missile-related export controls, China has exceeded the requirements of the MTCR in some aspects.

The new regulations and control lists will consolidate China's emerging domestic export control system by developing and nurturing rule-based export practices. In the past, the Chinese government often claimed the companies implicated in proliferation transfers were violating official regulations, when in fact no clearly defined regulations and lists were publicly available. The

new regulations and control lists remove an excuse for past proliferation transfers and mean that the Chinese government will now shoulder greater responsibility should future violations occur.

The new regulations were issued on the eve of Jiang Zemin's summit visit to the United States to meet with President Bush at his Crawford, Texas, ranch on October 25, 2002. The Bush Administration had made it clear that improvements in China's nonproliferation behavior were essential for better bilateral relations. Creating a positive atmosphere ahead of the summit was an important motivation for the timing of the release of these new regulations. At the same time, the 2001 terrorist attacks have heightened China's awareness of its own security needs with regard to the spread of WMD and their delivery systems. The regulations likely reflect a growing sense that proliferation of nuclear weapons and missiles to countries like North Korea may stimulate reactions that destabilize the security environment in Asia and damage China's own security interests. Indeed, according to Chinese officials, China's nuclear, chemical, and biological control lists now cover all the items, equipment, and technology contained in the international (Chemical Weapons Convention [CWC]) and multilateral (the Zangger Committee, the Nuclear Supplier Group, and the AG) control lists, while its missile control list is by and large identical with the MTCR Annex.³

Although the new regulations are a significant step in the right direction in limiting dangerous proliferation of WMD and their delivery systems, China's views on some contentious nonproliferation issues have not changed. While China has now accepted the substance of AG and MTCR guidelines, it remains reluctant to join these bodies officially because of concerns about their discriminatory nature. In addition, China has continued to call for proper balance between WMD nonproliferation export controls and promotion of "normal" trade between states. This stance can be interpreted as demonstrating China's intention to implement its new regulations based on its own understanding of which states pose risks to the nonproliferation regime and which items should require more stringent controls. Although the new regulations close loopholes that have previously been exploited by Chinese companies, the Chinese government will retain the right to issue export licenses based on its own assessment of the risks associated with specific technologies and specific end users. In other words, the regulations by themselves will not nec-

essarily limit China's trade of controlled items with countries like Iran. How the new export controls are implemented, and how rigorously the Chinese government enforces them, will determine their ultimate effectiveness in stopping exports of Chinese technology that can be used to produce WMD and their delivery systems.

The new Chinese export control regulations reflect more than a decade of U.S. and Chinese interactions on proliferation issues. The U.S. government should continue efforts to shape Beijing's perspectives on nonproliferation by engaging China in strategic dialogue. Effective implementation of the new regulations will depend on the resources China's central government is willing to put into improving and strengthening its export control infrastructure through capacity building, personnel training, dissemination of export control regulations, corporate compliance education, interagency review and approval processes streamlining, and the establishment of a viable post-shipment end-user/end-use verification system. The United States could play an important role in helping the Chinese government accomplish these goals.

CHINESE PROLIFERATION AND EXPORT CONTROLS

Over the past two decades, Chinese thinking about proliferation has changed radically. In the 1960s and 1970s, China was highly suspicious of international arms control and nonproliferation efforts, regarding them as attempts by the two superpowers to institutionalize their nuclear superiority at the expense of developing countries. This attitude began to change after the adoption of the *gaige kaifang* (reform and opening up) policy in the late 1970s. Over the next two decades, China gradually joined major international political, economic, and security organizations and institutions and began to take a more critical attitude toward proliferation of weapons of mass destruction.⁴

The initial impact of Chinese economic reforms was to reduce military purchases of weapons systems and to encourage state-owned industries (including those manufacturing weapons) to seek external markets for their products. As a result, China quickly emerged as one of the leading suppliers of arms and dual-use technologies.⁵ In the 1980s, revelations of Chinese nuclear and missile transfers to countries in the Middle East, the Persian Gulf,

and South Asia raised serious proliferation concerns and were a contributing factor in the U.S. "China threat" debate.⁶ Among the most controversial Chinese arms transfers were the sale of the Dong Feng 3 (CSS-2) intermediate-range ballistic missiles to Saudi Arabia, the sale of HY-2 (Silkworm) anti-ship missiles to Iran, a nuclear reactor deal with Algeria, and transfers of nuclear weapons design information, fissile material, and ballistic missile and missile production technology to Pakistan.⁷

Major sales like the ones listed above undoubtedly required official government approval. Motivations for Chinese proliferation activities in the 1980s and early 1990s included earning profits to support military modernization, increasing Chinese geopolitical influence in the Middle East and South Asia, and developing leverage to try to limit U.S. arms sales to Taiwan.⁸ As concerns about China's proliferation of WMD technology grew, Chinese leaders came under increasing international pressure to behave more responsibly and to control exports of technologies that could be used in WMD programs. At the same time, the growing volume of Chinese exports and the increasing commercial orientation of Chinese companies made it more difficult for the government to monitor and control exports of dual-use equipment and technology. International pressure eventually produced a series of Chinese nonproliferation commitments. However, China's rudimentary export control system and uneven implementation of its nonproliferation pledges caused continuing concerns about Chinese proliferation behavior. Today's concerns are primarily about Chinese exports of dual-use technology that could be applied to ballistic missile and chemical weapons programs.

Improvements in Chinese behavior have been the product of several factors. As China became more integrated into the international community, its leaders revealed an extreme sensitivity to China's international image as a responsible great power. Traditional "principled objections" to nonproliferation norms left China isolated and exposed Chinese leaders to international pressure to behave in a responsible manner by joining the arms control and nonproliferation regime. This diffuse international pressure was supplemented by efforts of individual countries (notably the United States and Japan) to use incentives and sanctions to modify China's arms control and proliferation behavior. Another factor was increasing acceptance of the argument that WMD proliferation posed a significant threat to regional and global security.

Chinese analysts and officials gradually became convinced that WMD proliferation in East Asia, South Asia, and the Middle East could pose a direct threat to Chinese economic and security interests. A final factor was the recognition that arms control and confidence-building measures could potentially contribute to a more stable international environment that would support Chinese economic modernization.⁹ Since the end of the Cold War, Beijing has made gradual yet significant progress in three key areas of its nonproliferation policy:

- Joining major international arms control and nonproliferation treaties and conventions
- Reaching bilateral arrangements with the United States to adhere to missile and CBW nonproliferation standards
- Promulgating domestic export control regulations.¹⁰

Joining International Regimes

An important indicator of China's acceptance of international nonproliferation norms can be found in its participation in major international treaties and conventions. Since the early 1990s, China has joined the Non-Proliferation Treaty (NPT) (1992), signed (1993) and ratified (1997) the CWC, and signed (1996) the Comprehensive Test Ban Treaty (CTBT). Beijing has enunciated in clear terms the three principles governing its nuclear exports: (1) IAEA safeguards, (2) peaceful use, and (3) no re-transfers to a third country without China's prior consent. In May 1996, the Chinese government further pledged not to provide assistance to unsafeguarded nuclear facilities. In October 1997, China formally joined the Zangger Committee. Table 1 summarizes China's commitments to international nonproliferation treaties and multilateral export control regimes.

Bilateral Nonproliferation Arrangements

Although China has signed or acceded to most of the major international nonproliferation treaties, it has taken a more skeptical attitude about the legitimacy of export control regimes for nonproliferation purposes. Chinese officials have argued that regimes such as the Australia Group and the MTCR discriminate against developing countries and may limit their legitimate right to economic development.¹¹ In addition, China has also argued that these export control regimes conflict with multilateral treaties such as the NPT and CWC. China has complained in the past, for example, that regimes such as the AG create "parallel export control mechanisms" and

“undercut the authority” of the CWC.¹² Despite their official disapproval of the AG, China did agree during the 1998 Clinton-Jiang summit to extend its export control lists to cover some chemical weapons precursors not covered by the CWC but on the Australia Group’s lists. (As discussed below, the remaining AG items are now included in the CBW-related regulations issued in October 2002.)

Because no international treaties restrict exports of ballistic missiles and missile technology, U.S. concerns about Chinese missile exports have been addressed mainly through bilateral arrangements. Since the early 1990s, the U.S. government has imposed a series of sanctions in response to alleged Chinese missile transfers.

At the same time, Washington has also sought to influence Beijing’s missile transfer behavior and persuade it to abide by the MTCR guidelines by offering economic incentives such as technology transfers and allowing U.S. satellites to be launched on Chinese rockets. In June 1991, the Bush administration imposed sanctions on China for alleged missile-related transfers to Pakistan and planned M-9 missile exports to Syria. In November 1991, the Chinese government gave a verbal assurance of its intention to adhere to MTCR. This was followed by a written commitment in February 1992. The United States subsequently lifted the sanctions.

However, ambiguities in China’s 1991 pledge led to continued controversy. No resolution was reached on the

TABLE 1
CHINA AND INTERNATIONAL NONPROLIFERATION REGIMES

International Treaties and Negotiations	Multilateral Export Control Regimes
Acceded to the Non-Proliferation Treaty (NPT), March 1992	Pledged to abide by the original 1987 Missile Technology Control Regime (MTCR) Guidelines, February 1992
Signed the Chemical Weapons Convention (CWC), January 1993; ratified CWC and joined the Organization for the Prohibition of Chemical Weapons (OPCW) as a founding member, April 1997	Agreed in the October 1994 U.S.-China joint statement to adhere to the MTCR and to apply the concept of “inherent capability” to its missile exports
Participated in the United Nations Register of Conventional Arms from 1993 to 1997	Officially joined the Zangger Committee, October 1997
In the October 1994 U.S.-China joint statement, indicated support of the negotiation and “earliest possible achievement” of a Fissile Material Cut-Off Treaty (FMCT)	Promulgated the Regulations on Nuclear Export Control in September 1997 and the Regulations on Export Control of Dual-Use Nuclear Goods and Related Technologies in June 1998; attached lists similar to Zangger and Nuclear Suppliers Group lists
Supported the indefinite extension of the NPT, May 1995	Announced a series of decrees and circulars governing chemical exports: Circular on Strengthened Chemical Export Controls (August 1997); Decree No.1 of the State Petroleum and Chemical Industry Administration (June 1998); the latter covering 10 out of 20 dual-use chemicals on the Australia Group’s control list
Signed the Comprehensive Test Ban Treaty (CTBT), September 1996	Issued the Regulations on Export Control of Military Items, October 1997
Signed the Additional Protocol to its Safeguards Agreement with International Atomic Energy Agency (IAEA) (“93+2”) in 1998; domestic legal procedures for entry of force of the Protocol completed in 2002 (However, China has yet to adopt IAEA full-scope safeguards.)	Participated in 1997-98 U.S.-China official talks on China’s possible membership in the MTCR

Source: Adapted from China Profiles database compiled by the East Asia Nonproliferation Program, Center for Nonproliferation Studies. < <http://www.nti.org/db/china/index.html> >

M-11 missile issue during bilateral negotiations in 1991 and 1992.¹³ Chinese negotiators argued that China had agreed only to adhere to the original text of the MTCR and had not accepted the MTCR Annex or the subsequent “inherent capability” standard. This lack of consensus led to additional U.S. sanctions in August 1993 in response to Chinese transfers of M-11 missiles to Pakistan. The M-11 controversy was resolved in October 1994 when the U.S. and Chinese governments issued a joint statement on missile proliferation. Beijing agreed to ban all MTCR-class missiles “inherently capable of reaching a range of at least 300 kilometers (km) with a payload of at least 500 kilograms (kg).”¹⁴ China later made bilateral commitments to the United States not to sell nuclear reactors and missile technology to Iran, including some items such as cruise missiles and anti-ship missiles that are not covered by the MTCR.

China’s strongest bilateral commitment to missile nonproliferation came in a November 2000 statement in which the Chinese government pledged that it would not assist states in developing “ballistic missiles that can be used to deliver nuclear weapons.” Beijing promised to issue missile export control regulations and a “comprehensive” control list that would include license application and review procedures, end-user certification, and a catch-all clause.¹⁵ The Chinese statement and commitment to issue missile export controls followed several months of bilateral negotiations with U.S. government officials. However, the promised regulations and control list were delayed for almost two years.

Export Controls

A third significant development has been the introduction of domestic export control regulations (see Table 2). Beginning with the May 1994 Foreign Trade Law, the Chinese government issued a series of regulations, decrees, and circulars governing exports between 1995 and 1998 in nuclear- and chemical-related items and dual-use technology and military products, including missile-related items. In August 2002, China finally issued the long-awaited Regulations on Export Control of Missiles and Missile-related Items and Technologies and the Control List. In October 2002, Beijing issued additional regulations and control lists governing the exports of chemical and biological materials that could be used in WMD development. The Chinese government also amended its regulations governing military product exports. Taken together, these regulations

constitute a nascent export control system that covers all major categories of weapons of mass destruction.¹⁶ Table 2 summarizes the evolution of China’s export control regulations.

A SURVEY OF CHINA’S EXPORT CONTROL SYSTEM

Despite these positive developments, concerns remain over China’s ability and commitment to implement its newly issued export control regulations effectively. These concerns relate to both interpretations of export control laws and the Chinese government’s capacity to enforce its regulations. Beijing’s general approach to nonproliferation principles and practices will influence how it applies the new regulations. For example, China has acceded to most broad-based international treaties and conventions with universal membership (NPT and CWC, for example), and has for the most part complied with their norms and regulations. However, it remains critical of and has declined to join the key multilateral export-control regimes, including the Nuclear Suppliers Group (NSG), the AG, the Wassenaar Arrangement, and the MTCR. Even though the new regulations largely mirror these international standards, China’s concerns about not impeding legitimate international trade may lead to different interpretations of these standards and decisions to issue export licenses for questionable transfers.

Earlier studies by the Center for International Trade and Security (CITS) concluded that considerable gaps existed between China’s domestic export control system and the more stringent standards of existing multilateral export control regimes.¹⁷ The new export control regulations represent a major step forward, but they will not correct deficiencies in China’s export control system by themselves. The Chinese government arguably lacks the capacity to enforce fully its domestic export controls. Ambivalence about interagency policy coordination on issues ranging from license review and approval to customs inspections further compounds this problem.¹⁸ Decentralization and institutional pursuit of parochial interests encourage companies to evade regulations and even openly defy rules. Globalization and the rapid increase in Chinese exports have outstripped the government’s ability to monitor the activities of Chinese companies. The controversial 1995 sale of 5,000 ring magnets to Pakistan has often been cited as such an example, and illustrates the inadequate nature of government oversight. The problem of monitoring exports and ensuring compliance with export control regulations

TABLE 2
EVOLUTION OF CHINA'S EXPORT CONTROL SYSTEM SINCE THE 1990s

Sectors	Laws and Regulations
General	<ul style="list-style-type: none"> Foreign Trade Law, 1994
Chemical & Dual-Use	<ul style="list-style-type: none"> Regulations on Chemical Export Controls, December 1995 Supplement to the December 1995 regulations, March 1997 A ministerial circular (executive decree) on strengthening chemical export controls, August 1997 Decree No.1 of the State Petroleum and Chemical Industry Administration (regarding chemical export controls), June 1998 (Note: These regulations have expanded the coverage of China's chemical export controls to include dual-use chemicals covered by the Australia Group.) Measures on Export Control of Certain Chemicals and Related Equipment and Technologies and Certain Chemicals and Related Equipment and Technologies Export Control List, issued on October 19, 2002
Biological & Dual-Use	<ul style="list-style-type: none"> Regulations of the People's Republic of China on Export Control of Dual-Use Biological Agents and Related Equipment and Technologies and Dual-Use Biological Agents and Related Equipment and Technologies Export Control List, issued October 14, 2002
Nuclear & Dual-Use	<ul style="list-style-type: none"> Circular on Strict Implementation of China's Nuclear Export Policy, May 1997 Regulations on Nuclear Export Control, September 1997 (Note: The control list included in the 1997 regulations is identical to that used by the Nuclear Suppliers Group, to which China is not a member.) Regulations on Export Control of Dual-Use Nuclear Goods and Related Technologies, June 1998 Nuclear export control list as amended, June 28, 2001
Military & Dual-Use	<ul style="list-style-type: none"> Regulations on Export Control of Military Items, October 1997 The Procedures for the Management of Restricted Technology Export, November 1998 (Note: The new regulations cover 183 dual-use technologies, including some on the Wassenaar Arrangement's "core list" of dual-use technologies.) China's Ministry of Foreign Trade and Economics Cooperation (MOFTEC) released a Catalogue of Technologies which are Restricted or Banned in China, presumably also in late 1998 Decision of the State Council and the Central Military Commission on Amending the PRC Regulations on Control of Military Products Export, issued on October 15, 2002
Missile Systems & Components	<ul style="list-style-type: none"> Chinese government's verbal assurance of its intention to adhere to MTCR, November 1991, followed by written commitment, February 1992 U.S. and Chinese governments' joint statement on missile proliferation, October 1994; Beijing's agreement to ban all MTCR-class missiles and to the "inherent capability" principle in defining MTCR-class missile systems The Chinese government's statement in November 2000 promising for the first time to promulgate missile export control regulations and to issue a control list China's announcement of the promulgation of the Regulations on Export Control of Missiles and Missile-related Items and Technologies and the Control List, August 2002

Source: Adapted from China Profiles database compiled by the East Asia Nonproliferation Program, Center for Nonproliferation Studies.

varies across industries. Some industries, such as the nuclear industry, are relatively concentrated and under tight government control. Others, such as the chemical industry, have thousands of firms that can export chemicals and technology of proliferation concern.

Nuclear Export Controls

China's current nuclear export controls consist of three main components: (1) a May 1997 State Council circular on nuclear and nuclear-related dual-use export controls (reportedly with an interim list of nuclear items based on the Zangger Committee Trigger List); (2) the September 1997 nuclear export control regulations (with an attached control list that follows closely the NSG list on nuclear items [INFCIRC/254 Part I]; the list was adjusted in June 2001 and issued by the Commission on Science, Technology, and Industry for National Defense [COSTIND]); and (3) the June 1998 regulations covering dual-use nuclear export (with an attached control list again following closely the NSG's control list on nuclear-related dual-use items [INFCIRC/254 Part II]).¹⁹ These regulations give legal effect to China's three nuclear export principles (see below) and its May 11, 1996, pledge not to provide assistance to unsafeguarded nuclear facilities. According to the regulations, only State Council-designated entities can conduct nuclear exports.²⁰

China's nuclear export control policy has undergone three distinct phases. In the early 1980s, China began to be involved in nuclear cooperation with a number of developing countries such as Algeria, Pakistan, and Iran. This activity was driven partly by the need to generate foreign currency to purchase Western technology and assistance for the development of its civilian nuclear industry and its economy as a whole. China eventually emerged as a major nuclear supplier, offering a wide range of nuclear-related products and services.²¹ A number of China's nuclear exports to non-nuclear states caused significant proliferation concern. Particularly worrisome were reports that China had supplied a nuclear weapon design and weapons-grade nuclear materials directly to Pakistan.²²

The second phase, which began in the mid-1980s, witnessed a marked shift in China's declaratory policy concerning nuclear exports. China joined the International Atomic Energy Agency (IAEA) in 1984 and signed the NPT in 1992. During this period, Beijing repeated its official statement that it would not encourage or support any so-called threshold states in their pursuit of nuclear weapons programs. It also accepted most international rules governing nuclear exports, including IAEA safeguards for nuclear transfers (although

not the more stringent, full-scope safeguards). Since 1984, China has declared that it conducts nuclear exports according to the following three principles:

- All exports should be used exclusively for peaceful purposes.
- All exports should be subject to IAEA safeguards.²³
- No exports should be re-transferred to a third country without prior Chinese approval.

The third phase began in the second half of the 1990s when China introduced nuclear and nuclear dual-use export control regulations. Following the revelation of the 1995 Chinese sale of 5,000 ring magnets to Pakistan, the Chinese government made a significant effort to improve controls over nuclear exports. In May 1996, Beijing pledged not to provide assistance to any unsafeguarded nuclear facilities.²⁴ The following May the State Council issued a circular to government and nongovernment entities explaining what types of items could be exported:

The nuclear materials, nuclear equipment and related technology, as well as non-nuclear materials for reactors and nuclear related dual use equipment, materials and relevant technologies on China's export list must not be supplied to or used in nuclear facilities not under IAEA safeguards. No agency or company is allowed to conduct cooperation or exchange of personnel and technological data with nuclear facilities not under IAEA safeguards.²⁵

In September 1997, China issued new export control regulations,²⁶ which required State Council approval for all nuclear-related sales and prohibited the export of nuclear equipment, personnel, and technology to unsafeguarded nuclear facilities. The attached list of controlled items closely follows the NSG²⁷ Control List and was adjusted and re-issued in June 2001 by COSTIND. However, these regulations maintained China's practice of adopting only limited-scope safeguards on its nuclear exports. In October 1997, China joined the Zangger Committee. In its first statement as a full member of the committee,²⁸ China stated:

With regard to any nuclear export, the recipient government is always requested to provide to the Chinese side an assurance in writing to acknowledge the above three principles and the export can proceed only after approval by relevant Chinese authorities. In actual implementation, China has always administered nuclear export and nuclear cooperation through a management which combines laws, regulations and administrative decrees. The State Council and the competent authorities of various industries have laid down strict and specific

regulations on nuclear export and nuclear cooperation, and strictly prohibit any exchange of nuclear weapons related technology and information with other countries. Such management falls in line with China's national conditions and has proved effective in practice.²⁹

Despite joining the Zangger Committee, China does not require full-scope safeguards on the recipient's nuclear facilities as a prerequisite for nuclear exports and is not a member of the NSG. However, China has stated that it refers to the NSG control lists on nuclear and nuclear-related dual-use items (INFCIRC/254 Part I and Part II)³⁰ in its export controls.

In June 1998, the State Council passed Decree No. 245, "Regulations of the People's Republic of China on Export Control of Dual-Use Nuclear Products and Related Technologies." The promulgation of these regulations closed a major loophole in China's export control laws on nuclear items. The regulations were drawn up for the purpose of "tightening control over the export of dual-purpose nuclear goods and correlated technologies, preventing the proliferation of nuclear weapons, promoting international cooperation on the peaceful use of nuclear energy, and safeguarding national security and public interests." Although lack of full-scope safeguards is still an issue, the international community has had relatively few complaints in recent years about China's nuclear export controls.

Missiles and Missile-Related Technology

China's transfers of missiles, missile technology and components, missile production facilities and equipment, and technical training to countries in the developing world have been the most persistent and contentious proliferation issue in Sino-U.S. relations.³¹ The United States and other Western countries regard ballistic missiles as especially destabilizing weapons due to their short flight times and vulnerability to attack, which create incentives to use missiles in a first strike. Because primitive ballistic missiles are inaccurate and carry relatively small payloads, Western analysts tend to view them primarily as platforms for delivery of weapons of mass destruction. U.S. officials also worry that the proliferation of missile technology could make U.S. forces and the U.S. homeland vulnerable to attack. Chinese analysts have tended to view missiles as useful conventional weapons and have argued that they do not deserve special controls if other WMD delivery systems, such as aircraft, remain uncontrolled.³²

This difference in Chinese and U.S. perspectives has been aggravated by the fact that, unlike other forms of WMD, there are no multilateral treaties restricting the development of ballistic missiles. The principal international mechanism governing transfers of ballistic missiles and missile technology is the MTCR, which consists of guidelines and an annex specifying the technologies that MTCR members should control.³³ The MTCR is a multilateral export control regime set up in 1987 by the G-7 countries to prevent the proliferation of missiles and missile-related transfers. An informal, nontreaty arrangement of like-minded countries, the MTCR initially sought to control the transfer of technology and hardware necessary for the development of missiles capable of delivering a payload of 500 kg (1,100 pounds) or greater to a distance of at least 300 km (186 miles). In 1993, MTCR member states revised the guidelines to cover delivery systems capable of delivering all weapons of mass destruction. The MTCR now has 33 members.

China was not included in the original negotiations to establish the MTCR. As a result, China initially argued that it should not be held to MTCR restrictions because it did not take part in the MTCR's formation. These arguments were used to deflect U.S. opposition to China's Dong Feng-3 (DF-3)/CSS-2 sale to Saudi Arabia and potential missile sales to Syria, Iran, and Pakistan. China criticized the regime for being discriminatory, for failing to restrict ground-attack aircraft (which China argues are equally capable delivery systems for WMD), and for interfering in the internal affairs of sovereign countries. Liu Huaqiu, a prominent Chinese arms control researcher, argued in a November 1995 paper that "Ballistic missiles per se are not weapons of mass destruction, but rather a carrier vehicle. Likewise, fighter aircraft are also a carrier vehicle that can carry nuclear, biological, and chemical weapons....Limiting missile exports without limiting fighter plane exports is clearly a double standard."³⁴

Although not a member of the MTCR, China agreed in 1991 to abide by the regime's original 1987 Guidelines and its parameters. China clarified the nature of its adherence to the MTCR in 1994, when it agreed to completely ban the export of ground-to-ground missiles that exceeded the parameters of the MTCR. The ban went beyond the MTCR requirement of a "presumption of denial" for such exports. In addition, China accepted the concept of "inherent capability," agreeing to control missiles that "could generate sufficient energy to deliver a 500-kg payload at least 300 km, regardless of its demon-

strated or advertised combination of range and payload.” This concept aimed to prevent the export of missiles that could exceed MTCR parameters if their range and payload were adjusted. For example, at one point China argued that M-11 missile exports to Pakistan did not violate the MTCR because the advertised range and payload of the missile (290 km/800 kg) did not exceed the MTCR parameters of 300 km/500 kg.

In 1991 and 1993, the United States imposed sanctions on China for transferring M-11 missile technology to Pakistan. China labeled the sanctions groundless and threatened to scrap its promise to abide by MTCR guidelines. The impasse was broken in October 1994, when China pledged in a joint statement to ban all exports of MTCR-class missiles, while the United States agreed to lift sanctions. Although China has not exported complete ballistic missile systems since this agreement, the CIA’s biennial proliferation reports have continued to cite China as a major supplier of technology to ballistic missile programs in countries such as Pakistan, Iran, Syria, Iraq, Libya, and North Korea.³⁵ Successive U.S. administrations have sought to use inducements and sanctions to persuade China to tighten controls on exports of missile technology.

In November 2000, following several months of discussions with U.S. government officials, the Chinese Foreign Ministry issued its most stringent and specific policy statement on missile nonproliferation to date. In this statement, China promised to issue export control laws covering missile technologies and stated that the new laws would include such regulations as license application and review, end-user certifications, and a catch-all clause. China did not, however, specifically reference the MTCR or its control list, and the statement did not mention when China would issue the new export control law. It took China almost two years to issue the new regulations. In the interim, the U.S. government imposed economic sanctions in September 2001 on a Chinese company (China Metallurgical Equipment Corporation) for shipping missile technology to Pakistan.³⁶ The Bush administration also imposed a ban on new licenses for U.S. companies to launch their satellites on Chinese rockets or to transfer satellite technology to China. The new missile and missile technology export control regulations and the associated control list issued in August 2002 fulfilled China’s November 2000 pledge.

The new Chinese regulations and export control list are reasonably comprehensive and generally follow the language in the MTCR and MTCR Annex closely. The Chinese regulations adopt the MTCR’s “presumption of

denial” approach by requiring explicit approval and an export license for the export of covered systems and technologies to authorized end users. The Chinese missile regulations include a catch-all clause (Article 16) that covers the export of any missile-related items and technologies for systems “that can be used to deliver weapons of mass destruction,” even if these items or technologies are not included in the control list. There are also provisions in the regulations to amend the control list. The Chinese control list incorporates almost all of the key elements of the MTCR Annex. It is divided into Part I (covered by the Regulations of the People’s Republic of China on Administration of Arms Exports) and Part II (covered by the newly issued missile technology export control regulations). All MTCR category I (complete systems and subsystems) items are fully covered (with one partial exception). The Chinese control list also covers production facilities and equipment for MTCR Category I systems and subsystems. Part I of the Chinese list also includes some items covered by the MTCR as Category II items. Although there are some potentially significant deviations between the Chinese control list and the MTCR, for the most part the Chinese regulations closely match the guidelines in the MTCR Annex.

An analysis of the new Chinese regulations has identified a few potentially significant omissions and differences with the MTCR Annex text.³⁷ The Chinese control list might not cover the main engine for the SA-2/CSA-1 surface-to-air missile, which has been widely used in ballistic missile programs (including China’s own 8610/CSS-8 short-range missile). “Maraging steel,” high-strength steel with a number of missile applications, is not specifically included (though two principal applications of maraging steel—interstage mechanisms and rocket motor cases—are explicitly covered). The Chinese control list also omits high-acceleration gyros and accelerometers (over 100 *g*) that could potentially be used as fuses in re-entry vehicles (RVs) and in guidance sets that steer maneuvering RVs as they evade defenses or terminally guide themselves to a target. This omission may facilitate potential Chinese cooperation with Russia in developing maneuvering RVs that could evade future U.S. missile defenses.

The Chinese list includes many of the specific guidance and control technologies listed under the MTCR Annex, but does not specifically include global positioning system (GPS) receivers, which can potentially be used to improve missile accuracy (along with a host of other

commercial and military applications). The Chinese list also permits license-free exports of certain types of missile test equipment, such as range instrumentation radars, vibration test systems, wind tunnels, and X-ray devices that can be used to examine solid rocket motors.³⁸ Although the Chinese regulations and control list incorporate the MTCR's standard of 300-km range with a 500-kg payload, they do not include language in MTCR Annex Items 19 and 20 that extends the MTCR's reach to cover any rocket systems with a range equal or superior to 300 km, regardless of payload.

The new Chinese missile regulations and export control list appear to cover most of the missiles, missile components, and missile technologies that the United States has sanctioned China for transferring in the past. However, a few remaining gaps could allow license-free transfers of technologies and equipment that would be useful for countries with established indigenous ballistic missile programs.

Chemical and Biological Weapons

In the early 1990s, allegations surfaced that China transferred chemical- and biological-agent-related items to Iran, as well as Libya and Iraq. These accusations, primarily from U.S. government sources, played a role in the controversial *Yin He* incident in 1993. The *Yin He*, a Chinese cargo ship, was suspected of carrying CW agent precursors to Iran, but a search of the ship turned up nothing.³⁹ This event had a negative impact on Sino-U.S. relations. Although claims of CW-related transfers were not substantiated in this case, U.S. government sources expressed increasing concern about China's assistance to CW programs in the developing world, with particular focus on suspected assistance to Iran. A 1996 CIA report claimed that China was exporting CW-related equipment to Iran, and more allegations of support for Iran's alleged CW program surfaced between 1997 and 2001.⁴⁰

In 1997, the U.S. imposed sanctions on seven Chinese entities for reported sales of CW-related items to Iran.⁴¹ In the same year, the U.S. Department of Defense reported that "China is an important supplier of technologies and equipment for Iran's chemical warfare program. Therefore, Chinese supply policies will be key to whether Tehran attains its long-term goal of independent production for these weapons."⁴²

The Chinese government repeatedly denied the U.S. claims and considered the sanctions to be unreasonable. In response to the 1997 sanctions, an article in the government-controlled *China Daily* stated:

China stands firmly behind the [banning] and ultimate destruction of chemical weapons. It has always opposed the development of chemical weapons by any country, and has not acted to help others to develop them...the US government has increasingly resorted to economic sanctions to punish any country which dares to disobey American norms. This willful practice...has no support in international law.⁴³

This controversy occurred despite China's ratification of the CWC (which entered into force in April 1997) and a corresponding strengthening of its CW-related export controls. At the time of the U.S. sanctions, the two main components of China's chemical export controls were the December 1995 Regulations on Controlled Chemicals (with a schedule of chemicals based on the regulations and three schedules of chemicals contained in the CWC) and a March 1997 supplement, both issued in preparation for China's ratification of the CWC. In August 1997, China issued a circular that further strengthened chemical export controls.

According to China's CBW-related export control regulations, only State Council-designated entities can export Schedule 1-3 chemicals. Despite this fact, effective control of chemical exports has proved complicated. One of the most significant difficulties facing Beijing's efforts is China's large and diffuse chemical industry, which creates major challenges for implementation. In a 2001 assessment of China's export controls, the U.S. Department of Defense claimed that:

China's chemical industry has the capability to produce many chemicals, some of which have been sought by states trying to develop a chemical warfare capability. Foreign sales of such chemicals have been a source of foreign exchange for China. The Chinese government has imposed restrictions on the sale of some chemical precursors and its enforcement activities generally have yielded mixed results.⁴⁴

Although the regulations issued by China in 1995 and 1997 met the basic requirements of the CWC, China remained reluctant to include the additional CW-related items covered by the Australia Group. The U.S. pressured China to widen its control lists to include these additional items. In conjunction with the Clinton-Jiang Summit in 1998, China expanded the scope of its chemical controls to cover 10 of the 20 dual-use chemicals from AG's control list that were not included in the CWC schedules. However, gaps still existed between the AG guidelines and China's CBW-related export controls. These gaps were a source of tension in U.S.-China

bilateral relations, with the United States calling on China to follow the stricter guidelines set by the AG and Beijing insisting that it was meeting its obligations under the CWC. The United States has sanctioned Chinese companies and citizens for transfers of CW-related equipment on numerous occasions in the last few years. In 2002 alone, the U.S. government sanctioned Chinese entities three separate times. In January 2002, the United States imposed sanctions on three Chinese firms accused of supplying Iran with materials used in the manufacture of chemical and biological weapons. These sanctions were followed by similar rounds in May and July. As with earlier sanctions, Beijing reacted by reiterating that China has never violated the CWC, pointing out that the convention explicitly allows for normal trade and cooperation between State Parties in the chemical-industrial field.⁴⁵ In the Chinese view, U.S. domestic laws restricting trade based on decisions by the Australia Group or that target specific CWC State Parties such as Iran are in direct violation of the convention.⁴⁶

The new regulations and control lists covering chemical and biological agents that China issued in October 2002 fill the gaps that previously existed between China's CBW export regulations and the AG guidelines.⁴⁷ Although reports on recent sanctions have not specified the items that triggered U.S. actions, indications are that they were related to U.S. laws based on AG guidelines.⁴⁸ Since the new chemical and biological agent regulations and control lists coincide with these guidelines, the items in question would be covered by the new Chinese regulations. China has also added a catch-all clause to its new CBW-related regulations. However, it should be noted that many of the previous U.S. sanctions were also based solely on the end user—namely Iran. China's new regulations do not single out any country, and statements coming from Beijing have stressed that these export controls will not interfere with normal trade between states allowed under the CWC and BWC.

How China implements the regulations, especially the catch-all clauses and the enforcement mechanisms, will determine whether the new regulations address U.S. concerns about Chinese exports of CBW technology to Iran. Assuming that the Chinese government has the willingness to implement these new controls fully, attention will have to be paid to educating the indigenous chemical industry about the requirements of the new regulations. The new regulations increase the responsibility of Chinese chemical firms by expecting them to

be aware of whether the items sold could potentially be used in a foreign chemical weapons program. The sheer size of the Chinese chemical industry and the growing number of dual-use items will make control efforts exceedingly difficult. A recent study suggests that about 3,000 Chinese enterprises produce one or more controlled chemical items, although relatively few of these firms export these items.⁴⁹ If Beijing chooses to not treat Tehran as a proliferation risk, Chinese chemical companies would be able to continue the sale of controlled items to Iran without violating the new regulations.

LOOKING FORWARD

The new and amended regulations and control lists issued in August and October 2002 mark an important milestone in China's export control regime. Beijing finally has openly published export controls that cover all the major classes of WMD and their delivery systems. The regulations offer an opportunity for analysts to assess the compatibility of China's export controls with existing multilateral export control regimes. Our analysis suggests that the new regulations have closed most of the critical gaps in the Chinese export control regime. China's new regulations have brought Chinese export controls much closer to international standards, but a few discrepancies remain that may produce future disputes. These include a few items (especially in the area of missile technology) that are covered by existing multilateral export control regimes but that are not included on China's control lists.

Publication of the regulations is significant because Chinese industries and traders can now see the export control regulations with which they must comply. Clear regulations mean that companies can no longer use ignorance as an excuse. The Chinese government will either have to defend its decision to issue a license for a problematic export, or prosecute companies for violating regulations by exporting controlled items without an export license. The issue now rests on how the regulations are implemented. The most serious remaining discrepancy may lie in the fact that, as a country that has just started building a domestic export control system, China's resources, manpower, and leadership attention devoted to export controls remain deficient.

The University of Georgia's Center for International Trade and Security has developed criteria for assessing export control regimes.⁵⁰ An objective and

comprehensive assessment of the Chinese export control system should cover the following areas:

- Regime adherence and participation
- Legal framework development and improvement, and in particular the promulgation of open and comprehensive control lists
- Bureaucratic processes and division of labor, including interagency review procedures
- Export application, review, and approval procedures
- Enforcement, customs inspections, and punitive measures
- Prelicense checks and postshipment verification systems
- Infrastructure development, personnel training, and education.

The new regulations bring China into closer adherence with international nonproliferation export control standards, but China is still not a formal participant in key multilateral export control groups such as the AG, the MTCR, and the NSG. The publication of the regulations and their associated control lists appear to meet the criterion of "promulgation of open and comprehensive control lists." The new regulations specify which ministries are responsible for implementing different aspects of the laws and include some interagency review procedures (though not in sufficient detail to allow a full evaluation of their likely effectiveness). The regulations cover export license procedures and authorize punitive measures, but they do not provide enough detail by themselves to set up an effective licensing and enforcement system. The effectiveness of the regulations will depend on how they are implemented and on the resources the Chinese government devotes to training and enforcement.

In the past, the U.S. government has confronted the Chinese government with evidence of Chinese companies violating nonproliferation rules and has imposed sanctions accordingly. While such tactics may continue to have value, the U.S. emphasis should be refocused on helping China improve its export control system. Although some continued gaps exist in the Chinese export control system, these gaps should be addressed primarily through dialogue between the two governments on nonproliferation issues. Just as it has done in the former Soviet states, the United States should focus on helping China develop the capacity to implement its export control regulations effectively. Potential areas of assistance include personnel training, infrastructure development, control list harmonization and refine-

ment, technical advice on the interagency review process, and the establishment of a national data bank.

Shaping China's perspectives on proliferation and seeking Chinese membership in multilateral export control regimes. Supply-side control measures can only be effective if all major supplier states share broadly similar foreign policy preferences in specific issue areas. If key suppliers remain outside the export control arrangements, nonproliferation efforts will be less effective in achieving their stated objectives. The United States should encourage China to join the key multilateral export control regimes. As long as China remains outside these organizations, problems in harmonizing export control policies among key technology suppliers will continue to exist. U.S.-China dialogue on proliferation should not focus only on U.S. concerns over specific Chinese proliferation activities, but also on the potential threats that WMD proliferation can pose to China's own security. One issue regarding China's membership in multilateral export control regimes remains under debate: whether Beijing and other prospective member states need to meet existing regime standards for admission, or whether they should be admitted with the expectation that they will gradually adapt to regime standards.

The U.S. government has accumulated invaluable experience over the years in drawing Russia and the former Soviet republics into the multilateral export control regimes. These efforts have slowed the proliferation of nuclear materials and have enjoyed bipartisan support in Congress. The attention and resources devoted through intensive and sustained efforts, such as the Nunn-Lugar Initiative, have helped the newly independent states develop export control systems and prevented the former Soviet Union from becoming an international nuclear bazaar.⁵¹ Similar efforts have not been applied elsewhere because of insufficient attention, lack of interest, a dearth of resources, and (in China's case) concerns about congressional willingness to fund cooperation with the Chinese government. Limited U.S.-Japan efforts to promote export control awareness in East Asia stand as a partial exception.⁵² A global effort is necessary. Resources invested in helping China improve implementation of its new export controls would be a wise investment.

Developing a legal framework in China for export controls. Compared to the United States and other major Western countries, China's export control practice remains largely administrative rather than legalistic both in weight and execution. The large scope for

discretion in interpreting administrative rules impedes reliable enforcement and predictability. Development of a legal framework for export control would remove arbitrariness and enhance transparency, in particular for companies involved in relevant areas of trade. It could also contribute to the development of an independent judicial system that could effectively adjudicate potential violations and disputes. This objective is particularly important in order to hold accountable companies with important political connections.

Building capacity and developing infrastructure.

Capacity building is an urgent and critical task. At the moment, Chinese agencies responsible for implementing the new export controls have very few qualified personnel devoted to export control licensing review and approval procedures. For instance, the Export Control Division of the Science and Technology Department of the Ministry of Foreign Trade and Economic Cooperation (MOFTEC), the lead agency in the export control review process, has no more than ten officers conducting case-by-case license reviews. This situation is no better for chemical weapons controls, where the National CWC Implementation Office has fewer than ten people.⁵³ Training qualified personnel over the coming years will be a major challenge (and a necessary investment) if China is to implement its new regulations. Education and training of export control personnel should be a relatively uncontroversial area where concrete and immediate work can take place. This undertaking could involve seminars, workshops, and site visits to demonstrate methods for handling paperwork, shipment inspections and records, and other training. The critical need is to develop standardized operating procedures to streamline the review process and reduce unnecessary delays. The United States and Japan have held a series of export control seminars for East Asian countries; this practice should continue. In addition, the U.S. government could assist China in the development of a national data bank to store information on license applications and applicants, compliance records, and approval/rejection ratios. Companies that comply with end-use provisions and have clean records could be given preference in terms of license review, freeing enforcement resources to focus on problem companies or to tackle new developments.

Encouraging government-business cooperation on export controls. Although in the past the Chinese government could use its centralized planning system to discipline companies, economic reforms have made it

harder for the government to enforce laws. China could encourage greater government-business cooperation on export controls by supporting training workshops and developing incentives for businesses to comply with export regulations. There is a need to educate industries on the importance of compliance with existing export regulations. The U.S. experience suggests that control measures must be crafted with clearly defined scope, purpose, and enforcement measures in place, and implemented with streamlined license reviewing and granting procedures. Industry concerns over lost sales and market share due to delays in license review and approval are not unreasonable and will be increasingly important following China's accession to the World Trade Organization.

Providing technical advice on interagency coordination on export control procedures. The United States has extensive experience to share given its long history of export controls. One area deserving particular attention is the license review and approval process. Confusion over responsibility has sometimes caused the U.S. system to run less smoothly; China could learn to avoid similar mistakes. Efforts may involve interagency consultation and coordination and establishment of effective and enforceable post-shipment verification to monitor end use. In addition, there should be regular exchanges of information and intelligence among exporters and importers. China cannot rely on the goodwill of recipient states to ensure proper use; it must begin developing its own postshipment verification to track and monitor its exported dual-use items.

Some additional areas where cooperation between the United States and China might be productive include:

- Comparing the U.S. and Chinese export control systems, with an eye toward identifying common problems and "best practices" that could be adopted by both sides
- Developing benchmarks for assessing the effectiveness of Chinese export controls, including a tracking system for export licenses
- Helping China to prioritize proliferation risks and focus enforcement efforts on high-priority items
- Training in use of open-source information to evaluate potential end users (possibly in cooperation with the IAEA)
- Organizing training workshops for Chinese customs officials and border guards to improve their ability to detect smuggled nuclear materials and to identify problems with export licenses, possibly providing both training and detection equipment.

CONCLUSION

Over the past decade, China has sought to build a domestic export control system from scratch. Along with its increasing participation in international arms control and nonproliferation organizations and greater commitment to international treaty provisions, China's domestic export control regulations and decrees contribute to international efforts to stem, arrest, and prevent the proliferation of weapons of mass destruction and their delivery systems. With the release of new regulations and control lists on missile, chemical and biological exports, China now has a domestic export control system largely in line with international and multilateral practices. The Chinese government's capacity and willingness to implement and enforce its regulations will be a critical factor in determining the effectiveness of Chinese export controls.

The new and amended regulations governing missile, chemical, and biological exports represent a major step forward in Chinese nonproliferation policy, but significant challenges lie ahead in their effective implementation. By complying with the provisions of stricter export control regimes such as the AG and MTCR, Beijing is implicitly acknowledging that its own safety is enhanced by controls that go beyond the obligations in international treaties such as the CWC and NPT.

One potential future contentious issue will be the interpretation of these regulations and the way in which the Chinese government chooses to enforce them. So long as Beijing remains outside the key multilateral export control regimes, it will use different criteria to weigh effective nonproliferation export controls against promotions of what it considers to be normal, peaceful trade. The new Chinese regulations come much closer to international standards, but a few gaps remain on the Chinese control lists. Although the new regulations contain catch-all clauses, the Chinese government must be willing to use these clauses (and provisions to amend the regulations) to restrict Chinese companies from supplying goods and technologies to WMD and missile programs in other countries.

Another critical question is the Chinese government's capacity to implement effective license application, review, approval/disapproval, customs check, and postshipment end-use and end-user verification procedures. Important deficiencies appear to exist in terms of resources, personnel, and effective working procedures.

U.S. government officials have urged China to issue comprehensive export controls for the past decade. With the new regulations, China has largely addressed this con-

cern. Rather than adopting a "wait and see" attitude, the United States should encourage and assist China in efforts to implement its new export control regulations. U.S. government assistance could play a major role in improving China's capacity to turn its new regulations into an effective, functioning export control regime. This assistance would be in the interest of both China and the United States. Political obstacles have inhibited government-to-government cooperation in the past, but the post-September 11th security environment and recent improvements in bilateral relations have provided a new opportunity for the two countries to work together in fighting the proliferation of weapons of mass destruction.

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³ Liu Jieyi, "To Take Up Challenges with Strengthened Solidarity and Cooperation: A Perspective on International Non-Proliferation Prospect and China's Policy," luncheon keynote address at the Carnegie International Non-Proliferation Conference, Washington, DC, November 14, 2002, <www.fmprc.gov.cn/eng/37999.html>; Frank Ching, "China gets handle on weapons exports," *Japan Times*, October 31, 2002. <www.japantimes.co.jp/cgi-bin/geted.pl5?eo20021031fc.htm>

⁴ Mingquan Zhu, "The Evolution of China's Nuclear Nonproliferation Policy," *Nonproliferation Review* 4 (Winter 1997), pp.40-48; Wendy Frieman, "New Members of the Club: Chinese Participation in Arms Control Regimes, 1980-1995," *Nonproliferation Review* 3 (Spring-Summer 1996), pp. 15-30.

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¹⁰ For an overview, see Jing-dong Yuan, "The Evolution of China's Nonproliferation Policy since the 1990s: Progress, Problems, and Prospects," *Journal of Contemporary China* 11 (May 2002), pp. 209-233.

¹¹ Barbara Opall-Rome, "Chinese Official Urges Broader, Revised MTCR," *Defense News*, January 25, 1999, p. 1.

¹² Sha Zukang, "Next Steps," *OPCW Synthesis*, Organization for the Prohibition of Chemical Weapons, May 2000, p. 12 -13.

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